RIC CONCOURSE B LEVEL 1 WINDOW REPLACEMENT
RICHMOND INTERNATIONAL AIRPORT

ISSUE FOR BID

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RICHMOND
INTERNATIONAL AIRPORT

Gresham Smith

Gresham Smith Project Number: 45533.38

CAPITAL REGION AIRPORT COMMISSION

GENERAL CONDITIONS

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GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION,
INSTALLATION AND IMPLEMENTATION

ARTICLE 1 CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, the Conditions of the Contract (General, Supplementary, and other Conditions), the Drawings, the Specifications, the Contractor's Bid as accepted by the Owner, and all Addenda issued before, and all 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 or Change Directive, or (3) a written interpretation issued by Architect/Engineer in response to a request for information from Contractor forwarded to Architect/Engineer by Contractor pursuant to Subparagraph 2.2.8. The Contract Documents will include all Bid Documents including Addenda, Instructions to Bidders, Invitation for Bid, and the bid response with associated required submissions. Unit prices submitted with the bid will form the basis for evaluating payment resulting from the addition or deletion of work issued as a Contract Modification under the contract.

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction, Installation, and Implementation. This Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1. The Contract Documents shall not be construed to create any contractual relationship of any kind between Architect/Engineer and Contractor, but Architect/Engineer shall be entitled to the performance of obligations intended for their benefit, and to the enforcement thereof. Nothing contained in the Contract Documents shall create any contractual relationship between the Owner or Architect/Engineer and any Subcontractor or Sub-subcontractor.

1.1.3 THE WORK

The Work comprises the completed construction required by the Contract Documents including all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

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 part.

1.1.5 ARCHITECT/ENGINEER

Gresham Smith

1.2 EXECUTION, CORRELATION, AND INTENT

1.2.1 The signing by the Owner and Contractor of the Owner-Contractor Agreement and the Conditions of the Contract (General, Supplementary, and Other Conditions) shall have the same force for all the Contract Documents as if each of the Contract Documents were individually signed by both parties to the Construction Contract. If either the Owner or Contractor or both do not sign such documents, the Architect/Engineer shall identify such Documents in writing and distribute them to both Owner and Contractor.

1.2.2 By executing the Contract, Contractor warrants that it has closely inspected the site as well as the conditions of adjacent properties and has recorded to its satisfaction the physical conditions of existing properties and familiarized itself with the local conditions under which the Work is to be performed and correlated its observations with the requirements of the Contract Documents.

1.2.3 The Contract Documents intend to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by anyone shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent and reasonably inferable as necessary to produce the intended results. Words and abbreviations which have well-known technical, or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

1.2.4 The organization of the Specifications into divisions, sections, and articles, and the 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.

1.2.5 The order of precedence of the Contract Documents is as follows with the highest authority listed as "a": (a) Owner-Contractor Agreement; (b) Conditions of the Contract (FAA Mandatory Contract Provisions, FAA General Contract Provisions, Capital Region Airport Commission General Conditions, Capital Region Airport Commission Special Conditions, in descending order); (c) Specifications and Drawings; (d) Contractor's Proposal as accepted by Owner and incorporated into the Contract Documents.

1.2.6 The Specifications and Drawings shall be equal in authority and priority provided, however, in the event of a conflict between the Specifications and the Drawings, the Contractor shall at once report such conflict to Architect/Engineer and the provision requiring the greater level of service or quality or quantity of work shall prevail in accordance with this Paragraph. A duplication of work is not intended by the Contract Documents and any duplication specified shall not become a basis for extra cost to the Owner. In the event of duplications, inconsistencies, or conflicts, the appropriate method of performing the Work shall be reviewed and recommended by the Architect/Engineer and approved by the Owner.

1.2.7 When included in the Contract Documents, FAA Sections 10 through 90 and the General Conditions govern performance under all sections of the project manual.

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 All Drawings, Specifications, computations, sketches, test data, survey results, photographs, renderings, and other material related to the Work prepared by the Contractor or furnished to the Contractor by the Owner or Architect/Engineer are the property of the Owner. The Contractor shall submit to the Owner the original of all such materials upon the Owner's request, otherwise upon final completion. The Contractor shall not use any such materials or copies on any other project, nor shall the information be divulged without the Owner's prior written approval. With the exception of one contract set for each party to the Contract Documents, such documents are to be returned or suitably accounted for to the Owner at the completion of the Work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Work is not to be construed as publication in derogation of the Architect/Engineer's or Owner's common-law copyright or other reserved rights.

1.3.2 Reproduction of any portion of the Contract Documents for the Contractor’s use as submittals for Shop Drawings is not acceptable.

1.3.3 The Contractor will be furnished free of charge with 5 (five) copies of Drawings and Project Manuals. Additional sets will be furnished as an expense to the Contractor at the cost of reproduction, postage, and handling.

ARTICLE 2 ADMINISTRATION OF THE CONTRACT

2.1 DEFINITION

2.1.1 Architect/Engineer is the person lawfully licensed to practice architecture or engineering, as applicable, or an entity lawfully practicing architecture or engineering, identified as such in the Owner-Contractor Agreement. The term Architect/Engineer means the Architect/Engineer or the Architect/Engineer's authorized representative.

2.2 ADMINISTRATION OF THE CONTRACT

2.2.1 Architect/Engineer shall provide administration of the Contract as hereinafter described. However, the Architect/Engineer shall not have authority, without first consulting with and obtaining the approval of the Owner, to (a) order a material change in the Plans, Drawings, or Specifications, or (b) take any action or approve any change which increases the cost of the Project or the time of performance of the Work.

2.2.2 Architect/Engineer shall be the representative of the Owner during the Work and shall advise and consult with the Owner. Architect/Engineer shall have authority to act on behalf of Owner only to the extent provided in the Contract Documents and the Owner/Architect/Engineer Agreements, respectively, unless otherwise modified by written instrument in accordance with Subparagraph 2.2.20. In the performance of any services by the Architect/Engineer, including any services as a representative of the Owner, the Architect/Engineer acts as an independent Contractor and not as an agent of the Owner, and the Owner's participation in the design and construction of the Project in no way relieves Architect/Engineer or Contractor of its professional duties and responsibilities under applicable law and the Contract Documents.

2.2.3 Architect/Engineer shall visit the site at intervals appropriate to the stage of the Work, or as otherwise agreed by the Architect/Engineer and Owner in writing, to familiarize itself with the progress and quality of the Work and to determine if the Work is proceeding in accordance with the Contract Documents. Architect/Engineer shall conduct meetings with the Contractor weekly during installation and monthly at all other times or as necessary and as requested by the Owner. The Architect/Engineer shall attend meetings regularly to review work done, planning, and resolution of any questions or issues that may arise concerning the work. At such meetings, the Architect/Engineer shall be responsible for preparing detailed minutes of the meeting and distributing the minutes to the Owner, Contractor, Architect/Engineer, and any other parties attending such meeting. The Architect/Engineer shall observe the Work of the Contractor to ensure that the Project is constructed in accordance with the Contract Documents and to determine the adequacy of personnel and equipment and the availability of materials and supplies to meet the approved completion schedule. Based on its observations, the Architect/Engineer shall keep the Owner informed of the progress and quality of the Work. The Architect/Engineer shall consult with the Owner when the requirements of the Contract Documents are not being met and shall recommend a course of action to the Owner when the requirements of the Contract Documents are not being met. The performance of such observations by the Architect/Engineer, however, shall not relieve the Contractor of its responsibility to perform all work in accordance with the Contract Documents.

2.2.4 Architect/Engineer shall not be responsible for or have control or charge of (a) construction, installation, or implementation means, methods, techniques, sequences, or procedures, (b) safety precautions and programs in connection with the Work, or (c) the acts or omissions of Contractor, Subcontractors, Sub-subcontractors or any of their agents or employees, or any other persons performing any of the Work.

2.2.5 Architect/Engineer shall always have access to the Work wherever it is in preparation and progress, except where prohibited by law. The Contractor shall provide facilities for such access so the Architect/Engineer may perform its function under the Contract Documents.

2.2.6 Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Contractor shall always communicate with the Owner through the Architect/Engineer. Communications by and with the Architect/Engineer's consultants shall be forwarded from the Architect/Engineer to the Owner. Communications by and with Subcontractors and material suppliers shall be forwarded by the Contractor to the Architect/Engineer for the Owner. Notwithstanding anything to the contrary herein, the Owner shall at all times have the right, at its sole discretion, to communicate directly with the Contractor, Architect/Engineer, and any other Contractor.

2.2.7 Contractor's Application for Payment shall be forwarded to the Architect/Engineer. The Architect/Engineer shall promptly certify the amounts due on such Applications and forward them to the Owner. After receipt of the Contractor's Application for Payment from the Contractor, Architect/Engineer shall either (i) issue a Recommendation for Payment with a copy to the Contractor, for such amount as Architect/Engineer determines is properly due and recommends that the Owner pay; or (ii) notify Contractor in writing its reasons for withholding a Certificate as provided in Subparagraph 9.4.1. The certification of an Application for Payment and Recommendation for Payment by Architect/Engineer shall constitute representation by Architect/Engineer to Owner, based on observations at the site and on the data comprising the Contractor's Application for Payment, that the Work has progressed to the point indicated; that, to the best of its knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, and the results of any specific qualifications stated in the Certificate for Payment); and that Contractor is entitled to payment in the amount certified. However, the certification of an Application for Payment and Recommendation for Payment by the Architect/Engineer shall not be a representation that the Architect/Engineer has made any examination to ascertain how and for what purpose the Contractor has used the money paid on account of the Contract Sum.

2.2.8 Architect/Engineer shall render interpretations necessary for the proper execution or progress of the Work within the agreed time limits upon written request from Owner. Upon receipt of a Request for Information Form from Contractor, Architect/Engineer shall promptly pursue a response to same and shall deliver same to Contractor. In the event the Request for Information is critical, the Architect/Engineer shall immediately pursue a response to same by telephone, facsimile, or e-mail with written confirmation by facsimile or e-mail.

2.2.9 Interpretations of the Architect/Engineer shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in written or graphic form.

2.2.10 Architect/Engineer's interpretations on matters relating to the artistic effect shall be final if consistent with the intent of the Contract Documents, subject to approval by the Owner.

2.2.11 Claims, disputes, and other matters in question between Contractor and Owner relating to the execution or progress of the Work or the interpretation of the Contract Documents shall be referred initially to Architect/Engineer for a decision which it shall render in writing within a reasonable time. The Architect/Engineer shall immediately notify the Owner of any claim, dispute, or other matter in question that may affect the Contractor’s performance, Contract Time, or Contract Sum.

2.2.12 Architect/Engineer shall have the authority to reject Work that does not conform to the Contract Documents and to require special inspection or testing but shall take such action only after consultation with the Owner. Architect/Engineer shall have the authority to require additional inspection or testing of the Work in accordance with Subparagraph 7.7.2, whether such Work is fabricated, installed, or completed when it determines that such is necessary or advisable for

implementation of the Contract Documents. Architect/Engineer's authority under this Subparagraph or a good faith decision made by Architect/Engineer to exercise such authority shall not give rise to duty or responsibility of the Architect/Engineer to Contractor, Subcontractor, material and equipment suppliers, their agents or employees, or other persons performing the Work.

2.2.13 Contractor shall review and approve all the Contractor's and Subcontractor's submittals such as Shop Drawings, Product Data, and samples before submittal to the Architect/Engineer. The Contractor shall forward all such submittals to the Architect/Engineer for review and approval. The Architect/Engineer's actions shall be taken with such reasonable promptness as to cause no delay in the Work of the Contractor or activities of the Owner.

2.2.14 Upon receipt of submittal data from Contractor, Architect/Engineer shall review and approve, or take other appropriate action upon, Contractor's submittals such as Shop Drawings, Product Data, and Samples and shall return same to Contractor. Architect/Engineer's action shall be taken with reasonable promptness to cause no delay and, in any event, within seventeen (17) calendar days. Architect/Engineer's approval of a specific item in Contractor's submittals such as Shop Drawings, Product Data, and Samples shall not indicate approval of an assembly of which the item is a component.

2.2.15 Architect/Engineer shall prepare Change Orders for the Owner's approval and execution in accordance with the Contract Documents. The Architect/Engineer shall indicate approval of Change Orders and Change Directives after consultation with the Owner.

2.2.16 Architect/Engineer shall assist the Owner in conducting observations to determine the dates of Substantial Completion and Final Completion. Architect/Engineer shall receive and forward to Owner for Owner's review written warranties and related documents required by the Contract Documents and assembled by Contractor and shall issue a final Recommendation for Payment.

2.2.17 Architect/Engineer shall maintain, and shall give Owner access to, such records and correspondence with respect to the completion of the Project as is reasonably required by Owner and shall maintain schedules of the percentage of construction work done as an appropriate check for verification of requisitions for payment submitted by Contractor. The Architect/Engineer shall also review and make recommendations to the Owner with respect to any request for extensions of time to complete all or any part of the Project when the Contractor submits such requests.

2.2.18 At the request of the Owner, the Architect/Engineer shall review all cost-saving proposals submitted by the Contractor for their cost-saving value and consistency with the Contract Documents and shall forward the results of its review to the Owner for approval. Following the Owner's approval, the Architect/Engineer shall prepare a Change Order and the Architect/Engineer shall make such revisions to the Drawings and Specifications as necessary to incorporate cost savings proposals of the Contractor, which are acceptable to the Owner and Architect/Engineer. Architect/Engineer shall approve all cost-savings proposals which are acceptable to the Owner and consistent with the intent of the Contract Documents. Architect/Engineer shall make all additions and revisions to the record drawings as required by the Owner, the Federal Aviation Administration ("FAA"), and the Virginia Department of Aviation ("DOAV") and shall provide to each Owner, and where applicable, FAA and DOAV, one reproducible record set of Contract Documents on paper and one reproducible record set of Contract Documents in a computer-aided format acceptable to Owner.

2.2.19 Contractor shall prepare a progress schedule for the Work for review by the Architect/Engineer and approval by the Owner ("Project Schedule"). Architect/Engineer shall work closely with the Contractor to confirm that the Contractor's CPM Construction Schedule conforms to the Work Schedule throughout the Work.

2.2.20 The extent of the duties, responsibilities, and limitations of authority of the Architect/Engineer during construction as set forth above and elsewhere in the Contract Documents shall not be modified or extended without the written consent of the Owner and Architect/Engineer, respectively.

2.2.21 In case of the termination of the employment of the Architect/Engineer, the Owner shall appoint another Architect/Engineer whose status under the Contract Documents shall be that of the former Architect/Engineer.

2.2.22 Inspectors employed by the Owner or Architect/Engineer shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as a foreman for the Contractor.

2.2.23 Inspectors employed by the Owner or Architect/Engineer are authorized to notify the Contractor or his/her representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Architect/Engineer for his/her decision.

ARTICLE 3 OWNER

3.1 DEFINITION

3.1.1 Owner is the entity identified as such in the Owner-Contractor Agreement. The term "Owner" means Owner or its authorized representative.

3.2 INFORMATION AND SERVICES REQUIRED BY OWNER

3.2.1 Owner shall provide access to any existing drawings and surveys noting physical aspects of the property in its possession, at the Contractor's request, without warranty or representation of any kind.

3.2.2 Except as provided in Subparagraph 4.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments, and charges required for the construction, use, or occupancy of permanent structures or permanent changes in existing facilities.

3.2.3 Owner shall forward all instructions to the Contractor through the Architect/Engineer.

3.3 OWNER'S RIGHT TO STOP THE WORK

3.3.1 If Contractor fails to correct defective Work as required by Paragraph 13.2 or fails to carry out the Work in accordance with the Contract Documents, Owner, by a written order signed personally or by an agent or representative specifically so empowered by Owner in writing, may order Contractor to stop the Work or any portion thereof, effective immediately, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor or any other person or entity.

3.4 OWNER'S RIGHT TO CARRY OUT THE WORK

3.4.1 If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within seven (7) days after receipt of written notice from Owner to commence and continue correction of such default or neglect with diligence and promptness, Owner may, after seven (7) days following receipt by Contractor of such notice and without prejudice to any other remedy it may have, make good such deficiencies. In such case an appropriate Change Order or Change Directive shall be issued deducting from the payments then or thereafter due Contractor the cost of correcting such deficiencies, including compensation for Architect/Engineer's additional services

made necessary by such default, neglect, or failure and Owner's consequential damages. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to Owner together with interest thereon at the statutory interest rate.

3.5 OWNERS RIGHT TO SUSPEND THE WORK

3.5.1 The Owner may at any time and without cause suspend the Work or any portion thereof for not more than 90 (ninety) days by notice in writing to the General Contractor and the Architect/Engineer, which shall fix the date on which Work shall be resumed. The Contractor shall resume the Work on the date so fixed. The Contractor may be allowed an adjustment in the Contract price or an extension of Contract Time, or both, directly attributable to any suspension if he makes a claim therefore as provided by Article 8.3.2.

ARTICLE 4 CONTRACTOR

4.1 DEFINITION

4.1.1 Contractor is the entity identified as such in the Owner-Contractor Agreement. The term "Contractor" means Contractor or its authorized representative.

4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 Contractor shall carefully study and compare the Contract Documents and shall at once report to the Architect/Engineer any error, inconsistency, or omission it may discover. The Contractor shall be liable to the Owner and Architect/Engineer for any damage resulting from any errors, inconsistencies, or omissions in the Contract Documents if it knew or, based on generally accepted standards of the industry for this type of Work, should have known of such errors and failed to notify Architect/Engineer; including issues that would be evident during walkthrough observations and assessments made by Contractor before Bid.

4.2.2 Contractor shall perform no portion of the Work at any time without complying with the Contract Documents or, where required, approved Shop Drawings, Product Data, or Samples for such portion of the Work.

4.2.3 Should the Contractor discover any conflict, omission, or error in the Contract Documents or require an interpretation or clarification of the Contract Documents, the Contractor shall immediately submit a completed Request for Information Form to the Architect/Engineer, in the form prescribed by the Architect/Engineer. The Contractor shall be responsible for ascertaining correct dimensions, and the Contractor is not to ascertain dimensions simply by scaling the drawings. In case of a discrepancy between Drawings and Specifications, the Contractor shall consult the Architect/Engineer promptly for an interpretation before proceeding with the work.

4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 Contractor shall supervise and direct the Work, using its best skill and attention. The Contractor shall be solely responsible for all construction, installation, and implementation means methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract. The Contractor shall review any specified construction or installation procedure, including those recommended by manufacturers, and shall advise the Architect/Engineer:

1. If the specified procedure deviates from good construction practice.
2. If following the procedure will affect any warranties, including the Contractor’s general warranty.

3. Of any objections, the Contractor may have to the procedure.

4. If the Contractor proposed any alternative procedure which the Contractor is willing to warrant.

4.3.2 Contractor shall be responsible to Owner for the acts, errors, and omissions of its employees, Subcontractors, Sub-subcontractors and their agents and employees, and all other persons performing any of the Work under a contract with Contractor and shall fully indemnify, defend, and save harmless Owner, its commissioners, agents, employees and assigns from all claims by third parties which may arise on account of services rendered by Contractor's employees, Subcontractors, Sub-subcontractors and their agents and employees and all other persons performing any of the Work under a contract with Contractor.

4.3.3 Contractor shall not be relieved from its obligations to perform the Work in accordance with the Contract Documents by the activities or duties of Architect/Engineer in its administration of the Contract, or by inspections, tests, or approvals required or performed under Paragraph 7.7 by persons other than Contractor.

4.3.4 Contractor shall report to the Owner through the Architect/Engineer.

4.4 LABOR AND MATERIALS

4.4.1 Unless otherwise expressly provided in the Contract Documents, the Contractor shall provide and pay for all 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, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

4.4.2 Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ in the Work any unfit person or anyone not skilled in the task assigned to it. The Contractor shall immediately remove from the Work any of its employees or employees of a Subcontractor when directed to do so by the Owner.

4.4.3 Alternative Products:

1. When a material, equipment, or system is specified by the name of a manufacturer, such material, equipment, or system shall form the basis of the Contract.

2. If the Contractor desires to submit an Alternative Product for evaluation, he shall do so in accordance with FAA Section 60.

4.4.4 General Contractor’s Financial Interests:

The Contractor shall disclose the existence and extent of any financial interest, whether direct or indirect, he has in the Subcontractor or Material Suppliers which he may propose for this Project.

4.5 WARRANTY

4.5.1 Contractor warrants to Owner and Architect/Engineer that all materials and equipment furnished under this Contract shall be new unless otherwise specified and shall comply strictly with Architect/Engineer's specifications and that all Work shall be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Architect/Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Paragraph 13.2.

4.6 TAXES

4.6.1 Contractor shall pay all sales, consumer, use, and other similar taxes for the Work or portions thereof provided by Contractor which is legally enacted at the time bids are received, whether or not yet effective. Before Final Payment, the Contractor shall submit an affidavit to the Architect/Engineer that all sales, consumer, and use taxes have been paid.

4.7 PERMITS, FEES, AND NOTICES

4.7.1 Contractor shall secure and pay for the General Building permit. The Contractor shall secure and pay for all trade permits including but not limited to governmental fees, licenses, and inspections necessary for the proper execution and completion of the Work. The Contractor shall submit copies of all permits, fees, licenses, and inspections to the Architect/Engineer within twenty-four (24) hours of obtaining the same.

4.7.2 Contractor shall give all notices a. comply with all laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the performance of the Work.

4.7.3 It is not the responsibility of the Contractor to make certain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations, said responsibility being that of the Architect/Engineer. If the Contractor observes that any of the Contract Documents are at variance in any respect, it shall promptly notify the Owner and Architect/Engineer in writing, and any necessary changes shall be accomplished by appropriate Contract Modification.

4.7.4 If Contractor performs any Work knowing it to be contrary to such laws, statutes, ordinances, building codes, rules, and regulations, and without such notice to Owner and Architect/Engineer, it shall assume full responsibility therefore and shall bear all costs attributable thereto.

4.8 SUPERINTENDENT & PROJECT MANAGER

4.8.1 Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Worksite during the progress of the Work. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be confirmed on written request in each case. All communications from or decisions by the superintendent shall be binding as the act of the Contractor.

4.8.2 The Superintendent and Project Manager shall at all times be acceptable to the Owner and Architect/Engineer and shall be employed in connection with the work from the commencement to Final Completion unless otherwise specified by the Architect/Engineer or Owner.

4.8.3 Before the execution of the contract, the Contractor shall provide a listing of the Contractors' Key Staff, including the Superintendent, who shall be committed to the Project time. The Contractor represents and warrants that it shall commit such personnel, in terms of expertise and number, to fulfill its obligations and duties under this contract.

4.9 PROGRESS SCHEDULES

4.9.1 Contractor shall submit a preliminary Construction schedule in calendar days for the Work with its bid. The Contractor shall submit a detailed Critical Path Method (CPM) Construction Schedule in calendar days for the work for approval within (20) twenty calendar days from the date of award, or by the date of the Preconstruction Conference, whichever occurs first. The CPM Construction Schedule shall provide for the duration and sequence of each item of work and function to be performed, including a review of Shop Drawings, and shall be updated monthly. Acceptance of the CPM Construction Schedule is mandatory for the issuance of the Notice to Proceed. All schedules

shall be prepared utilizing the latest Windows-based Primavera P6 software or scheduling software acceptable to the Architect/Engineer. Complete electronic files of schedules and monthly updates prepared for this project shall be furnished to the Architect/Engineer for review.

4.9.2 Contractor's CPM Construction Schedule shall provide for the most expeditious and practicable execution of the Work. In preparing the Contractor's CPM Construction Schedule, the Contractor shall perform a Constructability Study to ensure that the Work shall be constructed most expeditiously and economically.

4.9.3 Contractor shall submit to the Architect/Engineer a monthly status report ("Monthly Status Report") with each monthly application for payment. The Monthly Status Report shall summarize the work performed during the preceding month, and shall set forth the milestones achieved, and shall be submitted in a format acceptable to the Architect/Engineer. Specific CPM Milestones are required and will show the latest deadline for the following:

1. The submission of shop drawings for each trade.
2. The approval of shop drawings for each trade.
3. The starting and completion dates of shop fabrication.
4. The ordering and delivery of major critical, all long lead items or equipment or time-sensitive components or custom finish items to the Project Site.

4.9.4 If the Contractor fails to submit a detailed CPM Construction schedule before the Notice to Proceed as outlined in Subparagraph 4.9.1, the Architect/Engineer, with the Owner's approval, may withhold the Contractor's first monthly progress payment or any portion thereof. If the Contractor fails to submit updated schedules or reports as required, the Architect/Engineer, with the Owner's approval, may at any time withhold the Contractor's progress payment or any portion thereof. Upon submission of the updated schedule or report, amounts withheld shall be released and paid to the Contractor. The Contractor shall submit at the beginning of each week a detailed CPM progress update schedule that includes a two (2) week look-ahead calendar day timeline to the Architect/Engineer. The weekly progress update shall identify certain items such as historical timelines, schedule slippage, delayed or deferred work, the current status of critical items noted in 4.9.3, and all currently planned work activities including relevant Owner's activities interfacing with the Project.

4.9.5 Contractor represents and warrants that it is familiar with the Project, including the present improvements at the Project site, and that the Contractor shall phase the Work to avoid any interruption to airline services or airport operations except as specifically set forth below. If the Work may require the Contractor to interfere with or interrupt airline services or airport operations in any manner whatsoever, the Contractor shall make a written request to the Architect/Engineer for the Owner's approval of such interference or interruption no less than seventy-two (72) hours before such proposed interruption or interference or, in the case of any proposed closure of a runway, with no less than forty (40) days written notice. In no event whatsoever shall the Contractor take any action, which would prevent or impede the timely delivery of airline services or the conduct of airport operations except as expressly authorized by the Owner. If as a result of any act, error, or omission by the Contractor, airline services are impeded, prevented, or delayed, or the Owner's operations are materially impeded in any other way, then the Contractor shall be liable for all damages of every kind or nature suffered or incurred by Owner as a result of such act, error, or omission.

4.10 DOCUMENTS AND SAMPLES AT THE SITE

4.10.1 Contractor shall maintain at the site for Architect/Engineer and Owner one (1) record set of all Drawings, Specifications, Addenda, Change Orders, Change Directives, and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data, and Samples. These shall be available to the Owner and

Architect/Engineer and shall be delivered to the Architect/Engineer for the Owner upon completion of the Work.

4.11 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

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

4.11.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

4.11.3 Samples are physical examples, which illustrate materials, equipment, or workmanship and establish standards by which the Work shall be judged.

4.11.4 Contractor shall prepare, review, approve, and submit to Architect/Engineer with reasonable promptness and in such sequence as to cause no delay in the Work or the work of Owner, Architect/Engineer or any separate Contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents. The Contractor shall submit all Shop Drawings, Product Data, and Samples in a format approved by the Architect/Engineer.

4.11.5 By preparing, reviewing, approving, and submitting Shop Drawings, Product Data, and Samples, the Contractor represents that it has determined and verified all materials, field measurements, and field construction criteria related thereto or shall do so with reasonable promptness and that it has checked and coordinated the information contained within such submittals with the requirements of the Work, the Project, and the Contract Documents.

4.11.6 Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by Architect/Engineer's approval of Shop Drawings, Product Data, or Samples unless Contractor has specifically informed Architect/Engineer in writing of such deviation at the time of submission and Architect/Engineer has recommended to Owner and approved in writing the specific deviation and Owner has agreed to such deviation in writing. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Architect/Engineer's approval thereof.

4.11.7 Contractor shall direct specific attention, in writing or by noting on resubmitted Shop Drawings, Product Data, or Samples, to revisions other than those requested by Architect/Engineer on previous submittals.

4.11.8 No portion of the Work requiring submission of a Shop Drawing, Product Data, or Sample shall be commenced until the submittal has been approved by the Architect/Engineer as provided in Subparagraphs 2.2.13 and 2.2.14. All such portions of the Work shall be in accordance with approved submittals.

4.12 USE OF SITE

4.12.1 Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner, and shall not unreasonably encumber the site with any materials or equipment.

4.12.2 Contractor shall obtain the approval of the Owner before using any portion of the site.

4.13 CUTTING AND PATCHING OF WORK

4.13.1 Contractor shall be responsible for all cutting, fitting, or patching that may be required to complete

the Work or to make its several parts fit together properly.

4.13.2 Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate Contractors by cutting, patching, or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate Contractor except with the written consent of the Owner and such separate Contractor. The Contractor shall not unreasonably withhold from the Owner or any separate Contractor its consent to cutting or otherwise altering the Work.

4.14 CLEANING UP

4.14.1 Contractor always shall keep the premises free from accumulation of waste materials or rubbish caused by its operations. In the event the Contractor's waste materials interfere with the Owner or Owner's operations at any time, the Contractor shall remove such waste materials and rubbish daily. At the completion of the Work, it shall remove all waste materials and rubbish from and about the Project as well as all its tools, construction equipment, machinery, and surplus materials.

4.14.2 If Contractor fails to clean up at the completion of the Work, Owner may do so as provided in Paragraph 3.4, and the cost thereof shall be charged to Contractor.

4.15 COMMUNICATIONS

4.15.1 Contractor shall forward all communications to the Owner through the Architect/Engineer.

4.16 ROYALTIES AND PATENTS

4.16.1 Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and shall indemnify, defend, and save Owner harmless from loss or expense on account thereof, except that Contractor shall not be responsible for such loss or expense when a particular design, process, or the product of a particular manufacturer or manufacturers is specified, but if Contractor has reason to believe that the design, process or product specified is an infringement of a patent, it shall be responsible for such loss unless it promptly gives such information to Architect/Engineer.

4.17 INDEMNIFICATION

4.17.1 Contractor shall hold harmless, indemnify, and defend Owner and Architect/Engineer, their commissioners, officers, agents, and employees from all liability, claims, losses, or damages including legal fees, costs of litigation, and any judgment arising out of or alleged to arise from Contractor's errors, omissions, negligence, or breach of this Agreement in the performance of the Work. This indemnification obligation shall apply to all liabilities, claims, losses, and damages including legal fees, costs of litigation, and any judgments that are caused in whole or in part by the errors, omissions, negligence, or breach of Contractor, its Subcontractors, Sub-subcontractors, anyone directly or indirectly employed by either or anyone for whose acts either may be liable, regardless of whether or not they are caused in part by a party indemnified hereunder. The indemnification obligation in this Paragraph shall not be limited by a limitation on the amount or type of damage, compensation, or benefits payable by or for the Contractor, Contractor's Subcontractors or Sub-subcontractors, or anyone directly or indirectly employed by any of them under worker's or workmen's compensation acts, disability benefit acts or other employees benefit acts.

4.18 THIRD-PARTY BENEFICIARY

4.18.1 No person or entity shall be deemed to be a third-party beneficiary of any provisions of the Contract, nor shall any provisions thereof be interpreted to create a right of action or otherwise permit anyone not a signatory party to the Contract to maintain an action for personal injury or property damage.

ARTICLE 5 SUBCONTRACTORS

5.1 DEFINITION

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform any of the Work at the site. Add material and equipment suppliers whenever a reference to Subcontractors is intended to also apply to suppliers. Wherever relevant, the term "Subcontractor" shall also include a person or entity who supplies material or equipment for the Project.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform any of the Work at the site.

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

5.2.1 Contractor shall furnish with bid submission, the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) and the services to be provided by such persons or entities proposed for each of the principal portions of the Work and the value thereof. Architect/Engineer shall promptly consult with Owner and promptly reply to Contractor in writing stating whether or not Owner, after due investigation, has reasonable objection to any such proposed person or entity.

5.2.2 Contractor shall not contract with any such proposed person or entity to whom Owner has made reasonable objection under the provisions of Subparagraph 5.2.1. The Contractor shall not be required to contract with anyone to whom it has a reasonable objection.

5.2.3 If the Owner has reasonable objection to any such proposed person or entity, the Contractor shall submit a substitute to whom the Owner has no reasonable objection.

5.2.4 Contractor shall make no substitution for any Subcontractor, person, or entity previously selected if Owner makes a reasonable objection to such substitution.

5.3 SUB-CONTRACTUAL RELATIONS

5.3.1 By an appropriate agreement written where legally required for validity, Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to Contractor by the terms of the Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor, by the Contract Documents, assumes toward Owner and Architect/Engineer. Said agreement shall preserve and protect the rights of Owner and Architect/Engineer under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof shall not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefits of all rights, remedies, and redress against Contractor that Contractor, by these Documents, has against Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with its Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, before the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor shall be bound by this Paragraph 5.3 and identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to its Sub-subcontractors. All subcontracts shall contain a provision, approved by the Owner, providing for the assignment of all subcontracts to the Owner. In the event the Contractor is terminated for any reason, the Contractor agrees to assign all subcontracts to the Owner, upon request. When requested by the Owner or Architect/Engineer, the Contractor shall provide to the Owner copies of the contracts between the Contractor and any Subcontractor or Sub-subcontractor outlining the services to be performed and the charges for same.

5.4 RESPONSIBILITY FOR PURCHASE ORDERS AND SUBCONTRACTS

5.4.1 All materials, supplies, and equipment wherever located when paid for by the Owner shall automatically become the absolute property of the Owner. The Contractor, any Subcontractor, and any Sub-subcontractor shall deliver to the Owner appropriate bills of sale. All such materials, supplies, and equipment shall be free of liens and encumbrances. Subcontracts entered into by Contractor pursuant to this Contract shall be let by Contractor as an independent Contractor, and Contractor shall be responsible for work performed pursuant to such subcontracts as if such work were performed by Contractor with its forces.

ARTICLE 6 WORK BY OWNER OR BY SEPARATE CONTRACTORS

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

6.1.1 Owner reserves the right to perform the Work with its forces, and to award separate contracts in connection with other portions of the Project or other work on the site under these or similar Conditions of the Contract. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, it shall make such a claim as provided elsewhere in the Contract Documents.

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

6.1.3 Owner shall provide for the coordination of the work of its forces and of each separate Contractor with the Work of the Contractor, who shall cooperate therewith as provided in Paragraph 6.2.

6.2 MUTUAL RESPONSIBILITY

6.2.1 Contractor shall afford Owner and separate Contractors a reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work and shall connect and coordinate Contractor's Work with theirs as required by the Contract Documents.

6.2.2 If any part of Contractor's Work depends for proper execution or results upon the work of Owner or any separate Contractor, Contractor shall, before proceeding with the Work, promptly report to Architect/Engineer any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of Contractor to report shall constitute an acceptance of Owner's or separate Contractors' work as fit and proper to receive Contractor's Work, except as to defects which may subsequently become apparent in such work by others.

6.2.3 Any costs caused by defective or ill-timed work shall be borne by the party responsible, therefore.

6.2.4 Should the Contractor wrongfully cause damage to the work or property of the Owner, or to other work on the site, the Contractor shall promptly remedy such damages as provided in Subparagraph 10.2.5.

6.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate Contractor, the Contractor shall upon due notice promptly attempt to settle with such other Contractor by agreement, or otherwise to resolve the dispute. If such a separate Contractor initiates litigation or arbitration proceedings against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor who shall defend such proceedings at Contractor's expense, if requested by Owner, and if any judgment or award against Owner arises therefrom Contractor shall pay or satisfy it and shall reimburse Owner for all attorneys' fees and

court or arbitration costs which Owner has incurred.

6.2.6 During the progress of the Work, it may be necessary for employees of the Owner, its affiliates, or others to work on or about the Project. The owner reserves the right to afford such access to such employees or others as it deems necessary. The Contractor shall not impede or interfere with the ongoing business operations of the Owner, its affiliates, or others at the site of the Work and shall coordinate the Contractor's sequence and scheduling with the Owner's operations and airline services to prevent any unauthorized disruption of or interference with, airline services or airport operations as provided in Subparagraph 4.9.5.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises between the Contractor and separate Contractors as to their responsibility for cleaning up as required by Paragraph 4.14, the Owner may clean up and charge the cost thereof to those responsible as the Owner determines to be just.

ARTICLE 7 MISCELLANEOUS PROVISIONS

7.1 SUCCESSORS AND ASSIGNS

7.1.1 Owner and Contractor each bind itself, its partners, successors, assigns, and legal representatives to the other party hereto and the partners, successors, assigns, and legal representatives of such other party with respect to all covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any money due or to become due to it hereunder, without the previous written consent of the Owner.

7.2 WRITTEN NOTICE

7.2.1 Written notice shall be deemed to have been duly served if delivered in person or sent by registered or certified mail to the appropriate officer at the last business address of the intended recipient known to the entity giving the notice.

7.3 CLAIMS FOR DAMAGES

7.3.1 Should either party to the Contract suffer injury or damage because of any act or omission of the other party or any of its employees, agents, or others for whose acts it is legally liable, the claim shall be made in writing to such other party as required by the Contract Documents after the first observance of such injury or damage.

7.4 RIGHTS AND REMEDIES

7.4.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by law.

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

7.5 TESTS

7.5.1 If the Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested, or approved Contractor, shall arrange for such inspections, tests, or approvals with a testing agency employed by the Owner or with the appropriate public authority and shall give Owner and Architect/Engineer notice no less than seventy-two (72) hours in advance of its readiness so Owner and Architect/Engineer may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests, or approvals.

7.5.2 If the Architect/Engineer determines that any Work requires special inspection, acceptance, or another testing, or approval which Subparagraph 7.5.1 does not include, it shall, upon written authorization from the Owner, order such special inspection, testing, or approval. If such special inspection or testing reveals a failure of the Work to comply with the requirements of the Contract Documents, the Contractor shall bear all costs thereof, including compensation for Architect/Engineer's additional services made necessary by such failure; otherwise, Owner shall bear such costs, and an appropriate Contract Modification shall be issued.

7.5.3 Required certificates of inspection, testing, or approval shall be secured by the Contractor and promptly delivered to the Architect/Engineer. Architect/Engineer shall maintain a record of all tests, inspections, and approvals. The Contractor shall likewise submit to the Architect/Engineer the results of all testing, certification, and approvals that are required of it in the Contract Documents.

7.5.4 If the Architect/Engineer is to observe the inspections, tests, or approvals required by the Contract Documents, they shall do so promptly and, where practicable, at the source of supply.

7.6 LIMITATIONS PERIOD

7.6.1 The statute of limitations for purposes of bringing any action, suit, or proceeding relating in any way to the Contract Documents shall not accrue hereunder until the date on which the Architect/ Engineer certifies the Final Completion of the Project.

7.7 DISPUTE RESOLUTION

7.7.1 If the parties are unable to resolve their differences through negotiation, such differences shall be resolved through litigation, unless otherwise agreed by all parties involved.

7.7.2 Unless otherwise agreed in writing, the Contractor shall carry on the Work and maintain its progress during any litigation or dispute resolution, and the Owner shall continue to make payments to the Contractor in accordance with the Contract Documents.

7.8 MECHANIC'S LIENS

7.8.1 If at any time any notices of lien are filed for labor performed or materials or equipment furnished or delivered to or for the Work, Contractor shall, within ten (10) days of the date of the filing of such notice of lien, discharge, remove or bond off such lien or claim of lien to Owner's satisfaction. Until such discharge or removal, the Owner shall have the right to retain from any money payable hereunder an amount which, in its reasonable judgment, it deems appropriate to satisfy such liens and pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce the same or incurred in connection therewith or by reason thereof. In addition, the Contractor agrees that it shall not file any lien for labor performed or materials or equipment furnished or delivered to the Work.

7.8.2 If at any time there is any evidence of any claims for which the Contractor is or may be liable or responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same. Until such claims are settled or disposed of, the Owner may retain from any money which would

otherwise be payable hereunder so much thereof as the Owner, in its reasonable judgment, may deem appropriate to settle or otherwise dispose of such claim and to pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce such claims or incurred in connection therewith or by reason thereof.

7.8.3 Owner may apply any money retained hereunder to reimburse itself for all costs, expenses, attorney's fees, losses, damages, liabilities, suits, judgments, and awards incurred, suffered, or sustained by the Owner and chargeable to the Contractor hereunder.

7.9 DAMAGE TO EXISTING STRUCTURES AND PROPERTY

7.9.1 Contractor shall conduct its operations so as not to damage existing structures, any work installed either by it or by other Contractors, or any personal property of the Owner and others. In case of any such damage resulting from its operations, the Contractor shall repair and make good as new the damaged portions at its own expense with the consent of the damaged party or settle with that damaged party. If consent is not given, or settlement is not made, the Contractor shall continue to be liable for the damage caused. The cost of the repair may be deducted from the Contractors' Contract and performed by others, as determined by the Owner. The Cost of the Work deducted shall be established by the Owner and Architect/Engineer.

7.10 MANUFACTURER'S WARRANTIES

7.10.1 Contractor warrants that all manufacturers or other warranties on all materials, software, equipment, and all other items of the Work furnished by Contractor shall run directly to or be specifically assigned to Owner on demand.

7.10.2 Contractor warrants that the installation and implementation of all materials, software, equipment, and all other items of Work shall be in strict accordance with the manufacturer's requirements. In the event the Owner seeks to enforce a claim based upon a manufacturer's warranty and should such manufacturer then fail to honor its warranty based, in whole or in part, on a claim of defective installation, the Owner shall be entitled to enforce said warranty against Contractor in accordance with the terms of said warranty, except that a claim of defective installation or implementation shall not be a defense to any such warranty claim by Owner against Contractor.

7.11 PARTIAL OCCUPANCY

7.11.1 Notwithstanding the date for completion of the Project, the Owner shall be entitled to take partial occupancy as it may require without waiving any penalties or remedies for failure of the Contractor to meet the date of Substantial Completion specified in the Contract Documents, provided that such occupancy does not unduly interfere with Contractor's performance of the remaining Work. Any cost or expense of Contractor incurred to permit Owner to partially occupy any part of the Project, which cost, or expense would not be incurred but for such partial occupancy, shall be borne by Owner, except if such partial occupancy occurs after the date of Substantial Completion specified in the Contract Documents. The Contractor shall not be responsible for wear and tear or damage to the Project resulting solely from such partial occupancy.

7.12 SIGNS

7.12.1 Contractor shall not place any signs at the Project Site without the Owner's written consent.

7.13 HEADINGS

7.13.1 The headings contained in the General Conditions are inserted only as a matter of convenience and reference and are not meant to define, limit, or describe the scope or intent of the Contract Documents or in any way to affect the terms and provisions set forth herein.

7.14 RECORDS

7.14.1 Contractor shall check all materials, equipment, and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper financial management under the Contract Documents, and this system shall be satisfactory to the Owner. The Contractor agrees that the Owner, the FAA, the Commonwealth of Virginia, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor that are directly pertinent to the applicable specific grant programs to make audits, examinations, excerpts, and transcriptions. The Contractor shall maintain all required records for four (4) years after the Owner makes the final payment and all other pending matters are closed.

7.15 RULES AND REGULATIONS

7.15.1 Contractor acknowledges receipt and review of the Owner's Rules and Regulations and Contractor shall conform to Owner's Rules and Regulations during performance of all work at the Airport.

7.16 REFERENCE STANDARDS

7.16.1 The following documents shall become part of the Contract Documents in their entirety:

Virginia Work Area Protection Manual, 2011 Edition as updated.

Virginia Erosion and Settlement Control Handbook 3rd edition, 1992

ARTICLE 8 TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the time allotted in the Contract Documents for Substantial Completion of the Work as defined in Subparagraph 8.1.3, including authorized adjustments thereto.

8.1.2 The Date of Commencement of the Work is the date established in a written notice to proceed.

8.1.3 The Date of Substantial Completion of the Work is the date recommended by the Architect/Engineer to the Owner when (i) Work is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended; (ii) Owner and Contractor have agreed upon a "punch list" of tasks remaining to be performed for Work or designated portion thereof; and (iii) all required governmental inspections or approvals shall have been conducted or obtained and a certificate of occupancy for the Project or designated portion thereof shall have been issued and shall remain in full force and effect.

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

8.2 PROGRESS AND COMPLETION

8.2.1 All-time limits stated in the Contract Documents are of the essence of the Contract and utmost importance. The Contractor acknowledges the critical importance of achieving the time limits stated in the Contract Documents to avoid substantial damage to the Owner and hereby confirms that such time limits are reasonable.

8.2.2 Contractor shall begin the Work on the Date of Commencement as defined in Subparagraph 8.1.2. It shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion of the Work by the dates outlined in the Owner-Contractor Agreement, as such may be adjusted hereunder.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the date for achievement of Substantial Completion outlined in the Owner-Contractor Agreement is delayed at any time during the progress of the Work by any act or neglect of the Owner or Architect/Engineer, or by any employee of either, or by any separate Contractor employed by Owner, or by changes ordered in the Work, or by any causes beyond Contractor's control which are not the fault of Contractor, Subcontractors or Sub-subcontractors, then the Substantial Completion Date shall be extended by Contract Modification or Change Directive for such reasonable time as Owner and Architect/Engineer may determine; provided that Contractor complies with the provisions of Subparagraph 8.3.2.

8.3.2 Any claim for an extension of time shall be made in writing to the Architect/Engineer not more than five (5) days after the commencement of the delay; otherwise, it shall be waived. Within five (5) days after providing written notice of delay, the Contractor shall provide an estimate of the probable effect of such delay on the progress of the Work, and such estimate shall be supported by a revised Contractor's CPM Construction Schedule demonstrating the effect of the delay on the progress of the Work to the Date of Substantial Completion. The Contractor shall also submit a plan to recover from the effect of the delay to achieve Substantial Completion and the Interim Completion Dates, as applicable, on time. The Contractor shall have the burden of proving to the Owner that any delay affects the critical path. If the Contractor fails to provide the required estimate, revised Contractor's CPM Construction Schedule, and recovery plan, the Contractor shall have waived any right to a time extension. No extension of time shall be granted to the Contractor to the extent that, notwithstanding the existence of any such circumstance beyond the Contractor’s control, a delay would have resulted in any event due to a concurrent unexcused delay by the Contractor.

8.3.3 No claim for delay shall be allowed on account of the failure of Architect/Engineer to furnish interpretations until after the date upon which interpretations are to be furnished by Architect/Engineer as provided in Subparagraph 2.2.8 and not then unless such claim is reasonable.

8.3.4 No extension of time shall be given for ordinary or foreseeable delays, accidents, or conditions at the site. The Contractor agrees that it shall not have or assert any claim, nor shall it be entitled to any additional compensation or damages, on account of such delays. Without limiting the generality of the foregoing, the Contractor represents and warrants to the Owner that the Schedule shall contain allowances for delays caused by adverse weather conditions under normal seasonal conditions and that no claim for delay shall be made as a result of rain, snow, cold, or other weather conditions unless such conditions are abnormal or extraordinary in the area where the Work is being performed as determined by NOAA historical records.

8.3.4.1 Weather Delays: No extensions of time will be allowed:

a. If at least six (6) hours of work time are available out of the working day, defined as any day when the forces of the Contractor may proceed with regular work towards completion of the Contract including Saturdays, Sundays, or Holidays.

b. For drying of materials when it is reasonably possible for the Contractor to enclose the Work and use drying agents or devices consistent with the technical or customary industry standards.

8.3.4.2 Inclement Weather Days: Delays to Construction activities on the critical path due to inclement weather shall be considered for extensions to the Contract Time, subject to the limitations below. Each bidder shall include in his proposed Contract Time (as identified on the Bid Form) the following number of anticipated inclement weather days which would otherwise be working days for a

particular month based on official NOAA records for Richmond, VA.

January	6 days	July	7 Days
February	6 days	August	6 Days
March	7 Days	September	5 Days
April	6 Days	October	5 Days
May	7 Days	November	5 Days
June	6 Days	December	6 Days

8.3.5 No time shall be charged for conditions beyond the Contractor's control such as Acts of God, Government restrictions (including the denial or cancellation of any export or other necessary license), wars, insurrections, strikes, lockouts, unusual delays in transportation, temporary suspension of the principal items of work under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor.

8.3.6 The provision of 8.3.5 may apply only if the Contractor notifies the Owner and the Architect/Engineer in writing within five (5) days from the beginning of any such delay and details the causes of the delay.

8.3.7 Upon receipt of such notification, the Owner and the Architect/Engineer shall ascertain the facts, the cause, and the extent of the delay. If in the opinion of the Owner, the delay is properly excusable based upon the facts and terms of the contract, the Owner shall extend the time for completing the work for a period of time commensurate with the period of the excusable delay.

8.3.8 It is further understood that the foregoing occurrences shall not result in any claim for damages or contract adjustment other than an extension of time.

ARTICLE 9 PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Owner-Contractor Agreement and, including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Within twenty (20) calendar days from the date of award, or by the date of the Preconstruction Conference, whichever occurs first, the Contractor shall submit to Architect/Engineer a schedule of values allocated to the various portions of the Work, prepared in such form, and supported by such data to substantiate its accuracy as Architect/Engineer may require. This schedule, when recommended by the Architect/Engineer and approved by the Owner, shall be used only as a basis for the Contractor's Applications for Payment. Each item of the Schedule of Values shall include its proper share of overhead and profit.

9.2.2 The Contractor shall provide a cost-loaded projection schedule. The schedule shall display monthly cost projections for the work throughout the Contractor's project work schedule. The cost-loaded projection schedule shall be updated monthly and submitted to the Architect/Engineer with each Monthly Status Report.

9.2.3 Schedule of Values line-item value amounts shall be rounded to the nearest whole dollar.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 By the first (1st) day of each month, Contractor shall submit to Architect/Engineer an itemized Application for Payment, notarized and showing in complete detail all money paid out or costs incurred by it on account of the Work during the previous period for which it is to be reimbursed or the value of the Work performed, and the amount of Contractor's payment due as provided in the Owner-Contractor Agreement, lien waivers from each Subcontractor, Sub-subcontractor and supplier through the date of the last prior payment, weekly certified payrolls, completed Monthly Report of Subcontractor Participation form and such other data supporting Contractor's right to payment as Owner or Architect/Engineer may require, and reflecting retainage of ten percent (10%) which will be withheld until Final Completion as determined by the Architect/Engineer when all punch list items and closeout requirements are met.

9.3.2 Except to the extent specifically approved by the Owner on a case-by-case basis and in the Owner's sole discretion, payments shall not be made on account of materials or equipment not incorporated in the Work.

9.3.3 Contractor warrants that title to all Work, materials, and equipment covered by an Application for Payment shall pass to Owner either upon incorporation in the construction or upon the receipt of payment by Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as "liens"; and that no Work, materials or equipment covered by an Application for Payment shall have been acquired by Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Work, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by Contractor or such other person.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 Upon receipt from Contractor, Architect/Engineer shall review Contractor's Application for Payment and within five (5) business days, after certifying the amounts due on such Applications, either (i) issue a Recommendation for Payment with a copy to Contractor, for such amount as Architect/Engineer determines is properly due and recommends that Owner pay, or (ii) notify Contractor in writing its reasons for withholding a Recommendation as provided in Subparagraph 9.6.1. If the Owner refuses to pay the Contractor any portion of the amount recommended for payment by the Architect/Engineer, the Owner shall promptly provide the Contractor with a written statement of the Owner's reason for withholding payment.

9.4.2 The certification of an Application for Payment and the issuance of a Recommendation for Payment by Architect/Engineer to Owner, based on its observations at the site as provided in Subparagraph 2.2.3 and the data comprising the Application for Payment, that the Work has progressed to the point indicated; that, to the best of their knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to the results of any subsequent tests required by or performed under the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in its Certificate); that Contractor is entitled to payment in the amount certified; that Architect/Engineer have received in their possession lien waivers from Contractor and its Subcontractors through the date of the last prior payment; and that the portion of the Contract Sum remaining is sufficient to complete the Work in accordance with the Contract Documents. Should the Architect/Engineer or

Owner determine at any time that the portion of the Contract Sum remaining is insufficient to complete the Work in accordance with the Contract Documents, no additional payments shall be due the Contractor unless and until the Contractor performs a sufficient portion of the Work so that the amount of the Contract Sum remaining is sufficient to complete the Work. By certifying an Application for Payment or issuing a Recommendation for Payment, the Architect/Engineer and Project Manager, respectively, shall not thereby be deemed to represent that they have made exhaustive or continuous on-site inspections to check the quality or quantity of the Work or that they have reviewed the construction means, methods, techniques, sequences or procedures, or that they have made any examination to ascertain how or for what purpose Contractor has used the money previously paid on account of the Contract Sum. The application amount shall be rounded to the nearest whole dollar.

9.5 PROGRESS PAYMENTS

9.5.1 Owner shall approve or disapprove a Recommendation for Payment within thirty (30) days of receipt of such from the Architect/Engineer. Owner shall make payment on all Certificates of Payment which it approves within said thirty (30) day period.

9.5.2 Contractor shall promptly pay each Subcontractor, upon receipt of payment from Owner, out of the amount paid to Contractor on account of such Subcontractor's Work, the amount to which said Subcontractor is entitled, reflecting the percentage retained, if any, from payments to Contractor on account of such Subcontractor's Work. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its Subcontractors similarly.

9.5.3 Owner may, on request and at its discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by Contractor and the action taken thereon by Owner on account of Work done by such Subcontractor.

9.5.4 Neither Owner nor Architect/Engineer shall have any obligation to pay or to see to the payment of any money to any Subcontractor except as may otherwise be required by law.

9.5.5 No certification of a progress payment, nor any progress payment, nor any partial or entire use of occupancy of the Work by Owner, shall constitute an acceptance of any Work not in accordance with the Contract Documents.

9.6 PAYMENTS WITHHELD

9.6.1 Architect/Engineer may decline to recommend payment and may withhold a Recommendation in whole or in part, to the extent necessary reasonably to protect Owner, if Architect/Engineer is unable to make the representations to Owner provided in Subparagraph 9.4.2. If the Architect/Engineer is unable to make representations to the Owner as provided in Subparagraph 9.4.2 and to recommend payment in the amount of the Application, the Architect/Engineer shall notify the Contractor as provided in Subparagraph 9.4.1. If the Contractor and Architect/Engineer cannot agree on a revised amount, the Architect/Engineer shall promptly issue a Recommendation for Payment for the amount for which it can make such representations to the Owner. Architect/Engineer may also decline to recommend payment, or, because of subsequently discovered evidence or subsequent observations, Architect/Engineer may nullify the whole or any part of any Recommendation for Payment previously issued, to such extent as may be necessary in their opinion to protect Owner from loss because of:

1. Defective work not remedied.

2. third party claims filed or reasonable evidence indicating probable filing of such claims.

3. failure of the Contractor to make payments properly to Subcontractors or 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 another Contractor.

6. reasonable evidence that the Work shall not be completed within the Contract Time.

7. persistent failure to carry out the Work in accordance with the Contract Documents; or

8. failure of the Contractor to provide any documents required by the Contract Documents.

9. failure of the Contractor to maintain a record of changes on drawings and documents.

10. a lien or attachment filed against the Project, or any portion thereof.

11. failure of the Contractor to update and maintain project record documents monthly. (i.e., as-built drawings, project record specifications, etc.)

9.6.2 When the above grounds in Subparagraphs 9.6.1 are removed, payment shall be made for amounts withheld because of them.

9.7 FAILURE OF PAYMENT

9.7.1 If Architect/Engineer does not issue a Recommendation for Payment, through no fault of Contractor within fifteen (15) days after receipt of Contractor's Application for Payment, or if Owner does not pay Contractor, within the time limits outlined in Subparagraph 9.5.1, then Contractor may, upon ten (10) additional days' written notice to Architect/Engineer, stop the Work until payment of the amount owing has been received. The Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay, and start-up, which shall be affected by the appropriate Change Order or Change Directive in accordance with Paragraph 12.3.

9.8 SUBSTANTIAL COMPLETION

9.8.1 When Contractor considers that the Work, or a designated portion thereof which is acceptable to Owner, is substantially complete as defined in Subparagraph 8.1.3, Contractor shall notify Architect/Engineer at least seventy-two (72) hours before the time Contractor desires an inspection and Contractor shall prepare for submission to Architect/Engineer a list of items to be completed or corrected. Architect/Engineer shall conduct an inspection as soon as reasonably possible thereafter. The failure to include any items on such a list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect/Engineer based on an inspection determines that the Work or designated portion thereof is substantially complete, and upon the establishment of a mutually acceptable punch list and the issuance of a certificate of occupancy, the Architect/Engineer shall recommend to the Owner that Substantial Completion has been achieved. Based on the Owner's independent inspection, the Architect/Engineer shall then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Final Completion of the Work unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of the responsibilities assigned to them in such Certificate. It is anticipated that different phases of the Work will become substantially complete on different dates. The Warranty dates for specific areas and/or systems will begin on the Date of Substantial Completion issued for that specific area and/or system.

9.8.2 When Architect/Engineer, based on an inspection with the Owner, determines that the Work or designated portion thereof is substantially complete, and upon the establishment of a mutually acceptable punch list and the issuance of a certificate of occupancy, Architect/Engineer shall recommend to the Owner that Substantial Completion has been achieved. Based on the Owner's independent inspection and determination, the Architect/Engineer shall prepare a Certificate of

Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which Contractor shall complete the items listed therein. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.3 If the initial inspection requested by the Contractor to establish Substantial Completion determines the Project is not substantially complete, the Contractor shall pay for additional reinspection by the Architect/Engineer, at no expense to the Owner. After Substantial Completion, the Contractor shall complete all punch-list and closeout requirements within 60 days. After this time actual damages for the Owner and Architect/Engineer shall be deducted from the final contract amount.

9.9 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 Contractor shall notify the Architect/Engineer when all Work, including all punch list items, is complete in accordance with the Contract Documents and ready for the final inspection. Upon receipt of such from Contractor, Architect/Engineer shall promptly inspect and, when it finds the Work acceptable under the Contract Documents and the Contract fully performed, including all punch-list items, Architect/Engineer shall certify to Owner that final completion has occurred. Architect/Engineer's certification that final completion has occurred shall constitute a representation to the Owner that, to the best of Architect/Engineer's knowledge, information, and belief, and based on its observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due Contractor, and noted in said final Application, is due and payable. Architect/Engineer shall promptly issue a final Recommendation for Payment recommending to Owner that final payment be made and stating that, to the best of Architect/Engineer's knowledge, information, and belief, and based on its observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due Contractor, and noted in said final Recommendation, is due and payable. Architect/Engineer's issuance of a final Recommendation for Payment shall constitute a further representation by the Architect/Engineer that the conditions precedent to the Contractor being entitled to final payment as outlined in Subparagraph 9.9.2 have been fulfilled.

9.9.2 Neither the final payment nor the remaining retained percentage shall become due until Contractor submits to Architect/Engineer (1) an affidavit that all payrolls, bills for materials and equipment, sales and use taxes and other indebtedness connected with the Work for which Owner or its property might in any way be responsible or subject to a lien, have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment, (3) if required by Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases, and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by Owner, and (4) any governmental approvals which may be reasonably required. If any Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify it against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all money that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.9.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by the issuance of Change Orders, or Change Directives affecting final completion, and the Architect/Engineer so confirms, the Owner shall, upon application by Contractor and certification by Architect/Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than the retainage stipulated in the Contract Documents, and if bonds have been furnished as provided in Paragraph 7.5, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Architect/Engineer before certification of such payment. Such payment shall be made under the terms and conditions governing final

payment.

9.9.4 The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:

1. unsettled liens or claims,
2. defective Work appearing after Substantial Completion,
3. failure of the Work to comply with the requirements of the Contract Documents, or
4. terms of any special warranties and indemnities required by the Contract Documents.

9.9.5 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified as unsettled in writing to the Owner by the Contractor at the time of the final Application for Payment.

9.9.6 All provisions of this Agreement, including without limitation those establishing obligations and procedures, shall remain in full force and effect notwithstanding the making or acceptance of final payment before the Date of Substantial Completion of the Project.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to:

1. all employees on the Work and all other persons who may be affected thereby.

2. all the Work and all materials and equipment to be incorporated therein, whether in the storage on or off the site, under the care, custody, or control of Contractor or any of its Subcontractors or Sub-subcontractors, it being understood that any materials and equipment stored in work areas on site shall conclusively be deemed to be in the custody of Contractor, and Contractor shall be responsible for the security of such materials and equipment.

3. other property at the site or adjacent thereto, including all adjacent structures, trees, shrubs, lawns, walks, pavements, runways, roadways, structures, and utilities not designated for removal, relocation, or replacement during construction; and

4. the work of the Owner or other separate Contractors.

10.2.2 Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury, or loss.

10.2.3 Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards and notifying owners and users of adjacent utilities.

10.2.4 When the use or storage of explosives or other hazardous materials or equipment is required for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel and in accordance with the Owner's policies and procedures. The storage of explosives on Airport property is strictly prohibited.

10.2.5 Contractor shall promptly remedy all damage or loss (other than damage or loss insured under Paragraph 11.3) to any property referred to in Clause 10.2.1 caused in whole or in part by Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which Contractor is responsible under Clause 10.2.1, except damage or loss attributable solely to the acts or omissions of Owner or Architect/Engineer or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence, in whole or in part, of Contractor. The foregoing obligations of the Contractor are in addition to its other obligations hereunder, including, without limitation, its obligations under Paragraph 4.17.

10.2.6 Contractor shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents and who shall have authority to direct the Contractor's work. This person shall develop and submit to the Architect/Engineer or, if none, to the Owner, a safety plan and shall be responsible for its implementation, and enforcement and shall report on its effectiveness to the Architect/Engineer regularly. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Architect/Engineer.

10.2.7 Contractor shall not load or permit any part of the Work to be loaded to endanger its safety.

10.3 EMERGENCIES

10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at its discretion, to prevent threatened damage, injury, or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 12 for Changes in the Work.

ARTICLE 11 INSURANCE

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 Contractor shall purchase and maintain such insurance as shall protect it from claims set forth below which may arise out of or result from Contractor's operations under the Contract, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. claims under workers' or workers’ compensation, disability benefit, and other similar employee benefit acts.

2. claims for damages because of bodily injury, occupational sickness or disease, or death of its employees.

3. claims for damages because of bodily injury, sickness or disease, or death of any persons other than its employees.

4. claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (2) by any other person.

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle.

11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than any limits of liability specified in the Contract Documents. Before commencement of the Work and until final payment (except that product liability coverage shall continue in force until two years after the date of final payment), the Contractor shall procure, deposit, and maintain for the Owner's benefit, insurance satisfactory to the Owner.

11.1.2.1 All insurance maintained by Contractor shall provide that:

A. Certificates signed by the insurance carrier stating the limits of liability and expiration date shall be filed in triplicate with the Owner before operations are begun. Such certificates not only shall name the types of policies provided, but also shall refer specifically to this Agreement and Article and the above paragraphs in accordance with which insurance is being furnished, and shall state that such insurance is as required by such paragraphs of this Agreement, and shall be sufficiently comprehensive as to permit Owner to determine that the required insurance coverage has been provided without the necessity of examining the individual insurance policies. If the initial insurance expires before completion of the work, renewal certificates shall be furnished by the date of expiration.

B. Owner and Architect/Engineer shall be included as additional insured on all policies and, specifically, Owner and Architect/Engineer shall be named as additional insured using ISO Form CG 2010 on all general liability policies. Such insurance shall be considered primary without the right of contribution over any other valid and collectible insurance. The cost of including the Owner and Architect/Engineer as additional insured is a non-AIP eligible cost.

C. The interests of the Owner shall not be invalidated by any action or inaction of the Owner, Contractor, or any other Person and shall insure the Owner regardless of any breach or violation by the Owner, Contractor, or any other Person of any warranties, declarations, or conditions contained in such policies.

11.1.2.2 Contractor shall require each of its Subcontractors to procure and maintain, until the completion of that Subcontractor's work, insurance of the types specified above, with limits to be determined by Contractor. It shall be the responsibility of the Contractor to ensure that all its Subcontractors comply with all the insurance requirements contained herein relating to such Subcontractors.

11.1.2.3 Contractor shall carry all-risk Builders Risk Insurance and include theft, boiler, and machinery-related perils to the full replacement value of all the Work and all materials, equipment, and supplies on or near the site of the Work. Such insurance shall be payable to the Owner. The Contractor, Subcontractors, and Sub-subcontractors shall all be responsible for ensuring their tools, equipment, and appliances.

11.1.3 Certificates of Insurance acceptable to the Owner shall be filed with the Owner before commencement of the Work. Such Certificates shall also indicate that the foregoing insurance policies have been endorsed to name the Owner as an additional insured. If any of the foregoing insurance coverage is required to remain in force after final payment, an additional certificate evidencing the continuing of such coverage shall be submitted along with the Application for Final Payment.

11.1.4 After a loss, replacement of damaged work shall be covered in an appropriate Change Order or Change Directive.

11.1.5 Owner shall have the power to adjust and settle any loss with the insurers.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 Owner shall be responsible for purchasing and maintaining its liability insurance and, at its option, may purchase and maintain such insurance as shall protect it against claims that may arise from operations under the Work.

ARTICLE 12 CHANGES IN THE WORK

12.1 CHANGE ORDERS

12.1.1 A Contract Modification is a written order to the Contractor signed by the Owner, Architect/Engineer, and Contractor, and, where required, approved by FAA and DOAV issued after execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time as more particularly described in 12.1.2 below. The Contract Sum and the Contract Time may be changed only by Change Order or Change Directive. A Change Order shall include all the Contractor's costs associated therewith. Change Orders affecting construction items in which FAA or DOAV financial assistance are involved must first be approved by the FAA and the DOAV, and requests for such approvals must include appropriate justification and cost analysis by the Architect/Engineer. Such approvals shall be with respect to the work item submitted by the Architect/Engineer, but the Contractor cannot be authorized to proceed until it receives a fully executed and approved copy of the Change Order or Change Directive from the Owner. A Change Directive is a written order signed by the Owner and Architect/Engineer, directing a change in the Work or the Contract Time and stating a proposed basis for adjustment, if any, in the Contract Sum. A Change Directive shall be used in the absence of total agreement on the terms of a Change Order. A Change Directive signed by the Contractor indicates its agreement therewith, including the adjustment in the Contract Sum or the Contract Time.

12.1.2 Owner, without invalidating the Contract, may order changes in the Work as set forth herein within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum, and the Contract Time being adjusted accordingly. All such changes to the Work shall be authorized by Change Order or Change Directive and shall be performed under the applicable conditions of the Contract Documents. The Contractor shall not accept any request for a Change Order or Change Directive from any person other than the Owner or Architect/Engineer and may not perform any work as deemed to constitute a change until the change order has been approved in writing by the Owner.

12.1.3 The time extension, if any, resulting from a change in the Work shall be mutually agreed upon by the Owner and Contractor and the cost or credit to the Owner resulting from a change in the Work shall be determined one or more of the following ways:

1. by mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.

2. by unit prices stated in the Contract Documents or subsequently agreed upon.

3. by cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

4. by the method provided in Subparagraph 12.1.4.

5. Changes in the work not covered by a unit price shall be negotiated to proceed on a lump sum basis or a time and materials work authorization. In both cases, markups for the Contractor’s and Subcontractor’s overhead and profit are as follows:

Labor** markup for the company performing work: 15%*

Materials and Equipment:	5%*
Subcontractors:	5%*

*Percentage indicated is deemed to include General Conditions: including small tools, cleanup, bonds, engineering, warranties, Jobsite overhead and home office overhead; Contractor site supervision and administrative costs; insurances; and overhead and profit. No markup will be allowed on sales and use taxes.

**Labor cost shall include any employer payments to or on behalf of the workers for health, welfare, pension, vacation, and similar purposes. Labor rates will not be recognized when above those prevailing in the locality and time the work is being performed. The costs for all supervision including General Superintendents and Foremen will be included in the markups established by the Contract. The only exception to this will be the working foremen who perform actual manual labor. No labor charges will be accepted for engineering or proposal preparation. These costs will be included in the markups established by the Contract. A breakdown of the payroll rates for each trade will be provided for all change orders 15 days after notice to proceed including the base rate, benefits, payroll taxes, and insurance.

12.1.4 If the time and cost or credit resulting from a change in the Work are not agreed upon by a Change Order or Change Directive, the Contractor provided it receives a written order signed by the Owner shall nevertheless promptly proceed with the Work involved. The time and cost of such Work shall then be determined and recommended by the Architect/Engineer based on the reasonable expenditures and savings of those performing the Work attributable to the change, including, in the case of an increase in the Contract Sum, an allowance of six percent (6%) of the net increase for overhead and profit. In such case, and under Clauses 12.1.3.3 and 12.1.3.4 above, the Contractor shall keep and present, in such form as the Architect/Engineer may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a Change Order or Change Directive. Unless otherwise provided in the Contract Documents, the cost shall be limited to the following: cost of materials, including sales tax and cost of delivery; cost of labor, including social security, old age, and unemployment insurance, and fringe benefits required by agreement or custom; workers' or workmen's compensation insurance; bond premiums; the rental value of equipment and machinery; and the additional costs of supervision and field office personnel directly attributable to the change. Pending the final determination of time and cost to the Owner, payments on account shall be made on the Architect/Engineer's Recommendation for Payment. The amount of credit to be allowed by the Contractor to the Owner for any deletion or change that results in a net decrease in the Contract Sum shall be the amount of the actual net decrease in cost as confirmed by the Architect/Engineer. When both additions and credits covering related Work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured based on the net increase, if any, with respect to that change.

12.1.5 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed Change Order or Change Directive that application of the agreed unit prices to the quantities of Work proposed shall cause substantial inequity to Owner or Contractor, the applicable unit prices shall be equitably adjusted.

12.1.6 The Contractor’s signature on a Change Order shall constitute a full, final, and complete waiver and settlement of all claims, demands, and causes of action that the Contractor has, or may have in the future, arising out of or relating to the Change Order and the occurrences, acts, omissions, or events upon which the Change Order is based. No “reservation of rights” or other attempts by the Contractor to preserve, notwithstanding Contractor’s signature on the Change Order, present or future claims arising out of or relating to the Change Order (or arising out of or relating to the cumulative effect of the Change Order in combination with other change orders) shall be effective unless Owner and Contractor agree, in a separate writing signed by both parties contemporaneously with Contractor’s execution of the Change Order, to the specific terms, conditions, scope, and duration of such reservation of rights.

12.2 CONTRACTOR'S REPRESENTATION REGARDING COST OR CREDIT TO OWNER FOR CHANGED WORK

12.2.1 Regardless of which method is used to determine the cost or credit to the Owner resulting from changed work, the Contractor warrants that the cost of any addition or deduction represents the actual cost of such addition or deduction to the Contractor, Subcontractor, or Sub-subcontractor or other party involved in such addition or deduction.

12.3 CLAIMS FOR ADDITIONAL COST

12.3.1 If the Contractor wishes to claim an increase in the Contract Sum, it shall give the Architect/Engineer written notice thereof within five (5) days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Paragraph 10.3. Within five (5) days after providing written notice, the Contractor shall submit a statement as to all costs claimed, including any impact, delay, or similar claims, and if the Owner and Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined in accordance with Article 7.9. Any change in the Contract Sum resulting from such claim shall be authorized by a Change Order or Change Directive. No such claim shall be valid unless made in accordance with the requirements of this Subparagraph.

12.3.2 If Contractor claims that additional cost is involved because of, but not limited to, (1) any written interpretation pursuant to Subparagraph 2.2.8, (2) any order by Owner to stop the Work pursuant to Paragraph 3.3 where Contractor was not at fault, or (3) failure of payment by Owner pursuant to Paragraph 9.7, Contractor shall make such claim as provided in Subparagraph 12.3.1.

12.3.3 The Contractor represents that it is familiar with the requirements and conditions imposed during the execution of similar “phased” projects and the Contractor considered such phasing in preparing and submitting its bid on the Project.

12.3.4 A Subcontractor’s failure to timely perform its work, failure to perform its work in a workmanlike manner, abandonment of its work, or failure to honor contract prices agreed to with the Contractor shall not serve as the basis for a Change Order for adjustment of the Contract Sum or the Contract Time.

ARTICLE 13 UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any portion of the Work should be covered contrary to the request of the Architect/Engineer or requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect/Engineer, be uncovered for their observation and shall be replaced at Contractor's expense.

13.1.2 If any other portion of the Work has been covered that which Architect/Engineer has not specifically requested to observe before being covered Architect/Engineer may request to see such Work and it shall be uncovered by the Contractor. If such Work is found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it is found that this condition was caused by the Owner or a separate Contractor as provided in Article 6, in which event the Owner shall be responsible for the payment of such costs.

13.2 CORRECTION OF WORK AND MAINTENANCE OF WORK

13.2.1 Contractor shall promptly correct all Work rejected by Architect/Engineer as defective or as failing to conform to the Contract Documents whether observed before or after Substantial Completion of the Work and whether or not fabricated, installed, or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the Architect/Engineer's additional services made necessary thereby.

13.2.2 If, within one year after the Date of Final Completion of the Work or designated portion thereof, or within one year after acceptance by Owner of designated equipment, or within such longer period of time as may be prescribed by law, by the terms of any applicable warranty required by the Contract Documents, or offered by any manufacturer, any of the Work is found to be defective or not in accordance with the Contract Documents, Contractor shall correct it within three (3) days after receipt of a written notice from Owner to do so unless Owner has previously given Contractor a written acceptance of such condition. The payment and performance bonds shall remain in full force and effect for such one year. The Contractor shall provide "on-call" maintenance service for all hardware and software supplied for the Project for the period beginning with the commencement of the Work hereunder and continuing for one (1) year after final acceptance. The maintenance personnel approved by the Owner shall respond on-site, if required, in no more than four (4) hours from the maintenance call. Such maintenance service shall include all labor, material, travel expenses, and incidentals at no cost to the Owner. This obligation shall survive termination of the Contract.

13.2.3 Contractor shall remove from the site all portions of the Work which are defective or non-conforming and which have not been corrected under Subparagraphs 4.5.1, 13.2.1, and 13.2.2 unless removal is waived by the Owner.

13.2.4 If Contractor fails to correct defective or nonconforming Work as provided in Subparagraphs 4.5.1, 13.2.1, and 13.2.2, Owner may correct it in accordance with Paragraph 3.4, or may terminate this Contract in accordance with Subparagraph 14.2 and, in either case, pursue its remedies hereunder.

13.2.5 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the Architect/Engineer, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten (10) days thereafter, the Owner may sell such Work at auction or private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by Contractor, including compensation for the Architect/Engineer's additional services made necessary thereby. If such proceeds of sale do not cover all costs that the Contractor should have borne, the difference shall be charged to the Contractor, and an appropriate Change Order or Change Directive shall be issued. If the payments then or thereafter due to the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

13.2.6 Contractor shall bear the cost of making good all work of Owner or separate Contractors destroyed or damaged by such correction or removal.

13.2.7 Nothing contained in Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5 hereof. The establishment of the period of one year after the Date of Final Completion or such longer period, as may be prescribed by law, by the terms of any warranty required by the Contract Documents or offered by a manufacturer, relates only to the specific obligation of Contractor to correct the Work and has no relationship to the time within which its 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 Contractor's liability with respect to its obligations other than specifically to correct the Work.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner prefers to accept defective or non-conforming Work, it may do so instead of requiring its removal and correction, and the cost of correcting such defective or non-conforming Work shall be charged to the Contractor, in which case a Change Order shall be issued to reflect an appropriate and equitable deduction in the Contract Sum, as established by the Owner or Architect/Engineer. Such an adjustment shall affect whether or not the final payment has been made.

ARTICLE 14 TERMINATION OF THE CONTRACT

14.1 TERMINATION BY CONTRACTOR

14.1.1 If the Work is stopped for a period of one hundred and twenty (120) days under an order of any court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of Contractor or a Subcontractor or their agents or employees or any other persons performing any of the Work under a contract with Contractor, or if the Work should be stopped for a period of sixty (60) days by Contractor because Architect/Engineer has not issued a Recommendation for Payment, through no fault of Contractor as provided in Paragraph 9.7 herein, or because Owner has not made payment thereon as provided in Subparagraph 9.5.1 herein, then Contractor may, upon seven (7) additional days' written notice to Owner and Architect/Engineer, terminate the Contract and recover from Owner payment then due, including all retainage; however, in no event shall Owner be liable to Contractor for an amount in excess of the amount to be paid to Contractor for the Work as provided for in the Contract Documents or for any prospective loss, including but not limited to lost profits. In addition, such payments to the Contractor shall be less than any setoffs to which the Owner may be entitled.

14.2 TERMINATION BY OWNER

14.2.1 If Contractor persistently or repeatedly refuses or fails to supply enough properly skilled workmen or proper materials, or if it fails to make prompt payment to Subcontractors for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a violation of a provision of the Contract Documents, then Owner may, without prejudice to any right or remedy and after giving Contractor and its surety, if any, seven (7) days written notice, terminate the employment of Contractor and take possession of the site and all materials, equipment, tools, construction equipment and machinery thereon owned by Contractor and may finish the Work by whatever method it may deem expedient. In such a case, the Contractor shall not be entitled to receive any further payment beyond that already due, and such payment shall not be made until the Work is finished.

14.2.2 It is recognized that if Contractor is adjudged bankrupt or makes a general assignment for the benefit of creditors, or if a receiver is appointed for the benefit of its creditors, or if a receiver is appointed on account of its insolvency, such could impair or frustrate Contractor's performance of this Contract. Accordingly, it is agreed that upon the occurrence of any such event, the Owner shall be entitled to the request of the Contractor or its successor in the interest of adequate assurance of future performance in accordance with the terms and conditions hereof. Failure to comply with such request shall entitle the Owner to terminate this Contract immediately and to the accompanying rights stated in this Agreement. In all events pending receipt of adequate assurance of performance and actual performance in accordance therewith, the Owner shall be entitled to proceed with the Work with its forces or with other Contractors on a time and material or other appropriate bases the cost of which shall be back charged against the Contract Sum hereof.

14.2.3 After receipt of a Notice of Termination, the Contractor shall submit to the Owner its termination invoice in the form and with the certification prescribed by the Owner. Such termination invoice shall be submitted promptly but in no event later than one (1) month from the effective date of termination. If the costs of finishing the Work, including compensation for Architect/Engineer's additional services made necessary thereby and any liquidated or other damages due Owner exceed the unpaid balance of the Contract due to Contractor before termination hereunder, Contractor shall pay the difference to Owner. The amount to be paid to the Owner shall be certified by the Architect/Engineer upon application, in the manner provided in Paragraph 9.4, and this obligation for payment shall survive the termination of the Contract.

14.2.4 If the Owner has terminated Contractor's employment pursuant to Subparagraph 14.2.1 or 14.2.2 hereunder, and the Work or designated portion thereof is not completed by the Substantial Completion Date, the Owner shall be further entitled to recover from Contractor Owner's actual and consequential damages.

14.2.5 Owner for its convenience may, at any time upon notice to the Contractor, suspend the Work. If the Work is suspended by the Owner, the Contractor shall be entitled to a time extension only.

14.2.6 Owner for any reason and in its sole discretion may terminate this Contract upon seven (7) days' written notice to the Contractor. If the Owner terminates this Contract, the Owner shall pay the Contractor all amounts then due according to the Schedule of Values, including all retainage. Nothing in this subparagraph shall in any way affect the Owner's right to terminate because of Contractor's default, as outlined in Subparagraph 14.2.1 and 14.2.2 hereof, nor affect any remedies, therefore.

14.2.7 Upon termination under this Paragraph, the Contractor, every Subcontractor, and every Sub-subcontractor shall:

1. Assign or otherwise make available to the Owner, as the Owner in its discretion may direct, all Subcontracts, contracts, purchase orders, materials, supplies, equipment, and any other items pertaining to this Agreement. Owner, at its discretion, may require Contractor to continue such Subcontracts or orders until the assumption of the same in writing by Owner. All Subcontracts and Sub-subcontracts, as well as purchase orders, shall contain appropriate provisions for termination and assignments under this Paragraph.

2. Stop work under this Agreement on the date and to the extent outlined in the Notice of Termination.

3. Terminate and place no further orders or Subcontracts for materials or services, except as necessary for the completion of such portion of the Work hereunder that has not been terminated.

4. With the Owner's prior written authorization, terminate the Contractor's orders or Subcontracts related to the performance of the Work terminated. Owner, in writing, may require Contractor to settle or pay all outstanding liabilities and/or claims arising from the termination of Contractor orders related to the performance of the Work terminated, the cost of which is reimbursable in whole or in part in accordance with the provisions of this Agreement.

5. Complete performance of such part of the Work as shall not have been terminated by the Notice of Termination.

6. Take such action as may be necessary, or as the Owner may direct, for the protection and preservation of the property related to this Agreement which is in the possession of the Contractor or in which the Owner has or may acquire an interest.

7. Deliver to Owner all Drawings, Specifications, Change Orders, and records of work compiled up to the date of termination.

END OF GENERAL CONDITIONS

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DOCUMENTS LISTED UNDER THE FOLLOWING SOURCE ARE PROVIDED BY OTHERS. THESE DOCUMENTS WERE NOT CREATED BY GRESHAM SMITH AND ARE SEPARATE FROM THE GRESHAM SMITH ISSUED DESIGN DOCUMENTS.

RIC RICHMOND INTERNATIONAL AIRPORT

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END OF SECTION 00 0110

SECTION 01 1000
SUMMARY OF WORK

PART 1 -GENERAL

1.1 SUMMARY

A. Section Includes:
1. Correlation and Intent of the Contract Documents
2. Specifications and Drawing Conventions
3. Contractor`s use of Site .
4. Work sequence.
5. Owner occupancy.
6. Permits.
7. Construction Personel.
8. Project Information Exchange.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

A. The intent of the Contract Documents is to include items necessary for the 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.

B. Notwithstanding statements to the contrary in Divisions 21 through 28 of the specifications, 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 perfomed by any trade.

1.3 SPECIFICATIONS AND DRAWING CONVENTIONS

A. Project Manual: The Project Manual comprises written documents for the Work in one or more volumes that include Specifications issued under the professional seals of the Architect and its consultants, and documents prepared by the Owner or other entities for which the Architect has no responsibility. The Project Manual may contain documents such as bidding requirements and information available to Contractor that are not Contract Documents.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall,""shall be," or "shall comply with," depending on the content, are implied where a colon (:) is used within a sentenance or phrase.
2. Specifications requirements are to be performed by the Contractor unless specifically stated otherwise.

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

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by industry standard abbreviations and as scheduled on Drawings.

E. Owner Documents: Certain contracting documents and specifications included in the Project Manual documents were prepared by the Owner. These documents were included in the Project Manual without notification by Gresham Smith and are not issued under the seals of the Architect or its consultants.
   1. Some Owner Specification sections may include cross references to specification sections that are not being provided for this Project and do not apply to the Work of the Contract.
   2. Send Requests for Information relating to Owner documents directly to the Owner's designated Project Representative with a copy to the Architect. The Owner will respond to such RFI's.
   3. No provision in the Owner's documents shall be effective to change the duties and responsibilities of Gresham Smith from thoses stated in the Owner-Architect Agreement.
   4. Gresham Smith is not responsibile for enforcing provisions of Owner documents relating to construction safety.

F. "Section Includes,"Summary," and similar introductory information are included in Specification sections only for convenience of reference by readers, and no limitations of section content or scope of subcontracts is intended.

G. Cross references: Cross references to Division 01 and other portions of the Specifications are neither exhaustive nor complete and are intended only for the convenience of readers. No limitation of requirements shall be inferred from the absense of specific cross references.

H. Abbreviations: Abbreviations of technical terms and other lengthy terminology are used on the Drawings, in schedules, and in the Specifications. Some terms are defined in the Specifications at first instance of use. Request explanations of abbreviations from the Architect that are not understood.

I. Graphic Symbols: Request explanations from the Architect for unexplained graphic symbols, cross-hatching, and similar Drawing conventions.

J. Diagrammatic Drawings: Where information is shown diagrammatically, it is the Contractor's responsibility to determine actual sizes of the products to be installed and to coordinate locations with other construction to provide adequate clearances for maintenance access and optimum performance.

1.4 CONTRACTOR`S USE OF SITE

A. Limit use and operation within existing facilities to areas indicated for construction work and as required to perform Work. Other areas within facility shall not be disturbed or disrupted.
   1. Owner occupancy. The Airport is a 24 hours/7 days a week facility. Contractor to coordinate with Owner timing of Work for specific areas to minimize disruption to airport and tenant operations.

B. Perform Work so as not to interfere or inconvenience Owner's operations and other building tenants, including access by the public.

C. Cutting, capping and reconnecting utility systems outside limits of construction as needed for Work shall be performed by Contractor, unless otherwise noted.

D. Access to Site: Coordinate with Owner's requirements for access to Work areas.

E. Emergency Building Exits during Construction: Keep exit doors and other means of egress clear and in lawful condition at all times during construction period.

F. Construction Operations: Limited to areas indicated on Drawings.
   1. Notify Owner at least 5 working days in advance of operations that are very loud, produce strong odors, or produce vibration in the structure. Coordinate with Owner the preferred time for work to be conducted. Obtain Owner's written permission before proceeding with disruptive operations.
      a. Noisy and Disruptive Operations (such as Blasting, Use of Jack Hammers and Other Noisy Equipment) Work will have to be performed at night. Night hours are dependent upon daily flight schedules. Contractor to coordinate start and stop night hours with Owner in advance of the Work.

G. Driveways, Parking Areas, Loading Areas: Do not block vehicle access to the premises for Owner's normal operations.
   1. Limit access to site as directed by Owner.

H. General: Coordinate use of premises under direction of Owner.

I. The Owner will designate portions of the site available for storage of materials and parking of properly identified construction vehicles.
   1. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
   2. Parking is limited and parked vehices are subject to the Owner's restrictions and limits of liability.

J. Time Restrictions for Performing Interior Work: Limit work in the existing building to hours approved in advance by the Owner.
   1. Specific areas will require nighttime hours.

K. Utility Outages and Shutdown:
   1. Coordinate and schedule electrical and other utility outages with Owner.
   2. Outages: Allowed only at previously agreed upon times.
   3. At least one week before scheduled outage, submit Outage Request Plan itemizing the dates, times, and duration of each requested outage

L. Do not load existing construction with heavy storage or equipment that will endanger the structure.

M. Construction Plan: Before start of construction, post electronic file to Project website of construction plan regarding access to Work, use of Site, and utility outages for acceptance by Owner. After acceptance of plan, construction operations shall comply with accepted plan unless deviations are accepted by Owner in writing.

N. Tobacco Use: Smoking and use of smokeless tobacco products are prohibited inside buildings. Comply with Owner's restrictions on smoking and use of smokeless tobacco products outside of buildings. Contractor is responsible for cleaning and replacement as directed by Owner, of new and existing construction elements stained by tobacco used by construction personnel.

O. Alcoholic Beverages: Consumption of alcohol beverages on Owner's property is prohibited.

P. Comply with Owner's Covid-19 protocols.

1.5 WORK SEQUENCE

A. Sequencing of Construction Plan: Before start of construction,post electronic file to Project website of construction plan regarding phasing of demolition,and new Work for acceptance by Owner. After acceptance of plan, construction sequencing shall comply with accepted plan unless deviations are accepted by Owner in writing.
   1. Work shall be sequenced in such a manner that if Work impacts another area or component, the Work shall be planned accordingly to minimize conflicts and not interfere with the Owner's day-to-day operations.

1.6 OWNER OCCUPANCY

A. Owner will occupy premises during entire period of construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
   1. Maintain access to existing walkways, corridors and other adjacent occupied or used facilities. Do not close or obstruct walkway, corridors or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.

2. Notify Owner not less than 5 working days in advance of activites that will affect Owner's normal operations and use.

1.7 PERMITS

A. Supply necessary permits for construction of Work.

1.8 CONSTRUCTION PERSONNEL

A. Employee Identification: Comply with Owner's identification tag requirements for Contractor personnel working on Project site and for vehicles. Require personnel to use identification tags at all times.

B. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
   1. Maintain list of approved screened personnel with Owner's representative.

C. Contractor is responsible for enforcing good behavior of its; employees, subcontractors, and other persons participating in the Work. Contractor shall immediately remove disorderly persons from the premises. Owner shall have the right to require the removal of objectionable persons from the premises at its sole discretion.
   1. Contact with members of the public on the premises is prohibited.
   2. Fraternization with staff is prohibited.
   3. Comments on physical appearance or characteristics of public and staff are prohibited.
   4. Clothing with derogatory depictions, language, or slogans regarding alcohol, drugs, or race, or that are sexual in nature is prohibited.
   5. Obsecene language, or derogatory speech regarding race, sex, or religion is prohibited.

1.9 PROJECT INFORMATION EXCHANGE

A. Project Information Exchange: The Architect will provide access to relevant Project files through its project information management software Newforma without charge to Contractor and provide instruction on its use. This software includes the ability to exchange large files and large numbers of files.
   1. Contract Documents will be issued using this software.
   2. Contractor shall use this software for transmitting all files for contract administration documents; no other method is acceptable. The Architect will not download documents from Contractor’s FTP site.
   3. Additional requirements for specific types of contract administration documents are specified in other Division-01 Specifications sections.

PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

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END OF SECTION

SECTION 01 2500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A Instructions to Bidders: Restrictions on timing of substitution requests.

B Section 01 2500.01 - Substitution Request Form.

C Section 01 3100 - Project Management and Coordination: RFI procedures, coordination, project meetings.

D Section 01 3300 - Submittal Procedures: Submittal procedures, coordination.

E Section 01 6000 - 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 of Product.
    b. Unavailability of Materials.
    c. Regulatory changes.
    d. Unavailability of Specified Warranty.
2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.

1.04 ACTION SUBMITTALS

A Prepare submittals per requirements of Section01 3300 - Submittal Procedures

B Substitution Requests: Submit requests electronicially. Identify produce or fabrication or installation to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form provided in at the end of this Section. Other forms are not acceptable.
2. Substitution requests will not be considered when indicated on Shop Drawings or Product Data Submittals.
3. Substitution requests will only be considered if submitted by Contractor. Requests by subcontractors or suppliers will not be considered.
4. Additional studies, investigations, submittals, redesign or analysis by the Architect and its consultants necessitated by requested substitution shall be provided by Contractor without change to Contract Sum or Contract Time.
5. Only one request for substitution for each product will be considered. If subtitution is not acceptable to Architect and Owner, provide specified product.
6. Architect will determine the acceptability of all substitutions.

C Documentation: Show compliance with requirements for substitutions and the following, as applicable:

1. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
2. Coordination information, including list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
3. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant quanlities 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.
4. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
5. Samples, where applicable or requested.
6. Certificates and qualification data, where applicable or requested.
7. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
8. Material test reports from qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
9. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
10. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
11. Cost information, including a proposal of change, if any, in the Contract Sum.
12. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is complatible with related materials, and is appropriate for applications indicated.
13. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

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. Agrees that substitution will not adversely affect Contractor's construction schedule. Waives claims for additional costs or time extension that may subsequently become

apparent.

6. Agrees that requested subtitution has received necessary approvals of authorities having jurisdiction.
7. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

B A Substitution Request for specified installer constitutes a representation that the submitter:

1. Has acted in good faith to obtain services of specified installer, but was unable to come to commercial, or other terms.

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

1. Note explicitly any non-compliant characteristics.

D Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.

1. Form included in the Project Manual and must be used.
2. Form must be signed and dated by the authorized Contractor's representative. Forms signed by Subcontractors, Suppliers, Vendors or non-authorized persons will not be reviewed.

E Limit each request to a single proposed substitution item.

1. Submit an electronic document (PDF) through Newforma, including the Substitution Request form with all supporting data, point by point comparative data sheet, changes to tcontract sum and changes to contract tie, as required and outlined on the Substitution Request Form. combining the request form with supporting data into single document.
2. Submit the request with the technical specification number for tracking purposes. For example, the number 01 2500-07 2600-001 represents 01 2500 (Substitution Procedures section #), followed by the technical specification of the subject substitution item, in this example it is 07 2600, followed by the sequence number for that technical specification.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.

B Submittal Form (before award of contract):

1. Submit substitution requests by completing the form attached to this section. See this form for additional information and instructions. Use only this form; other forms of submission are unacceptable.
2. Comply with documentation requirements under general requirements.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A Submittal Form (after award of contract):

1. Submit substitution requests by completing the form attached to this Section. See this section for additional information and instructions. Use only this form; other forms of submission are unacceptable.

B Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

C Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
3. Bear the costs engendered by proposed substitution of:
   a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
   b. Other construction by Owner.
   c. Other unanticipated project considerations.

D Substitutions will not be considered under one or more of the following circumstances:
1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
2. Without a separate written request.
3. When acceptance will require revisions to Contract Documents.

3.04 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 within 15 working days of receipt of request or seven days of receipt of additional information or documentation, whichever is later.
1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.05 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.

3.06 CLOSEOUT ACTIVITIES

A See Section 01 7800 - Closeout Submittals, for closeout submittals.

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

3.07 ATTACHMENTS

A A facsimile of the Substitution Request Form required to be used on the Project is included in Section 01 2500.01.

ISSUED:	**DATE:**
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END OF SECTION

SECTION 01 2500.01
SUBSTITUTION REQUEST FORM

INSTRUCTIONS: THIS FORM IS FOR CONTRACTOR'S REQUESTS FOR SUBSTITUTIONSAFTER THE CONTRACT FOR CONSTRUCTION HAS BEEN EXECUTED. NO OTHER FORM IS ACCEPTABLE. REFER TO SECTION 01 2500 SUBSTITUTION PROCEDURES FOR REQUIREMENTS GOVERNING SUBMISSION, REVIEW, AND ACCEPTANCE OF REQUESTS FOR SUBSTITUTIONS.

DATE OF CONTRACTOR`S REQUEST: _____

1.01 WE REQUEST CONSIDERATION TO USE:

A _____(Proposed Substitution)

Instead of the following specified item:			
SECTION	**PAGE**	**PARAGRAPH**	**DESCRIPTION**

1.02 REASON FOR REQUEST: ATTACH DETAILED EXPLANATIONS FOR ALL REASONS THAT APPLY (SUBSTITUTION REQUESTS FOR ANY OTHER REASON WILL BE REJECTED)

A ___ Specified product is not acceptable to authorities having jurisdiction.
B ___ Specified product has been discontinued by manufacturer.
C ___ Specified product cannot be provided within Contract Time because of circumstances beyond control of Contractor.
D ___ Product substitution offers substantial benefit to the Owner in the form of cost savings, time savings, energy conservation, sustainability advantages, or other valuable considerations, net of the Architect’s/Engineer’s cost to evaluate the technical compatibility and modify the Construction Documents, if required.
E Attached are the following supporting data:

	Test Reports
	Samples
	Drawings
	ICC-ES Evaluation Report
	Performance Data
	Dimensional Data

1.03 CONTRACTOR TO PROVIDE A POINT BY POINT COMPARATIVE DATA SHEET

A Provide comparison data of the Proposal Substitution versus the Specified Item in the format of the table below. List all significant properties - not just the ones that have differences. Indicate name, brand, catalog numbers, manufacturer, and list significant variations for specified product.

LIST ALL PROPERTIES SPECIFIED (PHYSICAL, TEST, STANDARD, WARRANTY, CODE, PERFORMANCE)	SPECIFIED PRODUCT	PROPOSED PRODUCT	IF THERE IS A DIFFERENCE, EXPLAIN WHY THIS SHOULD BE ACCEPTED

Example Point By Point Comparative Data Sheet (example information in italics)

LIST ALL PROPERTIES SPECIFIED (PHYSICAL, TEST, STANDARD, WARRANTY, CODE, PERFORMANCE)	SPECIFIED PRODUCT	PROPOSED PRODUCT	IF THERE IS A DIFFERENCE, EXPLAIN WHY THIS SHOULD BE ACCEPTED
Ex. Warranty	*5yr*	*7yr*	*Exceeds specification*
Ex. ASTM 123	*Passed*	*Exceeds ASTM 123*	*Meets ASTM 124 which has a lower air infiltration rate than ASTM 123*

1.04 PROPOSED CHANGE TO CONTRACT SUM

	DEDUCT	$	ADD	$

1.05 PROPOSED CHANGES TO CONTRACT TIME

A Add / Delete (Choose one) _____ business days to contract time if ACCEPTED

B Add / Delete (Choose one) _____ business days to contract time if REJECTED

1.06 CONTRACTOR HAS INVESTIGATED THE PROPOSED SUBSTITUTION AND CERTIFIES THE FOLLOWING

A Function, appearance, and quality of proposed substitution is equal or superior to the specified item, except as explicity stated in comparison data.

B Proposed substitution will have no adverse effects on other installers, construction schedule, or specified warranty requirements.

C Proposed substitution does not adversely affect dimensions, clearances, or weight for functioning and maintenance.

D Contractor will modify other parts of the Work as necessary to make all parts of the Work complete and functional without additional costs beyond the proposed change to Contract Sum stated above.

E Cost data stated herein are complete and Contractor waives any further claims for additional costs incurred by Architect/Engineer's recommendation and Owner's acceptance of substitution.

F If accepted, Contractor will provide submittals per requirements of Section 01 3300.

1.07 CONTRACTOR'S CERTIFICATION

Contractor Name:	
Name of Authorized Signer:	
Signature:	
Date:	

1.08 ARCHITECT'S/ENGINEER'S RECOMMENDATION (BASED ON CONTRACTOR'S CERTIFICATION ABOVE)

	Substitution Approved: Provide submittals per Specification Section 01 3300.
	Substitution Approved As Noted (see attached comments): Provide submittals per Specification Section 01 3300.
	Substitution Rejected: Provide originally-specified products.
	Substitution Proposal Received Too Late: Provide originally-specified products.

SIGNED BY _____ DATE: _____

1.09 OWNER'S ACTION

	Substitution Approved: Prepare Change Order.
	Substitution Approved As Noted (see attached comments): Prepare Change Order.
	Substitution Rejected: Provide originally-specified products.

SIGNED BY _____ DATE: _____

END OF SECTION

SECTION 01 2600
CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A Section Includes:
1. Minor changes in the Work.
2. Change Orders.
3. Construction Change Directives.

B Related Requirements:
1. Section 01 2500: Substitution requests made after Contract award.

C The Architect shall not be responsible for changes from requirements in the Contract Documents directed by the Owner or made by the Contractor without the Architect's approval, including product substitutions.

1.02 MINOR CHANGES IN THE WORK

A Architect will issue supplemental instructions authorizing minor changes in the Work that do not involve adjustment to Contract Sum or Contract Time.

1.03 PROPOSAL REQUESTS

A Owner-Initiated Proposal Requests: Architect will issue detailed description of proposed changes in the Work that may require adjustment to Contract Sum or Contract Time.
1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit quotation estimating cost adjustments to Contract Sum and Contract Time necessary to execute the change.
    a. Include list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, supply survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
1. Submit proposed change request within 5 days after becoming aware of unforeseen conditions.
2. Include statement outlining reasons for the change and effect of the change on the Work. Provide complete description of the proposed change. Indicate effect of proposed change on the Contract Sum and the Contract Time.
    a. Include list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, supply survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include costs of labor and supervision directly attributable to the change.
d. Include updated Contractor's construction schedule that indicates effect of the change, including changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
e. Comply with requirements in Section 01 2500 if proposed change requires Substitutions of products or systems from those specified.
f. Proposal Request Form: AIA Document G709 for Proposal Requests.

1.04 CHANGE ORDER PROCEDURES

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

1.05 CONSTRUCTION CHANGE DIRECTIVE

A Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.06 PART 2 PRODUCTS (NOT USED)

1.07 PART 3 EXECUTION (NOT USED)

ISSUED	**DATE**
ISSUE FOR BID	**02/05/2024**

END OF SECTION

SECTION 01 2900
PAYMENT PROCEDURES

1.01 PART 1 GENERAL

A **SUMMARY**

1. Section Includes: Administrative and procedural requirements for preparing and processing Applications for Payment.
2. Related Requirements:
   a. Section 01 2600: Administrative procedures for handling changes to the Contract.

B **DEFINITIONS**

1. Schedule of Values: A statement supplied by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.02 SCHEDULE OF VALUES

A Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's construction schedule.

1. Coordinate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
   a. Application for Payment forms with continuation sheets.
   b. Submittal schedule.
   c. Items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the Schedule of Values to Architect at earliest possible date, but no later than twenty days after the date of award or prior to the pre-construction conference, whichever comes first.

B Format and Content: Use Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:
   a. Project name and location.
   b. Name of Architect.
   c. Architect's project number.
   d. Contractor's name and address.
   e. Date of submittal.
2. Arrange Schedule of Values consistent with format of AIA Document G703 .
3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

1) Labor.
2) Materials.
3) Equipment.

4. Provide breakdown of Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
   a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
   a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.03 APPLICATIONS FOR PAYMENT

A Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
   1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
   1. Submit PDF copy of draft Application of Payment seven days before due date indicated in the Agreement for review by Architect.

C Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
   1. Entries shall match data on the Schedule of Values and Contractor's construction schedule. Use updated schedules if revisions were made.
   2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
   3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:
    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F Transmittal: Submit signed and notarized original copies of each Application for Payment to Architect by method ensuring receipt within 24 hours. Include waivers of lien and similar attachments if required.

G Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
5. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

H Monthly Status Reports: With each Application for Payment, submit a monthly status report including the following:

1. Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.
2. Transmit electronically a copy to the Owner and a copy to the Architect.
3. Record the following information concerning events at Project site:
    a. List of subcontractors at Project site.
    b. Approximate count of personnel at Project site.
    c. Equipment at Project site.
    d. Material deliveries.
    e. High and low temperatures and general weather conditions, including presence of rain or snow.

f. Accidents.
g. Meetings and significant decisions.
h. Unusual events (see special reports).
i. Stoppages, delays, shortages, and losses.
j. Meter readings and similar recordings.
k. Emergency procedures.
l. Orders and requests of authorities having jurisdiction.
m. Change Orders received and implemented.
n. Construction Change Directives received and implemented.
o. Services connected and disconnected.
p. Equipment or system tests and startups.Partial completions and occupancies.Substantial Completions authorized.
q. Partial completions and occupancies.Substantial Completions authorized.
r. Substantial Completions authorized.

I Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
5. Schedule of Submittals with date to be sent to Architect and date expected to be returned to the Contractor.
6. Products list (preliminary if not final).
7. Submittal schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits.
11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
12. Initial progress report.
13. Report of preconstruction conference.
14. Certificates of insurance and insurance policies.
15. Performance and payment bonds.
16. Data needed to acquire Owner's insurance.

J Application for Payment at Substantial Completion: After Architect issues Certificate of Substantial Completion, submit Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

K Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted

and accepted, including the following items.

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

ISSUED	**DATE**
ISSUE FOR BID	**02/05/2024**

END OF SECTION

SECTION 01 3100
PROJECT MANAGEMENT AND COORDINATION

PART 1 -GENERAL

1.01 SUMMARY

A Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Information/Interpretation (RFIs).
4. Project Web site.
5. Project meetings.

B Related Requirements:

1. Section 01 7700: Procedures for coordinating closeout of the Contract.

1.02 PROJECT TEAM ORGANIZATION AND ROSTER

A Subcontract List: Prepare written summary identifying individuals or firms proposed for each portion of the Work, including those who are to supply products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Sections covered by subcontract.

B Key Personnel Names: Within 15 working days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project. Keep list current at all times.

1.03 GENERAL COORDINATION PROCEDURES

A Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

B Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor`s construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

C Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.04 COORDINATION

A Coordinate scheduling, submittals, and Work of various Specification sections and Drawing notes to ensure efficient and orderly sequence of installation of interdependent construction elements , with provisions for accommodating items installed later.

B Coordinate selection of products specified in different Specification sections for compatibility. Compatibility among Contractor`s options is not assured by listed manufacturers or products in the Specifications or Drawings, but must be provided by the Contractor.

C Verify that utility requirements and characteristics of operating equipment are compatible with building utilities.

D Coordinate construction operations for efficient and orderly installation of each part of the Work. Coordinate construction operations for Work specified in different Sections that depend on each other for proper installation, connection, and operation. Lay out Work to provide required headroom and width in egress paths.

E Coordination of installation location and sequence between elements of the Work is a basic Contract requirement. Locations of concealed elements shown on Drawings that connect to exposed elements are intended only as diagrams; final locations are the responsibility of the Contractor within Contract requirements.

F Coordinate horizontal and vertical space requirements, support sizes and locations, and installation of Work indicated diagrammatically on Drawings, including concealed spaces. Route concealed pipes, ducts, conduit, and similar items in orderly manner with long dimensions parallel to column grid lines where possible.

G Coordinate locations of concealed framing, blocking, and other supports with manufacturer requirements for support and anchorage.

H Utilize spaces efficiently to maximize accessibility for subsequent Work, for maintenance, for repairs, and to permit removal and replacement.

I Coordinate equipment locations and utility supplies to such locations with manufacturer product information for operational clearances and for maintenance access.

J Coordinate enclosure of Work with required inspections and tests to minimize need for uncovering Work for those purposes.

K Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner`s partial occupancy.

L Preparation of coordination drawings for work of different trades is Contractor’s option. Such drawings will not be reviewed by the Architect.

1.05 REQUESTS FOR INFORMATION OR INTERPRETATION (RFIS)

A Definition: A request seeking one of the following:

1. An interpretation, amplication, or clarification of some requirement of the 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 Preparation: Prepare and submit a RFI immediately upon discovery of a need for interpretation of Contract Documents. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming addtional costs or delays in execution of the Work.
   1. Prepare a separate RFI for each specific item.
      a. Review, coordinate, and comment on requests origination with subcontractors and/or material suppliers.
      b. Do not forward requests which solely require internal coordination between subcontractors.
   2. 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 RFIs will be accepted and processed by the Architect only on Contract Documents prepared by the Architect or its consultants that are sealed and have been issued for construction.

D Owner Documents: Requests for information or interpretation of Owner-prepared Contract Documents shall be made by normal correspondence, not by RFI. Owner is responsible for responding to such requests. Provide contemporaneous copies to Architect.

E Submission of an RFI constitutes representation that the Contractor requires additional information about the Contract Documents after having made careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, and prior project correspondence or documentation.

F If upon evaluation of the RFI the Architect finds that the requested information is contained in the Contract Documents or by other documents or methods as outlined in paragraph above, the Owner has the option to obtain reimbursement from the Contractor for costs incurred by the Owner for the Architect`s services and expenses made necessary in answering such requests.

G RFI Submission: RFIs shall be submitted in electronic form using the Architect’s InfoExchange internet site. Paper RFIs, e-mail, faxes, and other media are not acceptable and will be returned without action.
   1. At the beginning of the Project, the Architect will set up accounts for Contractor’s authorized personnel, including log-in information and passwords. Users will be able to change passwords after logging in for the first time.
   2. Complete the form provided by the InfoExchange software in full. Forms with boxes that are blank will not be processed.
   3. In the box marked “Question”, insert the text of the request together with Contractor’s suggested resolution and other pertinent information.
   4. Sketches, diagrams, product data sheets, and other supplementary information may be attached to the form as PDF electronic files, but the actual text of the request must be entered into the form. Forms that have “See attached document” or similar language in the Question box will be not be processed.

H Content of the RFI: Include detailed, legible description of item needing information or interpretation and the following:
   1. Project name.
   2. Project number.
   3. Date.
   4. Name of Contractor.

5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor`s suggested resolution. If Contractor`s suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor`s signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
    b. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, got example: routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents.

I Architect`s Action: Architect will review each RFI, determine action required, and respond. Allow at least five working days for Architect`s response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor`s means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect`s actions on submittals.
    g. Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response.
    h. Requests by other entities controlled by Contractor.
2. Architect`s action may include request for additional information or clarification, in which case Architect`s time for response will date from time of receipt of additional information or clarification from Contractor. Identify the amended RFI with an R suffix to the original number.
3. 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 RFI's.

J RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by RFI number. Submit copies of log at Owner-Architect-Contractor meetings .

1. Project name.

2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect`s response was received.
8. Indicate current status of every RFI. Update log promptly and on a regular basis.
9. Highlight items requiring priority or expedited response.

K Responses: Content of answered RFI's will not constitute in any manner a directive or authorization to perform extra work or delay the project. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within five working days of receipt of the RFI response and submit a Change Order Proposal according to Section 01 2600.

1. On receipt of Architect`s action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three working days if Contractor disagrees with response.
   a. Include identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
   b. Include identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
2. 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.

1.06 PROJECT WEB SITE

A Use Architect's Project Web site for purposes of hosting and managing project communication and documentation until Final Completion. Project Web site shall include the following functions:

1. Project directory.
2. Project correspondence.
3. Meeting minutes.
4. Site observation reports.
5. RFI forms and logs.
6. Submittals forms and logs.
7. Drawing and specification document hosting, viewing, and updating.
8. Archiving functions.

B On completion of Project, provide one complete archive copy of Project Web site files to Owner and to Architect in digital storage format acceptable to Architect.

C Contractor, subcontractors, and other parties granted access by Contractor to Project Web site shall execute a data licensing agreement in the form of AIA Document C106.

1.07 PROJECT MEETINGS

A General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled

meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three working days of the meeting.

B Preconstruction Conference: Schedule and conduct preconstruction conference before starting construction, at a time convenient to Owner and Architect, but not later than 15 working days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority,Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Record and distribute meeting minutes.
4. Agenda: Discuss items of significance that could affect progress.
    a. Introduction of Design Project Team, Client Team and Contractor Team members.
    b. Review of third party testing requirements and contractual responsibilities.
    c. Correspondence Review:
        1) Project Information Exchange medium (email, phone, text, etc.) and frequency of updates (per contract; weekly, bi-weekly; monthly; particular milestones; etc.).
        2) Communication and routing.
        3) Site Access, Work Restrictions and Working hours.
        4) Owner's occupancy requirements.
        5) Phasing of Work.
        6) Procedures for disruptions and shutdowns.
        7) Request for Interpretation (RFI):
            (a) Distribution.
            (b) Review Initiation Date & Processing Time
        8) Proposed Substitutions:
            (a) Substitution Request Form.
        9) Submittals (Shop Drawings, Product Data, Samples, etc.)
            (a) Submission of Contractor's Submittal Schedule in relationship to first Application for Payment.
            (b) Review Initiation Date and Processing Time.
            (c) Overall Review Time.
        10) Pre-Installation Conferences:
            (a) Timing.
            (b) Mock up reviews.
        11) Material Testing:
            (a) Scheduling Responsibility.
            (b) Report Distribution.
                (1) Format of Report, information to be included (ex. Type and Location on the Site in the Report Title).

12) Application for Payment:
    (a) Timing/schedule.
    (b) Schedule of Values Detail and approval.
    (c) Change Order inclusion.
13) Changes in Work:
    (a) Definition of Change:
        (1) Architect's Supplemental Instruction (ASI).
        (2) Construction Change Directive (CCD).
        (3) Proposed Request (PR).
        (4) Required detail as back up for approval.
    (b) Process and procedures for Client requested change.
14) Record Documents:
    (a) Location of record Documents while construction is underway.
    (b) As-built Accuracy.
15) Substantial Completion:
    (a) Understanding of Warranty Date.
16) Punch Lists:
    (a) Punch List procedure and requirements for Design Project Team to start.
    (b) Procedure for signoff/back check/verification.
17) Close Out:
    (a) Close Out Log Review and Approval.
    (b) Client Format.
    (c) Client Training, In-service, Start-Up
18) Additional Items:
    (a) Job Site Security.
    (b) Off Hours Emergency Site Contact and Access.
    (c) Procedures for Client Vendors.
    (d) Procedures for Client Visitors.
    (e) Progress Cleaning.

C Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration.
    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.

h. Review of mock-ups.
i. Possible conflicts.
j. Compatibility requirements.
k. Time schedules.
l. Weather limitations.
m. Manufacturer recommendations.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D Project Closeout Conference: Schedule and conduct project closeout conference, at a time convenient to Owner and Architect, but not later than60 working days before scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
   a. Preparation of record documents.
   b. Procedures required before inspection for Substantial Completion and for final inspection for acceptance.
   c. Submittal of written warranties.
   d. Requirements for preparing operations and maintenance data.
   e. Requirements for delivery of material samples, extra materials (‘attic stock’), and spare parts.
   f. Requirements for demonstration and training.

g. Preparation of Contractor`s punch list.
h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
i. Submittal procedures.
j. Coordination of separate contracts.
k. Owner`s partial occupancy requirements.
l. Installation of Owner`s furniture, fixtures, and equipment.
m. Responsibility for removing temporary facilities and controls.

4. Minutes: Record and distribute meeting minutes.

E Progress Meetings: Conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority,and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    a. Contractor`s Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor`s construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
        1) Review schedule for next period.
    b. Review present and future needs of each entity present, including the following:
        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Progress cleaning.
        10) Quality and work standards.
        11) Status of correction of deficient items.
        12) Field observations.
        13) Status of RFIs.
        14) Status of proposal requests.
        15) Pending changes.
        16) Status of Change Orders.
        17) Pending claims and disputes.

18) Documentation of information for payment requests.
19) Any open action items from previous meetings.

4. Minutes: Record and distribute the meeting minutes to each party present and to parties requiring information.
    a. Schedule Updating: Revise Contractor`s construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.08 DAILY CONSTRUCTION REPORTS

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

B Ttransmitt electronically a copy to Owner and Architects at weekly intervals.

C Prepare a daily construction report recording the following information concerning events at Project site and project progress:

1. Date
2. List of Subcontractors at Project site.
3. List of separate contractors at Project site.
4. Approximate count of personnel at Project site.
5. Major equipment at Project site.
6. Material deliveries.
7. Safety, environmental, or industrial relations incidents.
8. Meetings and significant decisions.
9. Unusual events (submit a separate special report).
10. 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.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Directives and requests of Authority(s) Having Jurisdiction (AHJ).
14. Change Orders received and implemented.
15. Testing and/or inspections performed.
16. Signature of contractor's authorized representative.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

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END OF SECTION

SECTION 01 3200
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

A Section Includes Administrative and procedural requirements for documenting the progress of construction during performance of the Work.

1. Startup construction schedule.
2. Contractor's construction schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Special reports.

1.02 DEFINITIONS

A Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

C CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E Event: The starting or ending point of an activity.

F Float: The measure of leeway in starting and completing an activity.

1. Float time belongs to Owner.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.03 INFORMATIONAL SUBMITTALS

A Format for Submittals: PDF electronic file.

B Startup construction schedule.

1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

E CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Notice to Proceed, until most recent Application for Payment.

F Construction Schedule Updating Reports: Submit with Applications for Payment.

G Daily Construction Reports: Submit at weekly intervals.

H Material Location Reports: Submit at weekly intervals.

1.04 SITE CONDITION REPORTS: SUBMIT AT TIME OF DISCOVERY OF DIFFERING CONDITIONS.

A Special Reports: Submit at time of unusual event.

1.05 QUALITY ASSURANCE

A Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

1.06 COORDINATION

A Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.01 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 working days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 30 days, as separate activities in

schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 3300 in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
    a. Indicate partial substantial completion for the phased Work that will be occupied by Owner's tenant prior to completion of Project.
5. Punch List and Final Completion: Refer to Owner's requirements for duration of punch list and final completion.
6. Work Restrictions: Show the effect of the following items on the schedule.
    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use of premises restrictions.
    f. Seasonal variations.
    g. Environmental control.

C Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

D Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence before submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

E Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

F Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.02 STARTUP CONSTRUCTION SCHEDULE

A Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven working days of date established for the Notice to Proceed.

B Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 working days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A General: Prepare network diagrams using AON (activity-on-node) format.

B Startup Network Diagram: Submit diagram within 14 working days of date established for Outline significant construction activities for the first 90 working days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C CPM Schedule: Prepare Contractor's construction schedule using a cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use not later than 30 working days after date established for the Notice of Award.
    a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.

D CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities.
    a. Preparation and processing of submittals.
    b. Mobilization and demobilization.
    c. Purchase of materials.
    d. Delivery.
    e. Fabrication.
    f. Utility interruptions.
    g. Installation.
    h. Work by Owner that may affect or be affected by Contractor's activities.
    i. Testing and commissioning.
    j. Punch list and final completion.
    k. Activities occurring following final completion.
2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

E Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.

F Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Main events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the schedule of values).

G Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

H REPORTS

I Daily Construction Reports: Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.

J Transmit electronically a copy to Owner and Architect.

K Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.

11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

L Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored before previous report and remaining in storage.
2. Material stored before previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

M Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.04 SPECIAL REPORTS

A General: Submit special reports directly to Owner within one working days of an occurrence. Distribute copies of report to parties affected by the occurrence.

B Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

A Contractor's Construction Schedule Updating: At regular intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

B Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

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END OF SECTION

SECTION 01 3300
SUBMITTAL PROCEDURES

PART 1 -GENERAL

1.01 SUMMARY

A This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

B Related Sections include the following:

1. Division 01 Section “Payment Procedures” for submitting Application for Payment.
2. Division 01 Section “Closeout Procedures” for submitting warranties and Project Record Documents.
3. Division 01 Section “Project Record Documents” for submitting Record Drawings, Record Specifications, and Record Product Data.
4. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

1.02 DEFINITIONS

A Action Submittals: Written and graphic information that requires Architect`s responsive action.

B Informational Submittals: Written information that does not require Architect`s approval. Submittals may be rejected for not complying with requirements.

1.03 ACTION SUBMITTALS

A Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by the construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery with established dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those conditions.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. No submittals will be reviewed until the initial submittal schedule is received. See Section 01 2900 for requirements to submit this schedule with the first pay application.
3. Format: Arrange the following information in tabular form.
   a. Scheduled date for the first submittal.
   b. Specification Section number and title.
   c. Submittal category: Action, informational.
   d. Name of subcontractor.
   e. Description of the Work covered.
   f. Schedules date for Architect/Engineer's response.
   g. Scheduled dates for purchasing.
   h. Schedules dates for installation.
   i. Activity or event number.
4. Review Initiation Date: Date submittal is received in the Architect/Engineer's office, or the next working day when received after 1:00 PM local time.
5. Review Completion Date: Date submittal leaves the Architect/Engineer's office.

1.04 SUBMITTAL PROCEDURES

A General: Electronic copies of base plans of the Contract Drawings for Contractor`s use in preparing submittals will not be provided.

B Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect`s receipt of submittal.
   1. Initial Review: Allow 10 business days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
   2. If resubmittal is necessary, process it in same manner as initial submittal.
   3. Allow 10 business days for processing each resubmittal.
   4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
   5. Submittals out of sequence from agreed upon schedule may result in back charges to the Contractor.
   6. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow at least 15 working days for initial review of each submittal.

D Identification: Place a permanent label or title block on each submittal for identification.
   1. Indicate name of firm or entity that prepared each submittal on label or title block.
   2. Provide a space on label or beside title block to record Contractor`s review and approval markings.
   3. Include the following information on label for processing and recording action taken:
      a. Project name.
      b. Date.
      c. Name and address of Contractor.
      d. Name and address of subcontractor.
      e. Name and address of supplier.
      f. Name of manufacturer.
      g. Unique identifier, including revision number.
      h. Number and title of appropriate Specification Section.
      i. Drawing number and detail references, as appropriate.
      j. Other necessary identification.

E Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals. **Contractor shall denote ALL exceptions or deviations from the specification by citing the specification section and paragraph that is at issue.**

F Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final

submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Owner.
2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

G Transmittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit submittals for each specification section with a separate transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form for Electronic Submittals: Use software-generated form from Architect's electronic project management software, containing the following information:
   a. Project name.
   b. Date.
   c. Name and address of Architect.
   d. Name of Contractor.
   e. Name of firm or entity that prepared submittal.
   f. Names of subcontractor, manufacturer, and supplier.
   g. Category and type of submittal.
   h. Submittal purpose and description.
   i. Specification Section number and title.
   j. Specification paragraph number or drawing designation and generic name for each of multiple items.
   k. Drawing number and detail references, as appropriate.
   l. Locations where product is to be installed, as appropriate.
   m. Related physical samples submitted directly.
   n. Indication of full or partial submittal.
   o. Transmittal number, numbered consecutively.
   p. Submittal and transmittal distribution record.
   q. Other necessary identification.
   r. Remarks.
2. Metadata: Include the following information as keywords in the electronic submittal file metadata:
   a. Project name.
   b. Number and title of appropriate Specification Section.
   c. Manufacturer name.
   d. Product name.

H Options: Identify options requiring selection by Architect.

I Resubmittals:

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "Approved" or "Approved as Noted" by Architect.

J Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 -PRODUCTS

2.01 ACTION SUBMITTALS

A General: Prepare and submit Action Submittals required by individual Specification Sections. The Architect/Engineer will provide access to Newforma document management software without cost to Contractor. Contractor shall use the standard transmittal forms provided by the Architect/Engineer. Using e-mail or other proprietary software is not acceptable.

B Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
    a. Manufacturer`s written recommendations.
    b. Manufacturer`s product specifications.
    c. Manufacturer`s installation instructions.
    d. Standard color charts.
    e. Manufacturer`s catalog cuts.
    f. Wiring diagrams showing factory-installed wiring.
    g. Printed performance curves.
    h. Operational range diagrams.
    i. Mill reports.
    j. Standard product operating and maintenance manuals.
    k. Compliance with recognized trade association standards.
    l. Compliance with recognized testing agency standards.
    m. Application of testing agency labels and seals.
    n. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
    o. Notation of coordination requirements.

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

1. Preparation: Include the following information, as applicable:
    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.

h. Schedules.
i. Design calculations.
j. Compliance with specified standards.
k. Notation of coordination requirements.
l. Notation of dimensions established by field measurement.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

D Samples: Prepare physical units of materials or products, including the following:

1. Samples for Initial Selection: Submit manufacturer`s color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Attach label on unexposed side that includes the following:
   a. Generic description of Sample.
   b. Product name or name of manufacturer.
   c. Sample source.
   d. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

E Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

2.02 INFORMATIONAL SUBMITTALS

A General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
2. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."

B Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names

and addresses of architects and owners, and other information specified.

C Product Certificates: Prepare written statements on manufacturer`s letterhead certifying that product complies with requirements.

D Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E Installer Certificates: Prepare written statements on manufacturer`s letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

F Manufacturer Certificates: Prepare written statements on manufacturer`s letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

G Material Certificates: Prepare written statements on manufacturer`s letterhead certifying that material complies with requirements.

H Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency`s standard form, indicating and interpreting test results of material for compliance with requirements.

I Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency`s standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

J Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency`s standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

K Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency`s standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

L Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

M Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."

N Manufacturer`s Instructions: Prepare written or published information that documents manufacturer`s recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

O Manufacturer`s Field Reports: Prepare written information documenting factory-authorized service representative`s tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

P Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

2.03 DELEGATED-DESIGN SERVICES

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

B Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit PDF format certification, signed and sealed by the responsible design professional licensed in the state which the project is located, for each product and system specially assigned to Contractor to be designed or certified by design professional.
1. Certify that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing those services.
2. Where necessary for manufacturer warranties, the Contractor's Design Professional shall be employed by or acceptable to the manufacturer.

PART 3 -EXECUTION

3.01 CONTRACTOR`S REVIEW

A Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with Contractor's approval stamp before submitting to Architect/Engineer.

B Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."

C Contractor's Approval Stamp: Wording shall clearly indicate the following information. Submittals with review stamps that do not meet these requirements will be rejected without review.
1. The submittal was reviewed for compliance with Contract requirements.
2. The submittal is marked as "Approved" or "Approved As Noted" per requirements of the Conditions of the Contract.
3. Reviewer Identification.

4. Review date.

3.02 ARCHITECT/ENGINEERS`S ACTION

A General: Architect/Engineer will not review submittals that do not bear Contractor`s approval stamp and will return them without action.
   1. Review of submittals by Architect/Engineer is only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
   2. Review of submittals by Architect/Engineer is not for purpose of determining the accuracy and completeness of dimensions and quantities, or substantiating installation instructions.

B Re-submittal Review: Submittals marked as "Revise and Resubmit" will be re-reviewed and stamped with an action stamp. Architect/Engineer will mark the stamp appropriately to indicate action taken. If the re-submittal is marked as "Revise and Resubmit", the Owner reserves the right to deduct the amount of the Architect/Engineer`s compensation for subsequent re-submittal review from the final payment to the Contractor as provided on the Bid Form.

C Action Submittals: Architect/Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect/Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
   1. Approved: Where submittal is marked "Approved", the Work covered by the submittal may proceed provided it complies with the Contract Documents.
   2. Approved As Noted: Where submittal is marked "Approved As Noted", the Work covered by the submittal may proceed provided it complies with all Architect/Engineer's notations and corrections on the submittal and the Contract Documents.
   3. Revise and Resubmit: Where the submittal is marked "Revise and Resubmit", the Contractor may not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity for the product submitted. Revise or prepare a new submittal according to Architect/Engineer's notations and corrections.
   4. Rejected: Where the submittal is marked "Rejected", the Contractor may not proceed with the Work covered by the submittal. Prepare a new submittal that complies with the Contract Documents.
   5. Reviewed for General Conformance Only: This response is for when the Architect/Engineer is a secondary reviewer to a third party, or Architect/Engineer's stamp will demonstrate the submittal was reviewed without providing direction to the submitting entity - because the primary reviewer makes the determination regarding the acceptance of that submittal. The language that would accompany this choice would be as follows: "Submittal was reviewed for general conformance to the project documents. Since Gresham Smith is a secondary reviewer to a subcontractor or third party, the acceptability of the submittal is determined by the Primary Reviewer, whose stamp also appears on the submittal. Based upon our review, we are returning this submittal with comments marked on the drawings.
   6. Delegated Design - Reviewed for General Conformance Only: This response is for a special class of submittal - Delegated Design - where the Architect/Engineer is reviewing the work of a licensed professional to verify conformance with the Architect/Engineer's original design documents. The language that would accompany this choice would be as follows: "In accordance with the Project Specifications, the information contained in this

submittal bears the seal of a Professional Engineer who is responsible for the preparation, design, completeness and accuracy of the information presented in this submittal. Since our office did not prepare or design the information presented in this submittal, review of this submittal is for general conformance with the Contract Documents only. It is not reviewed for completeness or accuracy. Based upon our review, we are returning this submittal with comments marked on the drawings.

7. Submittal Not Reviewed: Where Gresham Smith receives an information submittal, or Gresham Smith receives a submittal we did not request, the Contractor is receiving no direction from Gresham Smith.

D Informational Submittals: Architect/Engineer will review each informational submittal and will not return it or may return it as a "Submittal Not Reviewed" as noted in the Section above or will return it with comments if it is non-responsive to requirements. Architect/Engineer has authority to designate portions of action submittals as informational.

E Partial submittals prepared for a portion of the Work will be reviewed only when use of partial submittals has received prior approval from Architect/Engineer.

F Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

G Submittals not required by the Contract Documents will not be reviewed and may be discarded.

H Submittals attached to Substitution Requests will not be reviewed and will be returned without comment.

ISSUED	**DATE**
ISSUE FOR BID	**02/05/2024**

END OF SECTION

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A Section Includes: Administrative and procedural requirements for quality assurance and quality control.

B Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections and Drawings that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.02 DEFINITIONS

A Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

D Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

F Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

G Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trades.

I Experienced: When used with an entity or individual, "experienced" means having successfully completed minimum five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.03 CONFLICTING REQUIREMENTS

A Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

C Conflicting Information in Contract Documents: If there is a conflict between any two or more documents in the Contract Documents, the more stringent requirement is to be followed.

1.04 INFORMATIONAL SUBMITTALS

A Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B Qualification Data: For Contractor's quality-control personnel.

C Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of recent report on inspection of the testing agency by a recognized authority.

D Schedule of Tests and Inspections: Prepare in tabular form.

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.05 CONTRACTOR'S QUALITY-CONTROL PLAN

A Quality-Control Plan, General: Submit quality-control plan within 10 working days of Notice to Proceed, and not less than five working days before preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B Testing and Inspection: In quality-control plan, include comprehensive schedule of Work requiring testing or inspection, including the following.

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.

2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents.

C Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mock-ups.

D Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.06 REPORTS AND DOCUMENTS

A Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in

other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.07 QUALITY ASSURANCE

A General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

C Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST National Voluntary Laboratory Accreditation Program.

D Manufacturer's Technical Representative Qualifications: Authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

E Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

F Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:
    a. Provide test specimens representative of proposed products and construction.
    b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    c. Provide sizes and configurations of test assemblies, mock-ups, and laboratory mock-ups to adequately demonstrate capability of products to comply with performance requirements.

d. When testing is complete, remove test specimens, assemblies; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.08 QUALITY CONTROL

A Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 3300 "Submittal Procedures."

D Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

1. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency.
2. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

F Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with minimum delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TEST AND INSPECTION LOG

A Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours..

3.02 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.

3.03 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.

3.04 REPAIR AND PROTECTION

A General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching.

B Protect construction exposed by or for quality-control service activities.

C Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

ISSUED	DATE
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END OF SECTION

SECTION 01 4216
DEFINITIONS & REFERENCES

PART 1 GENERAL

1.01 SUMMARY

A Other definitions are included in individual specification sections.

B General: Basic Contract definitions are included in the Conditions of the Contract.

1.02 DEFINITIONS

A Approved: When used regarding Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

B Directed: A directive or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

C Equal, Equivalent: With respect to products, these words are used synonymously in the Contract Documents to mean like degree of features, attributes, performances, or qualities deemed important by the Architect for the Work. Use of these words or language of similar import is not intended to imply equality or identity in all respects or qualities. Use of the phrase “or equal” or language of similar import is intended to mean that the Architect will consider Substitution proposals for the specified product.

D Furnish: To supply, deliver, unload, and inspect for damage.

E Include: Use of the term “included” and its forms is not intended to limit requirements to a list nor to exclude other, unnamed items from a list that it precedes. The phrases “without limitation” or “but not limited to” should be assumed to follow the words “include” or “including.”

F Indicated: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

G Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use. Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

H Installer: The Contractor or entity engaged by the Contractor as employee, subcontractor, or contractor of lower tier, to perform a portion of the Work of Contract, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The adjective “experienced” when used with the term “installer” or in requirements for installer qualifications means having sufficient number of successfully completed and satisfactory installations of similar type, size, and complexity to be able to complete Contract requirements for this Project in proper and timely manner. Evaluation of installer experience is solely the responsibility of the Contractor unless explicitly stated otherwise in the Contract Documents.
2. Use of terms such as “approved by,” “licensed by,” or “acceptable to” the manufacturer of the product being installed means that the installer has been specifically qualified by the manufacturer for installing its products as required for Project applications. Manufacturer’s sale of products to Contractor or installer does not in itself constitute such qualification.

I Manufacturer: This term includes producers that process natural materials and fabricators who produce assembled items from manufactured components; in short, all producers of products.

J Materials: Products substantially shaped, cut, worked, finished, refined, or otherwise fabricated, processed, and installed to form part of the Work.

K Or: Used in inclusive sense to indicate alternatives of any item or any combination of items in a list, unless otherwise stated.

L Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Materials or manufactured items incorporated into the Project that increase the real value of the property. The term “product” includes the terms “material,” “equipment,” “fixture,” “system,” and other terms of similar intent.

1. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result.

M Project Site: Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which the Project is to be built. The term “job site” is synonymous.

N Provide: To furnish and install complete and ready for intended use.

O Punch List: A list of items to be completed or corrected by the Contractor, whether prepared by the Contractor pursuant to the General Conditions or prepared by the Architect at time of inspections for Substantial Completion, final completion, or other occasion.

P Regulations, Regulatory Requirements: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

Q Supply: Same as Furnish.

1.03 REFERENCES

A INDUSTRY STANDARDS

1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made part of the Contract Documents by reference.
   a. Unless otherwise required by applicable regulatory requirements or law, publications cited in reference standards are not intended to be part of the Contract Documents.
2. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise required by applicable codes or law.
3. Conflicting Requirements:
   a. Unless otherwise required by law, provisions of Contract Documents take precedence over reference standards.
   b. Where compliance with two or more standards is specified and those standards establish different or conflicting requirements for minimum quantity or quality levels, the most stringent requirement shall govern unless Contract Documents specifically indicate a less stringent requirement.
   c. Refer requirements that are different but apparently equal, and uncertainties as to which level of quality is more stringent to Architect for decision.
4. No provision of any referenced standard, including those specifically incorporated by reference in the Contract Documents, shall be effective to change the duties or responsibilities of the Owner, Architect, Contractor, or their consultants, agents, or employees from those set forth the Contract Documents.

5. Copies of Standards: Each entity engaged in construction on Project shall be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   a. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
6. Where needed for proper performance of Work or requested by Architect, provide copies for use on site.

1.04 ABBREVIATIONS AND ACRONYMS

A Names of trade associations, standards generating organizations, governing authorities, and other entities are frequently referred to in Contract Documents by acronyms and abbreviations. Request explanation of unknown terms from Architect.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

ISSUED	DATE
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END OF SECTION

SECTION 01 4519
UNCOVERING AND CORRECTION OF WORK

PART 1 -GENERAL

1.01 SUMMARY

A Section Specifies: Requirements for uncovering and correction of Work.

1.02 UNCOVERING OF WORK

A If the Contract Documents, laws, ordinances, rules, regulations or orders of any Public Authority having jurisdiction require any portion of the Work to be inspected, provide the Architect timely notice of its readiness so that the Architect may observe such inspections.

B 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 required in writing by the Architect, be uncovered for the Architect`s observation and be replaced at the Contractor`s expense without change in the Contract Time.

C If a portion of the Work has been covered which the Architect has not specifically requested to observe prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor.

1. If uncovered Work is in accordance with Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner.
2. If uncovered Work is not in accordance with Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

1.03 CORRECTION OF WORK

A Promptly correct the Work rejected by the Architect 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.

1. Costs of correcting such rejected Work, including additional testing, inspections, and compensation for the Architect`s services and expenses made necessary thereby, shall be at the Contractor`s expense.

B The quality of materials and workmanship used in restoring this work shall be in full compliance with the requirements of the Contract Documents.

PART 2 -PRODUCTS – NOT USED

PART 3 -EXECUTION – NOT USED

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END OF SECTION

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A Temporary utilities.
B Temporary sanitary facilities.
C Temporary Controls: Barriers, enclosures, and fencing.
D Security requirements.
E Vehicular access and parking.
F Waste removal facilities and services.

1.02 RELATED REQUIREMENTS

A Section 01 1000 - Summary of Work

1.03 REFERENCE STANDARDS

A ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
B ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).

1.04 TEMPORARY UTILITIES

A Owner will provide the following:
1. Water and Sewer service: Owner will pay.
a. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
2. Electric Power Service: Owner will pay.
a. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
b. Where electricity for construction operations is needed with characteristics different from that available from existing service, provide and pay for separate temporary source for such power.

1.05 LIGHTING FOR CONSTRUCTION

A Existing permanent lighting in building may be used during construction.
1. Re-lamping Responsibility: Contractor.
B Provide temporary lighting as needed for life safety,construction, observations, and inspections.
C Electricity for permanent lighting and electricity from existing outlets for temporary lighting may be used without cost to Contractor.
D Clean and repair existing luminaires that are soiled or damaged by construction activities.

1.06 BARRIERS

A Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that are 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 Provide barricades required by governing authorities for public rights-of-way and for public access to existing building.

C Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.07 EXTERIOR ENCLOSURES

A Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.08 SECURITY

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

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 Owner.

C Provide and maintain access to fire hydrants, free of obstructions.

D Provide means of removing mud from vehicle wheels before entering streets.

E Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking. Coordinate parking with Owner's requirements.

1.10 WASTE REMOVAL

A Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B Provide containers with lids. Remove trash from site periodically.

C If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.11 POLLUTION CONTROL

A Comply with environmental regulations and minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects on the environment.

1.12 TRAFFIC CONTROL

A Provide traffic information signs.

B Protect existing site improvements to remain, including curbs, pavement, and utilities.

C Maintain access for fire-fighting equipment and access to fire hydrants.

1.13 WATER CONTROL

A Grade site to drain. Prevent puddling water.

B Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C Provide water barriers to protect site from soil erosion.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B Clean and repair damage caused by installation or use of temporary work.

C Restore existing facilities used during construction to original condition.

D Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

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END OF SECTION

SECTION 01 7300
EXECUTION

PART 1 -GENERAL

1.01 SUMMARY

A Section Includes:
1. Construction layout.
2. Installation of the Work.
3. Cutting and patching.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Hot work permit.

B Related Requirements:
1. Section 02 4100: Demolition

1.02 DEFINITIONS

A Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

C Hot Work: Work involving welding, brazing, torch cutting, grinding, powder-driven fasteners, torch-applied roofing, or other activities that generate sparks capable of causing combustion. Refer to NFPA 51B and 601.

1.03 INFORMATIONAL SUBMITTALS

A Prepare submittals per requirements of Section 01 3300 – Submittal Procedures.

B Cutting and Patching Plan: Submit plan describing procedures at least 5 working days before the time cutting and patching will be performed. Include the following information:
1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

1.04 QUALITY ASSURANCE

A Land Surveyor Qualifications: Legally qualified to practice in jurisdiction where Project is located and experienced in providing land-surveying services for commercial construction projects of similar size and complexity.

B Cutting and Patching:

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Mechanical systems piping and ducts.
    f. Control systems.
    g. Communication systems.
    h. Fire-detection and -alarm systems.
    i. Conveying systems.
    j. Electrical wiring systems.
    k. Operating systems of special construction.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Exterior curtain-wall construction.
    d. Sprayed fire-resistive material.
    e. Equipment supports.
    f. Piping, ductwork, vessels, and equipment.
    g. Noise- and vibration-control elements and systems.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect`s opinion, reduce the building`s aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

D Manufacturer`s Installation Instructions: Obtain and maintain on-site manufacturer`s written recommendations and instructions for installation of products and equipment.

E Hot Work Permits: Before starting activities involving hot work, obtain hot work permit from the Owner. Provide minimum 72 hours notice to Owner to obtain hot work permit.

PART 2 -PRODUCTS

2.01 MATERIALS

A In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

B Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

C Patching Materials:
   1. New Materials: Match existing products and work for patching and extending work.
   2. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
   3. Product Substitution: For any proposed change in materials, submit request for substitution described in Sections 01 2500 and 01 6000.

PART 3 -EXECUTION

3.01 EXAMINATION

A EXISTING CONDITIONS DISCLAIMER: The Owner and Architect specifically disclaim any warranty as to existence and locations of underground and other concealed utilities and construction indicated on Drawings as existing. The Architect prepared Drawings on the basis of information provided by Owner and did not verify the accuracy of that information. Contractor is therefore advised that actual conditions may differ from those depicted on Drawings or in other Contract Documents.
   1. Notify Architect of existing conditions that are outside Contractor's responsibility that would hinder proper or timely execution, or adversly affect performance of finished Work.

B Before beginning sitework, investigate and verify the existence and location of underground utilities, electrical and other construction affecting the Work.
   1. Before construction, verify the location underground electrical services and other utilities.
   2. Verify that utility services are available, of the correct characteristics, and in the correct locations.
   3. Supply location data for work related to Project that must be performed by public utilities serving Project site.

C Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where appropriate, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   4. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
   5. Verify that existing conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

D Proceed with installation only after unsatisfactory conditions have been corrected.

E Inspect products immediately before installation. Do not install defective or damaged products.

F Examine and verify specific conditions described in individual specification sections.

3.02 PREPARATION

A Existing Utility Information: Supply information to local utility and Owthat is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings, including requirements for operation, maintenance access, and other required clearances.

C Field Measurements: Measure in-place and existing construction as needed for fabrication and execution of the Work. No changes to Contract Sum or Contract Time will be allowed for differences between Drawing dimensions and field measurements.

3.03 CONSTRUCTION LAYOUT

A Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

B General:

1. Establish limits on use of Project site.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

3.04 INSTALLATION

A Project structures have been designed for strength, stability, and safety in completed form. Until completed, provide temporary bracing and supports needed for strength, stability, and safety of construction in progress and for protection of persons and property.

B General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches [<>] in occupied spaces and 90 inches [<>] in unoccupied spaces.
5. 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.
6. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
7. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

C Comply with manufacturer instructions and recommendations for installing products.

D Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

E Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

F Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

G Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H Attachments: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for thermal expansion and contraction, deflection, and normal building movements.
3. Coordinate installation of anchorages. Supply setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J Isolate products from incompatible materials as needed to prevent deterioration.

K Coordinate enclosure of the Work with required inspections and tests so as to minimize need for uncovering Work for those purposes.

L Install products at time and under conditions that will ensure best possible results. Maintain conditions required for product performance until Substantial Completion.

1. Do not install products during weather conditions that adversely affect installation or performance of completed Work.
2. Do not install products sensitive to exterior weather conditions such as extreme temperatures or moisture without the facility being enclosed or the products being sufficiently protected.

M Tolerances: Where specific tolerances are not stipulated by Contract Documents or manufacturer recommendations, comply with applicable industry standards.

1. Tolerances are noncumulative unless otherwise stated.

3.05 CUTTING AND PATCHING

A Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch to restore surfaces to original condition.

B Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C Whenever possible, execute the work by methods that avoid cutting or patching.

D 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.

E Specific cutting and patching requirements applicable to individual units of Work may be specified in other Specification sections.

F At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material of equal rating of that of the wall, partition, ceiling or floor, to full thickness of the penetrated element.

G Requirements of this Section apply to all Work of Contract. Refer to Divisions 21 through 33 and drawings for additional requirements and limitations on cutting and patching.

H Temporary Support: Provide temporary support of work to be cut.

I Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

J Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 1000.

K Existing Utility Services and Mechanical/Electrical Systems: Where existing services or systems are required to be removed, relocated, or abandoned, bypass such services or systems before cutting to minimize interruption to occupied areas.

L Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer`s written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

M Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other

Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even, plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to weathertight condition and ensures thermal and moisture integrity of building enclosure.

N Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, and similar materials from adjacent finished surfaces.

3.06 PROGRESS CLEANING

A General: Clean Project site and work areas daily, including common areas.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    a. Use containers intended for holding waste materials of type to be stored.
4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B Site: Maintain Project site free of waste materials and debris.

C Clean spills, misapplications, and other accidents immediately as they occur.

D Do not remove or obscure UL labels, third-party certification labels, or other required labeling.

1. Remove liquid spills promptly.

E Installed Work: Keep installed work clean. Clean installed surfaces according to instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

F Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.

G Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

H Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

I Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

J During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

K Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

L Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

M Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury. Ensure materials are properly secured to prohibit foreign object debris (FOD).

3.07 STARTING AND ADJUSTING

A Coordinate startup and adjusting of equipment and operating components with requirements in other specification sections.

B Notify Architect and Owner seven days prior to start-up of each item.

C Coordinate schedule for start-up of various equipments and systems.

D Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturer's instructions.

E Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

F Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

G Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

H Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.08 PROTECTION OF INSTALLED CONSTRUCTION

A Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B Comply with manufacturer instructions for temperature and relative humidity.

3.09 DAMAGE CORRECTIONS

A Provide new conforming Work to replace damaged work that cannot be repaired or refinished in place. Damage includes soiling or staining that cannot be satisfactorily cleaned.

1. Remove interior gypsum products exposed to water during construction period. Remove entire gypsum board panels; do not cut and patch gypsum board.
2. Remove insulation, acoustic ceiling components, and other moisture-sensitive products exposed to water during construction period.

3. Remove metal stud framing components exposed to water during construction period that have visible rust.

B If there is evidence of water intrusion into partially completed areas, remove portions of gypsum board and other construction at shafts, plenums, and other concealed areas to check for moisture damage and for mold and mildew growth. Examine concealed areas in presence of Architect.

1. Remove components in entirety that exhibit water damage, mold, or mildew.
2. Remove gypsum board in whole panels.
3. Do not install replacement Work until concealed areas are completely dried and causes of water intrusion have been remedied.

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END OF SECTION

SECTION 01 7700
CLOSEOUT PROCEDURES

PART 1 -GENERAL

1.01 SUMMARY

A Section Includes:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B Related Requirements:

1. Section 01 7300: Progress cleaning of Project.
2. Section 01 7823: Requirements for operation and maintenance manuals.
3. Section 01 7839: Submission of record Drawings, record Specifications, and record Product Data.

1.02 ACTION SUBMITTALS

A Contractor`s Punch List of Incomplete Items: Initial submittal at Substantial Completion.

B Certified Punch List of Incomplete Items: Final submittal at Final Completion.

1.03 CLOSEOUT SUBMITTALS

A Certificates of Release: From authorities having jurisdiction.

B Certificate of Insurance: For continuing coverage.

1.04 MAINTENANCE MATERIAL SUBMITTALS

A Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.05 SUBSTANTIAL COMPLETION PROCEDURES

A Contractor`s List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor`s punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B Submittals Before Substantial Completion: Complete the following minimum 10 working days before requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer`s name and model number where applicable.

a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect`s signature for receipt of submittals.

5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner`s occupancy, use, operation, and maintenance.

C Procedures Before Substantial Completion: Complete the following minimum 10 working days before requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner`s personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used before Substantial Completion.
5. Instruct Owner`s personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 7900.
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mock-ups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D Inspection: Submit a written request for inspection to determine Substantial Completion minimum 10 working days before date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor`s list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.06 FINAL COMPLETION PROCEDURES

A Submittals Before Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit final Application for Payment per Section 01 2900.
2. Certified List of Incomplete Items: Submit certified copy of Architect`s Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B Inspection: Submit a written request for final inspection to determine acceptance minimum 10 days before date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

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

1.07 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
2. Include the following information at the top of each page:
   a. Project name.
   b. Date.
   c. Name of Architect.
   d. Name of Contractor.
   e. Page number.
3. Submit list of incomplete items in the following format:
   a. PDF electronic file. Architect will return annotated file.

1.08 SUBMITTAL OF PROJECT WARRANTIES

A Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work when delay in submittal of warranties might limit Owner`s rights under warranty.

B Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

C Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 -PRODUCTS

2.01 MATERIALS

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

PART 3 -EXECUTION

3.01 FINAL CLEANING

A General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer recommendations.

C Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
3. Remove tools, construction equipment, machinery, and surplus material from Project site.
4. Remove snow and ice to provide safe access to building.
5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
6. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
7. Sweep concrete floors broom clean in unoccupied spaces.
8. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer`s recommendations if visible soil or stains remain.
9. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
10. Remove labels that are not permanent.
11. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
12. Leave Project clean and ready for occupancy.

3.02 REPAIR OF THE WORK

A Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use to comply with requirements for new fixtures.

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END OF SECTION

SECTION 01 7823
OPERATION AND MAINTENANCE DATA

PART 1 -GENERAL

1.01 SUMMARY

A Section Includes:

1. Operation and maintenance documentation directory.
2. Emergency manuals.
3. Operation manuals for systems, subsystems, and equipment.
4. Product maintenance manuals.
5. Systems and equipment maintenance manuals.

1.02 DEFINITIONS

A System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B Subsystem: A portion of a system with characteristics similar to a system.

1.03 CLOSEOUT SUBMITTALS

A Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B Format:

1. PDF electronic file. Assemble each manual into composite electronically indexed file. Submit on digital media acceptable to Architect.
   a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
   b. Enable inserted reviewer comments on draft submittals.
2. Two paper copies. Include complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves.

C Initial Manual Submittal: Submit draft copy of each manual at least 30 working days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.

1. Format: PDF Electronic File. Architect will review electronic copy prior to hard copies being submitted.

D Final Manual Submittal: Submit each manual in final form before requesting inspection for Substantial Completion and at least 15 working days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect`scomments. Submit copies of each corrected manual within 15 working days of receipt of Architect`scomments and before commencing demonstration and training.
2. Format: PDF Electronic File and paper copies.

PART 2 -PRODUCTS

2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.02 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
2. Table of contents.
3. Manual contents.

B Title Page: Include the following information:
1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Architect.
7. Name and contact information for Commissioning Authority.
8. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
9. Cross-reference to related systems in other operation and maintenance manuals.

C Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    a. Identify binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name,subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.03 EMERGENCY MANUALS

A Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.

7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner`s operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

2.04 OPERATION MANUALS

A Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer`s name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.

8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.05 PRODUCT MAINTENANCE MANUALS

A Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B Source Information: List each product included in manual, identified by product name and arranged to match manual`s table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer`s name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D Maintenance Procedures: Include manufacturer`s written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.06 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers` maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual`s table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C Manufacturers` Maintenance Documentation: Manufacturers` maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers` forms for recording maintenance.

F Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers` maintenance documentation and local sources of maintenance materials and related services.

G Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.07 THROUGH-PENETRATION FIRESTOPPING SYSTEMS MANUAL

A Content: Products, description, and copies of system details for each through-penetration firestopping system installed.

PART 3 -EXECUTION

3.01 MANUAL PREPARATION

A Operation and Maintenance Documentation Directory: Prepare separate manual that provides organized reference to emergency, operation, and maintenance manuals.

B Emergency Manual: Assemble complete set of emergency information indicating procedures for use by emergency personnel and by Owner`s operating personnel for types of emergencies indicated.

C Product Maintenance Manual: Assemble complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

1. Engage factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare separate manual for each system and subsystem, in the form of an instructional manual for use by Owner`s operating personnel.

D Manufacturer Data: Where manuals contain manufacturers` standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
   1. Prepare supplementary text if manufacturers` standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

E Drawings: Prepare drawings supplementing manufacturers` printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
   1. Do not use original project record documents as part of operation and maintenance manuals.
   2. Comply with requirements of newly prepared record Drawings in Section 01 7839.

F Comply with Section 01 7700 for schedule for submitting operation and maintenance documentation.

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END OF SECTION

SECTION 01 7839
PROJECT RECORD DOCUMENTS

PART 1 -GENERAL

1.01 SUMMARY

A Section Includes:
1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B Related Requirements:
1. Section 01 7700 "Closeout Procedures" for general closeout procedures.
2. Section 01 7823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.02 CLOSEOUT SUBMITTALS

A Record Drawings: Comply with the following:
1. Number of Copies: Submit copies of record Drawings as follows:
   a. Submittal:
      1) Submit one paper-copy sets of marked-up record prints.
      2) Submit PDF electronic files of scanned record prints .
      3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

B Record Specifications: Submit annotated PDF electronic files of Project`s Specifications, including addenda and contract modifications.

C Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

PART 2 -PRODUCTS

2.01 RECORD DRAWINGS

A Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued. At Contractor’s option, record information may be recorded electronically on PDF files of Contract Drawings.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   b. Accurately record information in an acceptable drawing technique.
   c. Record data as soon as possible after obtaining it.
   d. Record and check the markup before enclosing concealed installations.
2. Content: Types of items requiring marking include, but are not limited to, the following:
   a. Dimensional changes to Drawings.

b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Locations of concealed internal utilities.
i. Changes made by Change Order or Construction Change Directive.
j. Changes made following Architect`s written orders.
k. Details not on the original Contract Drawings.
l. Field records for variable and concealed conditions.
m. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

2.02 RECORD SPECIFICATIONS

A Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment provided, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders and record Drawings where applicable.

B Format: Submit record Specifications as annotated PDF electronic file.

2.03 RECORD PRODUCT DATA

A Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer recommendations for installation.
3. Note related Change Orders and record Drawings where applicable.

B Format: Submit record Product Data as annotated PDF electronic file.

2.04 MISCELLANEOUS RECORD SUBMITTALS

A Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B Format: Submit miscellaneous record submittals as PDF electronic file.

PART 3 -EXECUTION

3.01 RECORDING AND MAINTENANCE

A Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B Maintenance of Record Documents and Samples: Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

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END OF SECTION

SECTION 02 4119
SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

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

B Related Requirements:
1. Section 01 1000: Restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 01 7300: Cutting and patching procedures.

1.02 DEFINITIONS

A Remove : Detach items from existing construction and dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B Remove and Salvage: Carefully detach from existing construction in manner to prevent damage, and ready for reuse.

C Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated. Provide new fasteners and anchorage devices needed for reinstallation.

D Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.03 MATERIALS OWNERSHIP

A Unless otherwise indicated, demolition waste becomes property of Contractor.

1.04 PREINSTALLATION MEETINGS

A Predemolition Conference: Conduct conference at Project site per requirements of Section 01 3100.
1. Inspect and discuss condition of construction to be selectively demolished.
2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
4. Review areas where existing construction is to remain and requires protection.

1.05 INFORMATIONAL SUBMITTALS

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

B 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.
2. Identify demolition firm and submit qualifications.
3. Include a summary of safety procedures.

C Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Coordination of Owner's continuing occupancy of portions of existing building.

D Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.06 FIELD CONDITIONS

A Disclaimer: Drawings are based on information supplied by the Owner that has not been verified by the Architect or its consultants. The Architect therefore disclaims any warranty of correctness or completeness and Contractor is cautioned to carefully examine existing conditions before starting demolition operations.

1. Locations and sizes of existing construction elements may vary from those depicted on the Drawings.
2. The locations of utilities concealed in or by existing construction are unknown, and Contractor is cautioned to exercise care when removing construction elements to accommodate new construction.

B Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

C Occupancy: See Section 01 1000. Owner reserves right to require work that affects Owner's normal use to be performed outside normal hours of occupancy or to be rescheduled without changes to Contract Sum or Time. Provide barricades and guards as needed for safety of occupants or as required by governing authorities.

D Occupancy: The building will remain in normal use by Owner. Request permission at least [5] working days before operations that would affect occupants' normal use including work within individual tenant spaces, temporary blocking of corridors or access, and loud, malodorous, or dusty procedures. Owner reserves right to require such work to be performed outside normal hours of occupancy or to be rescheduled without changes to Contract Sum or Time.

E Exits: Maintain existing required means of egress for occupied spaces in lawful condition at all times.

F Contractor is responsible for cleaning and repair of soiling and damage resulting from demolition operations inside or outside the building, and on other properties.

G Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

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

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

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

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

K Traffic: Conduct demolition operations and removal of debris for minimal interference with streets, sidewalks, and airport operations.

L Keep site and other areas clean and free from accumulation of debris and waste from demolition operations.

M Environmental Controls: Use temporary enclosures, and other methods to minimize dust and dirt rising and scattering in air. Comply with governing regulations pertaining to environmental protection.

N Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities as acceptable to governing authorities. Maintain fire protection services during selective demolition operations.

1.07 WARRANTY

A Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding. Existing warranties include the following:

1.08 PART 2 PRODUCTS

A PERFORMANCE REQUIREMENTS

1. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
2. Standards: Comply with ASSE A10.6 and NFPA 241.

1.09 PART 3 EXECUTION

A EXAMINATION

1. Verify that utilities have been disconnected and capped before starting selective demolition operations.
2. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner and Architect specifically disclaim any warranty that existing conditions are same as those indicated in Project Record Documents.
3. Survey of Existing Conditions: Record existing conditions by use of measured drawings.
4. Do not begin removal until receipt of notification to proceed from Owner.

B PROTECTION

1. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   a. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
   b. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
   c. Cover and protect furniture, supplies, and equipment that have not been removed.
2. Remove temporary barricades and protections where hazards no longer exist.

C SELECTIVE DEMOLITION, GENERAL

1. Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
2. Demolish and remove existing construction only to the extent required by new construction and as indicated.

3. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
4. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
5. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
    a. Maintain fire watch during and for at least hours after flame-cutting operations.
    b. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Transport demolished materials through building to exterior in containers with solid sides and bottoms. Transport dusty, liquid, and hazardous demolished materials in fully enclosed containers.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.

D SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS
1. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

E DISPOSAL OF DEMOLISHED MATERIALS
1. Remove demolition waste materials from Project site .
    a. Do not allow demolished materials to accumulate on-site.
    b. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
2. Do not burn demolished materials on site.

F REPAIRS
1. Repair demolition performed in excess of that required. Return structures and surfaces to remain to not less than original condition. Repair existing construction or surfaces soiled or damaged by selective demolition operations.
2. Promptly repair damages caused by demolition operations to existing construction indicated to remain, including areas of facility outside Project limits.
3. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
4. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in manner that eliminates evidence of patching and refinishing.
5. Patch and repair wall surfaces in new space where demolished walls or partitions extend one finished area into another. Provide flush, even surface of uniform color and appearance.

a. Match texture and finish of existing adjacent surface.
b. Patch with durable seams that are as invisible as possible. Comply with tolerances specified for new Work.
c. Where patching smooth painted surfaces, extend final paint coat over entire unbroken surface containing patch after surface has received primer and second coat.

6. Patch, repair, or rehang existing ceilings to provide even, plane surface of uniform appearance.

G CLEANING

1. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.
2. Remove protections, and temporary partitions and closures when no longer needed or when directed by Architect.

ISSUED	DATE
ISSUE FOR BID	02/05/2024

END OF SECTION

SECTION 04 2000
UNIT MASONRY

PART 1 - GENERAL

1.01 SUMMARY

A Section Includes:

1. Clay face brick
2. Mortar and grout.
3. Masonry-joint reinforcement.
4. Ties and anchors.
5. Embedded flashing.
6. Miscellaneous masonry accessories.
7. Cavity wall insulation.

1.02 ACTION SUBMITTALS

A Prepare submittals per requirements of Section 01 3300 – Submittal Procedures.

B Product Data:

1. Each type of masonry unit.
2. Factory-blended mortar mix.
3. Masonry ties and reinforcing.
4. Flashing.
5. Weeps.
6. Mortar collectors.

C Shop Drawings:

1. Masonry Units: Show sizes, profiles, coursing and locations of special shapes.
2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.

D Samples for Verification: For each type and color of the following:

1. Face brick, in the form of straps of five or more bricks.
2. Pigmented and colored-aggregate mortar. Make Samples using same sand and mortar ingredients to be used on Project.
3. Weep vents.

1.03 INFORMATIONAL SUBMITTALS

A List of Materials Used in Constructing Mock-ups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Neither receipt of list nor approval of mock-up constitutes approval of deviations from the Contract Documents, unless such deviations are specifically brought to the attention of Architect and approved in writing.

B Qualification Data: Testing agency.

C Material Certificates: Submit certificates for each type and size of the following items to authorities having jurisdiction as required; provide copy of transmittal only to Architect.

1. Masonry units.

a. Include data on material properties or material test reports substantiating compliance with requirements.
b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.

2. Cementitious materials. Include name of manufacturer, brand name, and type.
3. Mortar admixtures.
4. Factory-blended, dry mortar mixes. Include description of type and proportions of ingredients.
5. Grout mixes. Include description of type and proportions of ingredients.
6. Reinforcing bars.
7. Joint reinforcement.
8. Anchors, ties, and metal accessories.

D Mix Designs: For each type of mortar grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

E Cold-Weather and hot weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.04 QUALITY ASSURANCE

1.05 DELIVERY, STORAGE, AND HANDLING

A Store masonry units on elevated platforms in dry locations. If units are not stored in enclosed locations, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D Deliver factory-blended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store factory-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.

E Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.06 FIELD CONDITIONS

A Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover minimum 24 inches down both sides of walls and hold cover securely in place.
2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover minimum 24 inches down face next to unconstructed wythe and hold cover in place.

B Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

C Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

D Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.02 MASONRY UNITS, GENERAL

A Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.03 MORTAR AND GROUT MATERIALS

A Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B Hydrated Lime: ASTM C 207, Type S or M .

C Portland Cement-Lime Mix: Packaged factory blend of portland cement and hydrated lime containing no other ingredients.

D Masonry Cement: Not permitted.

E Mortar Cement: ASTM C 1329; Factory-blended mix of Portland cement, hydrated lime, and sand.
1. Subject to compliance with requirements, supply one of the following:

F Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979. Use only pigments with a record of satisfactory performance in masonry mortar.
1. Products: Subject to compliance with requirements, provide one of the following:
   a. Davis Colors; True Tone Mortar Colors.
   b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
   c. Solomon Colors, Inc.; SGS Mortar Colors.

G Aggregate for Mortar: ASTM C 144.
1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
3. White-Mortar Aggregates: Natural white sand or crushed white stone.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

H Aggregate for Grout: ASTM C 404.

I Water: Potable.

2.04 TIES AND ANCHORS

A Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.
2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.

B Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- diameter, hot-dip galvanized steel wire.
2. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.187-inch diameter, hot-dip galvanized steel wire.

C Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.060-inch thick, steel sheet, galvanized after fabrication.
2. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.187-inch diameter, hot-dip galvanized steel wire.

D Partition Top anchors: 0.105-inch thick metal plate with 3/8-inch diameter metal rod 6 inches long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube. Fabricate from steel, hot-dip galvanized after fabrication.

E Rigid Anchors: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins unless otherwise indicated bent to configuration indicated.
1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A 153/A 153M.

F Adjustable Masonry-Veneer Anchors: Anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over continuous rigid insulation and sheathing to metal studs.

1. Structural Performance Characteristics: Capable of withstanding 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch.

2.05 MISCELLANEOUS ANCHORS

A Anchor Bolts: Headed steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.06 EMBEDDED FLASHING MATERIALS

A Stainless Steel Through-wall flashing. Provide materials for through-wall flashing, end dams, corners and other change of plane units where available. Minimum 0.015 inch thick, formed with hemmed exposed drip edge bent down approximately 30 degrees. See drawings for modification in drip edge profile in specific areas for flashing.

B Metal Flashing: Provide metal flashing complying with SMACNA "Architectural Sheet Metal Manual and as follows.

1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch thick.
2. Fabricate continuous flashings in sections minimum 96 inches long, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
3. Fabricate discontinuous lintel, sill and similar flashings to extend 6 inches beyond each side of wall openings. Form 2 inch high end dams.
4. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
5. Fabricate metal drip edges from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed .
6. Fabricate metal sealant stops from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 1/4 inch to form a stop for retaining sealant backer rod.
7. Fabricate metal expansion-joint strips from stainless steel to shapes indicated.
8. Solder metal items at corners.

C Application: Unless otherwise indicated, use the following.

1. Where flashing is indicated, use metal flashing.
2. Where flashing is indicated to receive counterflashing, use metal flashing.
3. Where flashing is indicated to be turned down at or beyond the wall face, use metal flashing.
4. Where flashing is partly exposed and is indicated to terminate at the wall face, use metal flashing with a drip edge .

D Solder and Sealants for Sheet Metal Flashings:

1. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
2. Elastomeric Sealant: ASTM C 920, chemically curing silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.07 MISCELLANEOUS MASONRY ACCESSORIES

A Compressible Filler: Factory molded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene or PVC.

B Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

C Weep/Vent Products: Use one of the following unless otherwise indicated. Color as selected by Architect from manufacturer's full range.

1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.
   a. Products: Subject to compliance with requirements, provide one of the following.
      1) Advanced Building Products Inc.; Mortar Maze weep vent.
      2) Blok-Lok Limited; Cell-Vent.
      3) Dayton Superior Corporation, Dur-O-Wal Division; Cell Vents.
      4) Heckmann Building Products Inc.; No. 85 Cell Vent.
      5) Hohmann & Barnard, Inc.; Quadro-Vent.
      6) Wire-Bond; Cell Vent.

D Weep Vent Fabric: Drainage fabric that keeps vents free of mortar droppings, dirt, debris, and insects while allowing air flow.

1. York Manufacturing, Inc.; Weep-Armor.

E Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Advanced Building Products Inc.; Mortar Break or Mortar Break II .
   b. CavClear/Archovations, Inc.; CavClear Masonry Mat.
   c. Heckmann Building Products, Inc.; Weep-Thru Mortar Deflector.
   d. Hohmann & Barnard, Inc; Mortar Trap.
   e. Mortar Net USA, Ltd; Mortar Net.
   f. Wire-Bond; Cavity Net or Cavity Net II .
2. Provide one of the following configurations:
   a. Strips, full-depth of cavity and 10 inches high, with dovetail shaped notches 7 inches deep that prevent clogging with mortar droppings.
   b. Strips, not less than 1-1/2 inches thick and 10 inches high, with dimpled surface designed to catch mortar droppings and prevent weep holes from clogging with mortar.

2.08 CAVITY-WALL INSULATION - REFER TO 07 2100

2.09 MASONRY CLEANERS

A Proprietary Acidic Cleaner: Manufactured cleaner designed for removing mortar or grout stains, efflorescence, and other new construction stains from new masonry without discoloring

or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following.
   a. Diedrich Technologies, Inc.
   b. EaCo Chem, Inc.
   c. ProSoCo, Inc.

B Muriatic Acid: Not permitted in any form.

C Job-Mixed Detergent Solution: Solution of 1/2 cup dry measure tetrasodium polyphosphate and 1/2 cup dry measure laundry detergent dissolved in 1 gallon of water.

2.10 MORTAR AND GROUT MIXES

A General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

1. Use mortar cement mortar unless otherwise indicated.
2. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
3. Do not use calcium chloride in mortar or grout.

B Factory-blended, Dry Mortar Mix: Supply dry mortar ingredients in form of factory-blended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated

1. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.

D Colored-Aggregate Mortar:

1. As selected by Architect from manufacturer's full range.

E Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C 476, paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2 5 00 psi .
3. Slump: 8 to 11 inches as measured per ASTM C 143.

PART 3 EXECUTION

3.01 EXAMINATION

A Verify that foundations are within tolerances specified.

B Verify that foundations are within tolerances specified in ACI 530.1 Article 2.3.2.1. Where those tolerances are exceeded, do not install masonry until corrective measures acceptable to the Architect have been completed.

C Verify that items to be built into masonry are in proper locations and complete with anchors.

D Verify that reinforcing dowels are properly placed.

E Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

3.02 PREPARATION

A Provide temporary bracing needed for support and stability during installation. Maintain temporary bracing until permanent construction provides permanent bracing and stability.

B Coordinate placement of anchors and other built-in items.

3.03 INSTALLATION, GENERAL

A Build chases and recesses to accommodate items specified in this and other Sections.

B Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

C Use full-size units without cutting where possible. If cutting is required to provide continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

D Select and arrange units for exposed unit masonry to produce uniform blend of colors and textures.

1. Mix units from several pallets or cubes as they are placed.

E Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

3.04 TOLERANCES

A Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.05 LAYING MASONRY WALLS

A Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets.
1. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs

B Bond Pattern for Exterior Exposed Masonry: Running bond.

C Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4" Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

D Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

E Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

F Projecting Brick Courses: Use solid brick units for projecting brick courses.

G Fill space between steel frames and masonry solidly with compressible filler unless otherwise indicated.

H Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

I Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

J Build nonload-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
1. Install compressible filler in joint between top of partition and underside of structure above.
2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o/c unless otherwise indicated.
3. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 07 8443.

3.06 MORTAR BEDDING AND JOINTING

A Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

B Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

C Cut joints flush where indicated to receive waterproofing and or cavity wall insulation unless otherwise indicated.

3.07 CAVITY WALLS

A Bond wythes of cavity walls together as follows:

1. Masonry Joint Reinforcement: Installed in horizontal mortar joints.
   a. Where bed joints of both wythes align, use ladder-type reinforcement extending across both wythes
   b. Where bed joints of wythes do not align, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties .
2. Masonry Veneer Anchors: Comply with requirements for anchoring masonry veneers.

B Bond wythes of cavity walls together using bonding system indicated on Drawings.

C Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.

D Air barrier on face of backup wythe is specified in Section 07 2726.

E Installing Cavity-Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches o/c both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.

1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

3.08 ANCHORED MASONRY VENEERS

A Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:

1. Fasten screw-attached anchors through sheathing to wall framin g with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
2. Embed connector sections and continuous wire in masonry joints.
3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
4. Space anchors as indicated, but maximum 18 inches o/c vertically and 24 inches o/c horizontally, with not less than one anchor for each 2 sq ft of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 8 inches, around perimeter.

3.09 MASONRY JOINT REINFORCEMENT

A General: Install entire length of longitudinal side rods in mortar with minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement minimum 8 inches.

1. Space reinforcement maximum 16 inches o/c.
2. Space reinforcement maximum 8 inches o/c. in foundation walls and parapet walls.
3. Provide reinforcement maximum 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.

B Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

C Provide continuity at wall intersections by using factory-fabricated T-shaped units.

D Provide continuity at corners by using factory-fabricated L-shaped units.

3.10 BOND BEAMS AND LINTELS

A Bond Beams: Position reinforcing bars accurately and fill with grout. Provide minimum 1/2 inch clearance between bars and face of masonry cores. Vibrate grout to ensure that all voids are filled and that tight interface with inside of blocks is formed.

B Install steel lintels where indicated. Install minimum 3/8 inch compressible filler to isolate ends of steel lintels from contacting masonry.

C Provide formed-in-place masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.

D Provide minimum lintel bearing of 8 inches at each jamb, unless otherwise indicated.

3.11 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

A General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install cavity vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.

B Prepare masonry surfaces smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations and joints in flashings as recommended by flashing manufacturer.

C Seal seams and penetrations in flashing watertight.

D At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches. Mechanically anchor upper edge of flashing. Coordinate installation so that weather-resistive barrier laps minimum 4 inches over top of vertical flashing leg.

E At lintels and shelf angles, extend flashing minimum 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.

1. Install metal flashing at steel lintels in single, full-length units.
2. Install one-piece, full-length metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.

F Extend flashing beyond face of wall and cut off flush after masonry wall construction is completed and flashing has been observed by Architect .

G Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal laps watertight with silicone sealant specified in Section 07 9200

H Terminate top edge of concealed flashing with pressure bar. Apply continuous bead of sealant compatible with air barrier membrane to top of pressure bar and lap flexible air barrier membrane over flashing.

I Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

J Install weep vents in head joints in exterior wythes of first course of masonry immediately above embedded flashing.

1. Space weeps 24 inches o/c unless otherwise indicated.

K Install vents in head joints in exterior wythes at spacing indicated. Use specified weep/vent products to form vents.

3.12 REINFORCED UNIT MASONRY INSTALLATION

A Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction, but no less than two weeks.

B Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.

C Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to maximum 48 inches for cells containing #3 through #6 bars and 60 inches for #7 and larger bars.

3.13 FIELD QUALITY CONTROL

A Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B Inspections: Refer to Structural Drawings and Specifications for special and structural inspections.

3.14 REPAIRING, POINTING, AND CLEANING

A Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking

tape.

4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Note 20.
6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
7. Clean stone trim per stone supplier's recommendations.
8. Clean limestone units per recommendations in ILI "Indiana Limestone Handbook."

3.15 MASONRY WASTE DISPOSAL

A Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Crush masonry waste to less than 4 inches in each dimension.
2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 312000 "Earth Moving."
3. Do not dispose of masonry waste as fill within 18 inches of finished grade.

C Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

D Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

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END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A Board insulation at cavity wall construction.

1.02 RELATED REQUIREMENTS

A Section 07 2500 - Weather Barriers: Separate air barrier and vapor retarder materials.

B Section 09 2116 - Gypsum Board Assemblies: Acoustic insulation inside walls and partitions.

1.03 REFERENCE STANDARDS

A ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023.

B ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.

C ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.

D NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components; 2023.

1.04 SUBMITTALS

A See Section 01 3000 - Administrative Requirements, for submittal procedures.

B Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

1.05 FIELD CONDITIONS

A Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS

A Insulation Inside Masonry Cavity Walls: Extruded polystyrene (XPS) board.

2.02 FOAM BOARD INSULATION MATERIALS

A Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.

1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
3. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.
4. Complies with fire resistance requirements indicated on drawings as part of an exterior non-load-bearing exterior wall assembly when tested in accordance with NFPA 285.
5. Board Edges: Square.
6. Type and Water Absorption: Type IV, 0.3 percent by volume, maximum, by total immersion.
7. Manufacturers:
   a. Dow Chemical Company; STYROFOAM HIGHLOAD 40: www.dowbuildingsolutions.com/#sle.

b. Kingspan Insulation LLC; GreenGuard XPS Type IV, 25 psi: www.kingspan.com/#sle.
c. Owens Corning Corporation; FOAMULAR Extruded Polystyrene (XPS) Insulation: www.ocbuildingspec.com/#sle.

2.03 ACCESSORIES

A Tape: Reinforced polyethylene film with acrylic pressure sensitive adhesive.
1. Application: Sealing of interior circular penetrations, such as pipes or cables.
2. Width: Are required for application.
3. Temperature Resistance: Minus 40 degrees F to 212 degrees F

B Flashing Tape: Special reinforced film with high performance adhesive.
1. Application: Window and door opening flashing tape.
2. Width: As required for application.
3. Primer: Tape manufacturer's recommended product.

C Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch wide.

D Tape joints of rigid insulation in accordance with roofing and insulation manufacturers' instructions.

E Insulation Fasteners: Impaling clip of galvanized steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
1. Follow weather resistive barrier manufacturer's recommendations for penetrations if mechanical fasteners are installed.

F Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.

G Nails or Staples: Steel wire; electroplated or galvanized; type and size to suit application.

H Adhesive: Type recommended by insulation manufacturer for application. Compatiable with weather resistive barrier.

PART 3 EXECUTION

3.01 EXAMINATION

A Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT CAVITY WALLS

A Secure impale fasteners to substrate at following frequency:
1. Install number of fasteners per manufacturer's recommendations.

B Install boards to fit snugly between wall ties.

C Install boards horizontally on walls per manufacturer's recommendations.

D Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

E Place 6 inch wide polyethylene sheet at perimeter of wall openings, from adhesive vapor retarder bed to window and door frames, and tape seal in place to ensure continuity of vapor retarder and air seal.

3.03 BATT INSTALLATION

A Install insulation in accordance with manufacturer's instructions.

B Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

3.04 FIELD QUALITY CONTROL

A See Section 01 4000 - Quality Requirements, for additional requirements.

3.05 PROTECTION

A Do not permit installed insulation to be damaged prior to its concealment.

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END OF SECTION

SECTION 07 2500
WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A Water-Resistive Barrier: Under exterior wall cladding, over sheathing or other substrate; not air tight or vapor retardant.

1.02 RELATED REQUIREMENTS

A Section 07 2100 - Thermal Insulation: Vapor retarder installed in conjunction with batt insulation.

B Section 07 6200 - Sheet Metal Flashing and Trim: Metal flashings installed in conjunction with weather barriers.

C Section 07 9200 - Joint Sealants: Sealing building expansion joints.

1.03 DEFINITIONS

A Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.

B Water-Resistive Barrier: Water-shedding barrier made of material that is moisture resistant, to the degree specified, intended to be installed to shed water without sealed seams.

1.04 REFERENCE STANDARDS

A ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2021.

1.05 SUBMITTALS

A See Section 01 3000 - Administrative Requirements, for submittal procedures.

B Product Data: Provide data on material characteristics.

C Shop Drawings: Provide drawings of special joint conditions.

D ABAA Field Quality Control Submittals: Submit third-party reports of testing and inspection required by ABAA QAP.

E Manufacturer's Installation Instructions: Indicate preparation.

F ABAA Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.

G ABAA Installer Qualification: Submit documentation of current contractor accreditation and current installer certification; keep copies of each contractor accreditation and installer certification on site during and after installation, and present on-site documentation upon request.

1.06 QUALITY ASSURANCE

A Air Barrier Association of America (ABAA) Quality Assurance Program (QAP); www.airbarrier.org/#sle:

1. Installer Qualification: Use accredited contractor, certified installers, evaluated materials, and third-party field quality control audit.
2. Manufacturer Qualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture, and use secondary materials approved in writing by primary material manufacturer.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

2.02 WATER-RESISTIVE BARRIER MATERIALS (NEITHER AIR BARRIER OR VAPOR RETARDER)

2.03 ACCESSORIES

A Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970/D1970M, except slip resistance requirement is waived if not installed on a roof.

1. Non-vapor permeable self-adhered through-wall flashing consisting of an SBS rubberized asphalt compound integrally laminated to a yellow engineered therm oplastic film surface; having the following typical physical properties:
   a. Basis of design: Henry® Blueskin® TWF Self-Adhered Thru-Wall Flashing
   b. Thickness: 40 mils (1.0 mm)
   c. Water Vapor Permeance (ASTM E96): 0.03 perms
   d. High Temperature Stability - Flow Resistance (ASTM D5147): Pass
   e. Low Application Temperature: 20 degrees F (-7 degrees C)
2. Adhesives/Primers:
   a. Aerosol spray adhesive
      1) Quick drying spray adhesive used to prepare construction surfaces for the application of flashings; having the following typical physical properties:
         (a) Basis of design: Henry® Blueskin® Spray Prep Adhesive
         (b) b. Color: Clear amber
         (c) c. Solids by weight: 35%
         (d) d. Drying time (initial set): 3 minutes
         (e) e. Low Application Temperature: -10 degrees F (-23 degrees C)
   b. Quick setting primers:
      1) Synthetic rubber based quick setting adhesive with low VOC content; having the following typical physical properties:
         (a) Basis of design: Henry® Blueskin® LVC Spray Primer
         (b) Color: Blue
         (c) Maximum VOC: 250 g/L
         (d) Dry time: 1-3 minutes
         (e) Low Application Temperature: 40 degrees F (4.4 degrees C)
      2) Polymer emulsion water based quick setting adhesive with low VOC content; having the following typical physical properties:
         (a) Basis of design: Henry® Aquatac™ Primer
         (b) Color: Aqua
         (c) Maximum VOC: 50 g/L
         (d) Drying time (initial set): 30 minutes
         (e) Low Application Temperature: 25 degrees F (-4 degrees C)

PART 3 EXECUTION

3.01 EXAMINATION

A Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

A Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

B Clean and prime substrate surfaces to receive adhesives in accordance with manufacturer's instructions.

3.03 INSTALLATION

A Install materials in accordance with manufacturer's instructions.

B Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.

C Mechanically Fastened Sheets - On Exterior:
1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
2. Overlap seams as recommended by manufacturer but at least 6 inches.
3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
4. Install water-resistive barrier over jamb flashings.
5. Install head flashings under weather barrier.
6. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.

D Self-Adhered Sheets:
1. Prepare substrate in manner recommended by sheet manufacturer; fill and tape joints in substrate and between dissimilar materials.
2. Lap sheets shingle-fashion to shed water and seal laps air tight.
3. Once sheets are in place, press firmly into substrate with resilient hand roller; ensure that laps are firmly adhered with no gaps or fishmouths.
4. Use same material, or other material approved by sheet manufacturer for the purpose, to seal to adjacent construction and as flashing.
5. At wide joints, provide extra flexible membrane allowing joint movement.

E Openings and Penetrations in Exterior Weather Barriers:
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 FIELD QUALITY CONTROL

A See Section 01 4000 - Quality Requirements, for additional requirements.

B Coordination of ABAA Tests and Inspections:
1. Provide testing and inspection required by ABAA QAP.
2. Notify ABAA in writing of schedule for air barrier work, and allow adequate time for testing and inspection.
3. Cooperate with ABAA testing agency.
4. Allow access to air barrier work areas and staging.
5. Do not cover air barrier work until tested, inspected, and accepted.

C Do not cover installed weather barriers until required inspections have been completed.

3.05 PROTECTION

A Do not leave materials exposed to weather longer than recommended by manufacturer.

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4.01

END OF SECTION

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A Fabricated sheet metal items, including flashings and counterflashings.

B Sealants for joints within sheet metal fabrications.

1.02 RELATED REQUIREMENTS

A Section 04 2000 - Unit Masonry: Metal flashings embedded in masonry.

B Section 07 9200 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.03 REFERENCE STANDARDS

A ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.

B ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

C ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2017 (Reapproved 2023).

D ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).

E CDA A4050 - Copper in Architecture - Handbook; current edition.

F SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

A See Section 01 3000 - Administrative Requirements, for submittal procedures.

B Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of special conditions.
8. Include details of connections to adjoining work.
9. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches.

C Closeout Submittals

1. Maintenance Data: For sheet metal flashing and trim and accesssories.
2. Manufacturer warranties.

1.05 QUALITY ASSURANCE

A Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B Fabricator and Installer Qualifications: Company specializing in sheet metal work with ten years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B Prevent contact with materials that could cause discoloration or staining.

C Handle metal products to prevent scratching or other abrasion damage, and deformation damage such as dents and kinks. Do not allow metal components to scrape against each other.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A Fabricate and install Work of this Section to physically protect membrane roofing, base flashings, joints, and other construction from damage that would permit water leakage into the building and to divert water away from protected joints and construction.

B Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall be effective to keep water from protected construction during normal weather exposure, including wind design conditions and building movements indicated on Structural Drawings.

C Sheet Metal Standard for Flashing and Trim: Comply with NRCA "The NRCA Roofing Manual" and SMACNA "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown and other applicable recommendations unless more stringent requirements are indicated.

2.02 SHEET MATERIALS

A Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 26 gauge, (.018") thick; smooth No. 4 - Brushed finish.

2.03 FABRICATION

A Form sections true to shape, accurate in size, square, and free from distortion or defects.

1. Obtain field measurements for accurate fit before shop fabrication.

B Fabricate cleats of same material as sheet, minimum 6 inches wide, interlocking with sheet.

C Form pieces in longest possible lengths.

D Hem exposed edges on underside 1/2 inch; miter and seam corners.

E Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

F Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

G Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

H Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

I Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

J Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, fill with butyl sealant concealed within joints.

K Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.

2.04 ACCESSORIES

A General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B Fasteners: Stainless steel, with soft neoprene washers.

C Primer: Zinc chromate type.

D Concealed Sealants: Non-curing butyl sealant. ASTM C 1311, single-component, solvent-release butyl rubber sealant;polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

E Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

F Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

G Plastic Cement: ASTM D4586/D4586M, Type I.

H Reglets: Surface mounted or recessed type, as shown, galvanized steel; face and ends covered with plastic tape.

PART 3 EXECUTION

3.01 EXAMINATION

A Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

3.02 PREPARATION

A Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A Comply with drawing details and SMACNA guidelines.

B Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted.

C Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D Seal metal joints watertight.

E Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of uncoated-aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

F Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.

G Rivets: Rivet joints where necessary for strength.

3.04 FIELD QUALITY CONTROL

A See Section 01 4000 - Quality Requirements, for field inspection requirements.

B Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

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END OF SECTION

SECTION 07 9200
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 07 2500 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders.

B Section 08 7100 - Door Hardware: Setting exterior door thresholds in sealant.

C Section 08 8000 - Glazing: Glazing sealants and accessories.

D Section 09 2116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

1.03 REFERENCE STANDARDS

A ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).

B ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).

C ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

D ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2022.

E ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

F ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.

G ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

H ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.

I ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.

J ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2019 (Reapproved 2020).

K ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.

L SWRI (VAL) - SWR Institute Validated Products Directory; Current Edition.

M UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A See Section 01 3000 - Administrative Requirements, for submittal procedures.

B Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes 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. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.
5. Substrates for which use of primer is required.

6. Substrates for which laboratory adhesion and/or compatibility testing is required.
7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
8. Sample product warranty.
9. Certification by manufacturer indicating that product complies with specification requirements.
10. SWRI Validation: Provide currently available sealant product validations as listed by SWRI (VAL) for specified sealants.

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 Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.

F Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

G Field Quality Control Plan: Submit at least two weeks prior to start of installation.

H Manufacturer's Qualification Statement.

I Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A Maintain one copy of each referenced document covering installation requirements on site.

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

C Field Quality Control Plan:

1. Visual inspection of entire length of sealant joints.
2. Non-destructive field adhesion testing of sealant joints, except interior acrylic latex sealants.

D Non-Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.

1. Record results on Field Quality Control Log.
2. Repair failed portions of joints.

1.06 WARRANTY

A See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B Correct defective work within a five year period after Date of Substantial Completion.

C Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Silicone Sealants: Permits application in joints on vertical surfaces without sagging or slumping.

1. Dow Chemical Company
2. Pecora Corporation

3. Sika Corporation
4. Tremco Commercial Sealants & Waterproofing
5. W.R. Meadows, Inc

2.02 JOINT SEALANT APPLICATIONS

A Scope:

1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
   a. Wall expansion and control joints.
   b. Joints between door, window, and other frames and adjacent construction.
   c. Joints between different exposed materials.
   d. Openings below ledge angles in masonry.
   e. Lap joints in sheet metal fabrications.
   f. Other joints indicated below.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
   b. Other joints indicated below.
3. Do not seal the following types of joints.
   a. Intentional weepholes in masonry.
   b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
   c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
   d. Joints where installation of sealant is specified in another section.
   e. Joints between suspended panel ceilings/grid and walls.

2.03 NONSAG JOINT SEALANTS

A Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic. For use in exterior wall joints and other components exposed to exterior.

1. Movement Capability: Plus and minus 50 percent, minimum.
2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
5. Color: To be selected by Architect from manufacturer's standard range.
6. Service Temperature Range: Minus 20 to 180 degrees F.
7. Manufacturers:
   a. Dow Chemical Company; DOWSIL 795 Silicone Building Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
   b. Pecora Corporation; Pecora 890 NST (Non-Staining Technology): www.pecora.com/#sle.
   c. Sika Corporation; Sikasil WS-295: www.usa-sika.com/#sle.

d. Tremco Commercial Sealants & Waterproofing; Spectrem 3: www.tremcosealants.com/#sle.

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: As selected by Architect for manufacturer's full range of colors.
2. Manufacturers:
a. ADFAST Corporation; ADSEAL KB 4800 Series
b. Everkem Diversified Products, Inc; TruSil 100:
c. Pecora Corporation; Pecora 898 NST (Non-Staining Technology)
d. Sika Corporation; Sikasil GP

2.04 ACCESSORIES

A Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
2. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

B Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A Verify that joints are ready to receive work.

B Verify that backing materials are compatible with sealants.

C Verify that backer rods are of the correct size.

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 Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B Perform installation in accordance with ASTM C1193.

C Perform acoustical sealant application work in accordance with ASTM C919.

D Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E Install bond breaker backing tape where backer rod cannot be used.

F Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G 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.

H Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

I Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

A Contractor shall perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

B Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.

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.

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END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A Non-fire-rated hollow metal doors and frames.
B Thermally insulated hollow metal doors with frames.

1.02 RELATED REQUIREMENTS

A Section 08 7100 - Door Hardware.
B Section 09 9113 - Exterior Painting: Field painting.
C Section 09 9123 - Interior Painting: Field painting.

1.03 ABBREVIATIONS AND ACRONYMS

A ANSI: American National Standards Institute.
B ASCE: American Society of Civil Engineers.
C HMMA: Hollow Metal Manufacturers Association.
D NAAMM: National Association of Architectural Metal Manufacturers.
E NFPA: National Fire Protection Association.
F SDI: Steel Door Institute.
G UL: Underwriters Laboratories.

1.04 REFERENCE STANDARDS

A ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
B ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2022.
C ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames; 2020.
D ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.
E ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2020.
F ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
G ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023.
H 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; 2023.
I ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
J ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
K ASTM F1450 - Standard Test Methods for Hollow Metal Swinging Door Assemblies for Detention and Correctional Facilities; 2012a (Reapproved 2019).
L BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.
M ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
N ITS (DIR) - Directory of Listed Products; Current Edition.

O NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.
P NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.
Q NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2017.
R NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2014.
S SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2023.
T UL (DIR) - Online Certifications Directory; Current Edition.

1.05 SUBMITTALS

A See Section 01 3000 - 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, fire-resistance ratings and finishes.
C Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
D Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
E Manufacturer's Certificate: Certification that products meet or exceed specified requirements.
F Manufacturer's Qualification Statement.
G Installer's Qualification Statement.
H Impact Resistance Data: Manufacturer's current product approval notice indicating product acceptance, as tested for large and small missile impact per SBCCI SSTD 12 and ASTM E1966.
I Schedule: Provide schedule of hollow-metal work prepared by or under the supervision of the supplier, using same reference numbers for details and opening as those on Drawings. Coordinate with Door Hardware Schedule.

1.06 QUALITY ASSURANCE

A Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years documented experience.
B Installer Qualifications: Company specializing in performing work of the type specified and with at least ten years of documented experience and approved by manufacturer.
C Maintain at project site copies of reference standards relating to installation of products specified.

1.07 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.
C Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
D Store hollow-metal work vertically under cover at Project site with heads up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Hollow Metal Doors and Frames:
1. Ceco Door, an Assa Abloy Group company
2. Curries, an Assa Abloy Group company
3. Gensteel Doors Inc
4. Mesker, dormakaba Group; FDJ Series Drywall Frames: www.meskeropeningsgroup.com/#sle.

B Source Limitations: Obtain hollow-metal doors and frame from single source from single manufacturer. Sound rated and bullet-resistant hollow metal doors and frames may need to be obtained from separate manufacturer from hollow metal doors and frame, but sound rated and bullet resistant should be obtained from a single manufacturer.

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.
3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
4. Door Edge Profile: Manufacturers standard for application indicated.
5. Typical Door Face Sheets: Flush.
6. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
7. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.

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 DOORS

A Door Finish: Factory primed and field finished.

B Exterior Doors: Thermally insulated.
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
   a. Level 3 - Extra Heavy-duty.
   b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
   c. Model 1 - Full Flush.
   d. Door Face Metal Thickness: 14 gage, 0.067 inch, minimum. Refer to Door Schedule for specific door requirements. Gages vary by door location.
2. Door Core Material: Polyurethane, 1.8 lbs/cu ft minimum density.

a. Foam Plastic Insulation: Manufacturer's standard board insulation with maximum flame spread index (FSI) of 75, and maximum smoke developed index (SDI) of 450 in accordance with ASTM E84, and completely enclosed within interior of door.

3. Door Thermal Resistance: R-Value of 8.7, minimum, for installed thickness of polyurethane.
4. Door Thickness: 1-3/4 inch, nominal.
5. Weatherstripping: Refer to Section 08 7100.

2.04 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 Exterior Door and Window Frames: Full profile/continuously welded type.

1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
2. Frame Metal Thickness: 16 gage, 0.053 inch, minimum. See Door Schedule for requirements.
3. Frame Finish: Factory primed and field finished.
4. Weatherstripping: Separate, see Section 08 7100.

D Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

E Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

F Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

G Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

H Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high to fill opening without cutting masonry units.

2.05 FRAME ANCHORS

A Jamb Anchors:

1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
3. Postinstalled Expansion Anchor: Minimum 3/8-inch-diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.

B Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.

C Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at top of underlayment.

D Material: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

E For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M; hot-dip galvanized according to ASTM A 153/A 153M, Class B.

2.06 FINISHES

A Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard. Compatiable with substrate and field-applied coatings despite prolonged exposure.

B Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

2.07 ACCESSORIES

A Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.

B Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.

C 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.

D 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 PREPARATION

A Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 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 Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

D Install door hardware as specified in Section 08 7100.

1. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.

E Coordinate installation of electrical connections to electrical hardware items.

F Touch up damaged factory finishes.

3.04 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 measured with straight edge, corner to corner.

3.05 ADJUSTING

A Adjust for smooth and balanced door movement.

B Adjust sound control doors so that seals are fully engaged when door is closed.

3.06 SCHEDULE

A Refer to Door and Frame Schedule on the drawings.

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END OF SECTION

SECTION 08 4413
GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A Aluminum-framed curtain wall, with vision glazing panels.

1.02 RELATED REQUIREMENTS

A Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.

B Section 08 8000 - Glazing.

1.03 REFERENCE STANDARDS

A AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; 2015.

B AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2017.

C AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2015.

D AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.

E ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.

F ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2013.

G ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).

H ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.

1.04 SUBMITTALS

A See Section 01 3000 - Administrative Requirements, for submittal procedures.

B Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, internal drainage details, glazing, and infill.

C Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required. Include:

1. Mechanical attachment requirements needed to meet the components and cladding wind uplift requirements.
2. Plans, elevations, sections and full size details, and attachment to other work.

D Samples: Submit two samples 12" BY 12" inches in size illustrating finished aluminum surface, glazing, infill panels, and glazing materials.

E Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.

F Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations; include load calculations at points of attachment to building structure.

G Test Reports: Submit results of full-size mock-up testing. Reports of tests previously performed on the same design are acceptable.

H Field Quality Control Submittals: Report of field testing for water penetration and air leakage.
I Designer's Qualification Statement.
J Manufacturer's Qualification Statement.
K Installer's Qualification Statement.
L Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A Designer Qualifications: Design curtain wall and its structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located. Provide signed and sealed design data documents and shop drawings by professional engineer responsible for their preparation.
B Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A Handle products of this section in accordance with AAMA CW-10.
B Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.07 FIELD CONDITIONS

A Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.08 WARRANTY

A See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
B Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Basis of Design: Kawneer 1600 Wall Series.

2.02 CURTAIN WALL

A Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
1. Outside glazed, with pressure plate and mullion cover, where indicated on drawings.
2. Glazing Method: Field glazed system.
3. Mullion Dimensions: 2-1/2 inches wide by 10-1/2 inches deep .
4. Finish: Class I natural anodized.
a. Factory finish surfaces that will be exposed in completed assemblies.
b. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
5. Provide flush joints and corners, weathersealed, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
6. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
7. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating

moisture occurring within system.

B Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.
1. Design Wind Loads: Comply with the following:
   a. Positive Design Wind Load: 37 lbf/sq ft.
   b. Negative Design Wind Load: -50 lbf/sq ft.
   c. Measure performance by testing in accordance with ASTM E330/E330M, using test loads equal to 1.5 times the design wind loads and 10 second duration of maximum pressure.
2. Movement: Accommodate the following movement without damage to components or deterioration of seals:
   a. Expansion and contraction caused by 180 degrees F surface temperature.
   b. Expansion and contraction caused by cycling temperature range of 170 degrees F over a 12 hour period.
   c. Movement of curtain wall relative to perimeter framing.
   d. Deflection of structural support framing, under permanent and dynamic loads.

C Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:

D Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:
1. Static
   a. The test specimen shall be tested in accordance with ASTM E 331.
   b. There shall be no leakage at a minimum static air pressure differential of 12 psf (575 Pa) as defined in AAMA 501.
2. Dynamic:
   a. The test specimen shall be tested in accordance with AAMA 501.1.
   b. There shall be no leakage at an air pressure differential of 12 psf (575 Pa) as defined in AAMA 501.

E Air Leakage Laboratory Test: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.

F Thermal Performance Requirements:
1. Overall U-value Including Glazing: 0.36 Btu/(hr sq ft deg F), maximum.

2.03 COMPONENTS

A Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.

B Glazing: As specified in Section 08 8000.

2.04 MATERIALS

A Extruded Aluminum: ASTM B221 (ASTM B221M).

B Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

C Glazing Accessories: As specified in Section 08 8000.

PART 3 EXECUTION

3.01 EXAMINATION

A Verify dimensions, tolerances, and method of attachment with other related work.

B Verify that curtain wall openings and adjoining air and vapor seal materials are ready to receive work of this section.
C Verify that anchorage devices have been properly installed and located.

3.02 INSTALLATION

A Install curtain wall system in accordance with manufacturer's instructions.
B Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
C Provide all necessary attachment hardware and associated shims to anchor into existing opening structure.
D Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
E Provide thermal isolation where components penetrate or disrupt building insulation.
F Provide metal flanges at window perimeter as may be needed to seal system to adjacent opening materials.
G Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
H Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.
B Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.
C Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

3.04 FIELD QUALITY CONTROL

A See Section 01 4000 - Quality Requirements, for general testing and inspection requirements.
B Water-Spray Test: Provide water spray quality test of installed curtain wall components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.
    1. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
C Repair or replace curtain wall components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 CLEANING

A Remove protective material from pre-finished aluminum surfaces.
B Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, take care to remove dirt from corners, and wipe surfaces clean.
C Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

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END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A Hardware for hollow metal doors.

B Thresholds.

C Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

A Section 07 9200 - Joint Sealants: Sealants for setting exterior door thresholds.

B Section 08 1113 - Hollow Metal Doors and Frames.

1.03 SUBMITTALS

A See Section 01 3000 - 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 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.

1.04 QUALITY ASSURANCE

A Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

1.05 WARRANTY

A See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.

1. Closers: Five years, minimum.
2. Locksets and Cylinders: Three years, minimum.
3. 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.
3. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.

2.02 HINGES

A Manufacturers:

1. McKinney; an Assa Abloy Group company: www.assaabloydss.com/#sle.
2. Hager Companies; _____: www.hagerco.com/#sle.
3. Stanley, dormakaba Group; _____: www.stanleyhardwarefordoors.com/#sle.

B Hinges: Comply with BHMA A156.1, Grade 1.

1. Provide three, five-knuckle full mortise butt hinges.
2. Provide ball-bearing hinges at each door with closer.

2.03 EXIT DEVICES

A Manufacturers:
1. Basis of Design: Subject to compliance with requirements, provide product indicated on schedule or complarable product by one of the following:.
   a. Corbin Russwin, Sargent, or Yale; an Assa Abloy Group company: www.assaabloydss.com/#sle.
   b. Stanley Commercial Hardware; a division of Stanley Security Solutions
   c. Allegion plc.
   d. Hager Companies
   e. SARGENT Manufacturing Company; ASSA ABLOY

B Exit Devices: Comply with BHMA A156.3, Grade 1.
1. Mortise Exit Device: Grade 1
2. Lever design to match lockset trim.
3. Provide cylinder with cylinder dogging or locking trim.
4. Provide exit devices properly sized for door width and height.
5. Provide strike as recommended by manufacturer for application indicated.
6. Provide UL (DIR) listed exit device assemblies for fire-rated doors and panic device assemblies for non-fire-rated doors.

2.04 CLOSERS

A Manufacturers; Surface Mounted: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer`s written recommendations. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following.
   a. Ives-Allegion plc
   b. Corbin Russwin, Inc.; an ASSA ABLOY Group company
   c. Hager Companies
   d. Norton Door Controls; an ASSA ABLOY Group company
   e. Rixson Specialty Door Controls; an ASSA ABLOY Group company
   f. SARGENT Manufacturing Company; ASSA ABLOY
   g. Stanley Commercial Hardware; a division of Stanley Security Solutions
   h. Yale Security Inc; an ASSA ABLOY Group company
2. Surface Closer with Cover: Grade 1; Modern type with mechanism enclosed in cover.
   a. Mounting: Opposite hinge side.
   b. Type: Regular arm.
   c. Backcheck: Factory preset, effective between 60 and 85 degrees of door opening.
   d. Cover Material: Aluminum.
   e. Closing Power Adjustment: At least 50 percent more than minimum tested value.

2.05 PROTECTION PLATES

A Protection Plates: Comply with BHMA A156.6.

B Edges: Beveled, on four sides unless otherwise indicated.

C Fasteners: Countersunk screw fasteners.

2.06 KICK PLATES

A Kick Plates: Provide along bottom edge of push side of door.
1. Size: 8 inch high by 2 inch less door width (LDW) on push side of door.

2.07 THRESHOLDS

A Manufacturer: Subject to compliance with requirements, provide products by one of the following.

B Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following.
1. National Guard Products.
2. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
3. Reese Enterprises, Inc.
4. Zero International.

C Thresholds: Comply with BHMA A156.21.
1. Provide threshold at exterior door.
2. Type: Flat surface.
3. Material: Aluminum.
4. Threshold Surface: Fluted horizontal grooves across full width.
5. Field cut threshold to profile of frame and width of door sill for tight fit.
6. Provide non-corroding fasteners at exterior locations.

2.08 DOOR GASKETING

A Door Gaskets: BHMA A156.22; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

B Maximum Air Leakage: When tested according to ASTM E 283 with tested pressure differential of 0.3-inch wg, as follows:
1. Gasketing on Single Doors: 0.3 cfm/sq ft of door opening.

C Rigid, Housed, Perimeter Gasketing: Silicone bulb gasket material held in place by housing; fastened to frame stop with screws.
1. Housing Material: Aluminum.

D Door Sweeps: Neoprene gasket material held in place by flat housing or flange; surface mounted to face of door with screws.
1. Housing or Flange Material: Aluminum.

E Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following.
1. National Guard Products, Inc
2. Pemko Manufacturing Co
3. Zero International, Inc

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.

1. Refer to Section 07 9200 for additional requirements.

3.03 ADJUSTING

A Adjust work under provisions of Section 01 7000 - Execution and Closeout Requirements.

B Adjust hardware for smooth operation.

C Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.04 CLEANING

3.05 PROTECTION

A Protect finished Work under provisions of Section 01 7000 - Execution and Closeout Requirements.

B Do not permit adjacent work to damage hardware or finish.

3.06 SCHEDULE

A SET 1: Single Leaf HM Exterior Door in HM Frame

QUANTITY	ITEM	CATALOG NUMBER	FINISH	BASIS-OF-DESIGN MFR
3	HINGES	FBB168	US26D	STANLEY
1	EXIT DEVICE	99-75-L	630	VON DUPRIN
1	EXIT TRIM	990TP	630	VON DUPRIN
1	MORTISE LOCK CYLINDER	7500		VON DUPRIN
1	KICK PLATE	8400	630	IVES
1	CLOSER	4040XP REG/PA AS REQ.	689	LCN

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END OF SECTION

SECTION 08 8000
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A Insulating glass units.
B Glazing sealants and accessories.
C Glazing compounds.

1.02 RELATED REQUIREMENTS

A Section 07 9200 - Joint Sealants: Sealants for other than glazing purposes.

1.03 REFERENCE STANDARDS

A 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.
B ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).
C ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).
D ASTM C1036 - Standard Specification for Flat Glass; 2021.
E ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2019.
F ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).
G ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.
H ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.
I GANA (GM) - GANA Glazing Manual; 2022.
J GANA (SM) - GANA Sealant Manual; 2008.
K GANA (LGRM) - Laminated Glazing Reference Manual; 2019.
L IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (2016).
M NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.
N NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.
O NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

1.04 ADMINISTRATIVE REQUIREMENTS

A Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

1.05 SUBMITTALS

A See Section 01 3000 - Administrative Requirements for submittal procedures.
B Product Data on each type of glass. Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
C Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
D Samples: Submit two samples 12 by 12 inch in size of glass units.
E Samples: Submit manufacturer's range of colors for glazing sealant,
F Certificate: Certify that products of this section meet or exceed specified requirements.

G Manufacturer's qualification statement.

H Installer's qualification statement.

I Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

J Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 01 6000 - Product Requirements, for additional provisions.
2. Extra Insulating Glass Units: One of each glass size and each glass type.

1.06 QUALITY ASSURANCE

A Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000for glazing installation methods. Maintain one copy on site.

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

1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
   a. Insulating Glass Certification Council (IGCC).
   b. Safety Glazing Certification Council (SGCC).

C Installer Qualifications: Company specializing in performing work of the type specified and with at least ten years documented experience.

1. Provide company, field supervisors, and installers that hold active ANSI accredited certifications in appropriate categories for work specified.
   a. North American Contractor Certification (NACC) for glazing contractors.
   b. Equivalent independent third-party ANSI accredited certification.

1.07 FIELD CONDITIONS

A Do not install glazing when ambient temperature is less than 40 degrees F.

B Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.08 WARRANTY

A See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer recommendations. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1. Warranty Period: 10 years from date of Substantial Completion.

C Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer recommendations. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Glass Fabricators:
1. Pilkington North America
2. PPG Industries, Inc.
3. Vitro Architectural Glass
4. Viracon, Inc

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
1. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
2. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
3. Glass thicknesses listed are minimum.

B Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.

C Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

A Laminated Glass: Float glass laminated in accordance with ASTM C1172.
1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class A or 16 CFR 1201 - Category I impact test requirements.
2. Polyvinyl Butyral (PVB) Interlayer: Provide thickness not less than that indicated and as needed to comply with requirements.

2.04 INSULATING GLASS UNITS

A Insulating Glass Units:
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
3. Spacer Color: Black.
4. Edge Seal:
   a. Color: Black.
5. Purge interpane space with dry air, hermetically sealed.

B Type A - Insulating Glass Units: Vision glass, double glazed.
1. Basis of Design: Viracon 1-5/16" insulating laminated VE1-2M FT/HS/HS.
2. Applications: Exterior glazing unless otherwise indicated.
3. Space between lites filled with argon.

4. Outboard Lite: FT Heat Soak w/ VE-2M #2, 1/4 inch thick, minimum.
    a. Tint: Clear
    b. Coating: Low-E (passive type), on #2 surface.
5. Metal edge spacer. - 1/2" VTS Argon Spacer
    a. Silicone: Black
6. Inboard Lite Ply 1: Heat-strengthened, 1/4 inch thick, minimum.
    a. Tint: Clear
7. Interlayer: .060" Clear PVB
8. Inboard Lite Ply 2: Heat-strengthened, 1/4 inch thick, minimum.
    a. Tint: Clear
    b. Coating: RoomSide Low-e, on #6 surface.
9. Thermal Transmittance (U-Value), _____, nominal.
    a. Summer U-value: 0.17
    b. Winter U-value: 0.20
10. Visible Light Transmittance (VLT): 67 percent, nominal.
11. Shading Coefficient: 0.41, nominal.
12. Solar Heat Gain Coefficient (SHGC): 0.36, nominal.
13. Visible Light Reflectance, Outside: 1 0percent, nominal.
14. Light to Solar Gain Ratio: 1.86
15. Glazing Method: Dry glazing method, gasket glazing.

2.05 GLAZING COMPOUNDS

A Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.

C Color of Exposed Glazing Sealants: Standard color selected by Architect from manufacturer's full range.

2.06 ACCESSORIES

A Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.

C Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
    1. Width: As required for application.
    2. Thickness: As required for application.
    3. Spacer Rod Diameter: As required for application.

D Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

E Glazing Clips: Manufacturer's standard type.

2.07 SOURCE QUALITY CONTROL

A See Section 01 4000 - Quality Requirements for additional requirements.

B Provide shop inspection and testing for glass.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B Verify that the minimum required face and edge clearances are being provided.

C Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

D Verify that sealing between joints of glass framing members has been completed effectively.

E Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

A Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

C Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

D Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

E Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

F Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 FIELD QUALITY CONTROL

A See Section 01 4000 - Quality Requirements for additional requirements.
B Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
C Monitor and report installation procedures and unacceptable conditions.

3.06 CLEANING

A See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.
B Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
C Remove nonpermanent labels immediately after glazing installation is complete.
D Clean glass and adjacent surfaces after sealants are fully cured.
E Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.07 PROTECTION

A After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
B Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

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END OF SECTION

SECTION 09 2116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A Cementitious backing board.
B Gypsum wallboard.
C Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A Section 09 2216 - Non-Structural Metal Framing.

1.03 REFERENCE STANDARDS

A ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).
B ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2023.
C ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.
D ASTM C1278/C1278M - Standard Specification for Fiber-Reinforced Gypsum Panel; 2017.
E ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.
F ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
G GA-216 - Application and Finishing of Gypsum Panel Products; 2021.

1.04 SUBMITTALS

A See Section 01 3000 - Administrative Requirements, for submittal procedures.
B Product Data: Provide data on gypsum board, accessories, joint finishing system, and expanded metal mesh.

1.05 QUALITY ASSURANCE

A Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A Provide completed assemblies complying with ASTM C840 and GA-216.
    1. See PART 3 for finishing requirements.

2.02 BOARD MATERIALS

A Manufacturers - Gypsum-Based Board:
    1. American Gypsum Company
    2. CertainTeed Corporation
    3. Georgia-Pacific Gypsum
    4. National Gypsum Company
    5. USG Corporation
    6. Substitutions: See Section 01 6000 - Product Requirements.
B Gypsum Wallboard: 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. Glass mat faced gypsum panels as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.

3. Unfaced fiber-reinforced gypsum panels as defined in ASTM C1278/C1278M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
4. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   a. Mold resistant board is required at all locations.
5. Thickness:
   a. Vertical Surfaces: 5/8 inch.
   b. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
6. Paper-Faced Products:
   a. CertainTeed Corporation; Type X Drywall.

2.03 GYPSUM WALLBOARD ACCESSORIES

A Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
1. Types: As detailed or required for finished appearance.

B Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Fiberglass Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
2. Joint Compound: Setting type, field-mixed.

C Finishing Compound: Surface coat and primer, takes the place of skim coating.

D Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion resistant.

PART 3 EXECUTION

3.01 EXAMINATION

A Verify that project conditions are appropriate for work of this section to commence.

3.02 BOARD INSTALLATION

A Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

3.03 INSTALLATION OF TRIM AND ACCESSORIES

A Control Joints: Place control joints consistent with lines of building spaces and as follows:

B Corner Beads: Install at external corners, using longest practical lengths.

3.04 JOINT TREATMENT

A Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.

B Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
3. Level 3: Walls to receive textured wall finish.
4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
5. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
6. Level 0: Temporary partitions.
7. Level 0: Surfaces indicated to be finished in later stage of project.

C 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.
   2. Taping, filling and sanding is not required at base layer of double layer applications.

D Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

E Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.05 TOLERANCES

A Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

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END OF SECTION

SECTION 09 9113
EXTERIOR PAINTING

PART 1 -GENERAL

1.01 SUMMARY

A Section Includes:

1. Site-applied exterior opaque paint systems.
2. Application of finish paint coats to factory- or shop-primed items.
3. High Performance Coatings for Steel.

1.02 ACTION SUBMITTALS

A Prepare submittals per requirements of Section 01 3300 – Submittal Procedures.

1. Submit all action submittals in a single group, regardless of the number of applicators.
2. All paint products for each paint system shall be supplied by a single manufacturer.

B Product Data: For each type of product indicated.

C Samples for Initial Selection: Provide fan deck set of standard colors for proposed paint manufacturers.

D Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

E Product List:

1. Cross-reference to paint system and locations of application areas that include color designations. Use same designations indicated on Drawings and in schedules.

1.03 CLOSEOUT SUBMITTALS

A Paint Record Data: Submit sufficient technical information on paint type, color, and sheen for each paint system to enable Owner to reproduce colors in the future. List proprietary color information using designations used in Contract Documents for paint systems.

1.04 MAINTENANCE MATERIAL SUBMITTALS

A Supply extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: Furnish an additional 5 percent, but not less than 1 gallon [<>]gallons of each material and color applied.
2. Label each container with color, texture, sheen and location/room, in addition to the manufacturer’s label.

1.05 QUALITY ASSURANCE

A Installer Qualifications:

1. Installer Qualifications:Installer shall be experienced in application of specified coatings for a minimum of 5 years on projects of similar size and complexity to this Work.
2. Applicator's Personnel: Employ persons trained for application of specified coatings.
3. Manufacturer’s Certification: Installer shall either be approved, authorized, or licensed by manufacturer to install coating systems as evidenced by written certification from manufacturer.

B Manufacturer Qualifications:

1. Manufacturer shall specialize in manufacture of coatings with a minimum of 10 years successful experience.
2. Manufacturer shall be able to demonstrate successful performance on comparable projects.

C Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

1.06 DELIVERY, STORAGE, AND HANDLING

A Deliver materials to site in unopened original packaging with intact labels bearing product name and following information:
1. Manufacturer`s product designation and date of manufacture.
2. Contents by volume, for major pigment and vehicle constituents.
3. Application instructions.
4. Color name and number.

B Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.07 FIELD CONDITIONS

A Apply paints only when temperature of surfaces to be painted and ambient air temperatures are within air and surface temperature and humidity ranges, in accordance with manufacturer's instructions.

B Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C Wind: Do not spray coatings if wind velocity is above manufacturer’s limit.

D Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with manufacturer’s instructions.

E Dust and Contaminants:
1. Schedule coating work to avoid excessive dust and airborne contaminants.
2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

1.08 WARRANTY

A General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B Special Warranty: Provide coating manufacturer's standard adhesion/corrosion, color and gloss retention warranty.
1. Warranty Period: Minimum of five years from date of Substantial Completion.

C Special Installer's Warranty: Provide warranty from exterior coating installer/applicator for workmanship and installation of exterior coatings to perform as specified for warranty period.
1. Warranty Period: Two years from date of Substantial Completion.

PART 2 -PRODUCTS

2.01 PAINT, GENERAL

A Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B Colors: As selected by architect.

2.02 EXTERIOR PAINT SYSTEMS

A Supply all products for each required system from a single manufacturer.

B Manufacturers:
1. Benjamin Moore
2. PPG Paints
3. Sherwin-Williams

C Factory- or Shop-Primed Surfaces: Determine whether primer is compatible with specified finish coats.
1. Compatible Primer: Touch up bare and damaged areas with specified primer before applying finish coats.
2. Incompatible Primer: Remove primer or provide barrier coat before applying specified primer and finish coats.

D Structural Steel And Metal Fabrications: Exterior doors and frames: all of these items to receive SSPC-7.
1. Primer: Factory primed. SSPC Paint System #7: One coat shop-applied alkyd primer; or approved equal.
   a. Field Touch Up - Basis of Design – Kem Bond HS B50, MPI #79
2. MPI # 9 – Two Coats:
   a. Basis of Design: SW: Pro Industrial Urethane Alkyd Enamel, B54-150

PART 3 -EXECUTION

3.01 EXAMINATION

A Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

D Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.02 PREPARATION

A Comply with manufacturer recommendations and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

3. Do not paint locks and latching mechanisms of access panels.

C Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

3.03 SEQUENCING

A Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

B Do not apply finish coats until paintable caulking has been applied.

3.04 APPLICATION

A Apply paints according to manufacturer recommendations and recommendations in "MPI Architectural Painting Specification Manual."
1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
4. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.05 FIELD QUALITY CONTROL

A Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
1. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   a. Contractor shall touch up and restore painted surfaces damaged by testing.
   b. If test results show that dry film thickness of applied paint does not comply with paint manufacturer`s written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer`s written recommendations.

3.06 CLEANING AND PROTECTION

A At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

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END OF SECTION

SECTION 09 9123
INTERIOR PAINTING

PART 1 -GENERAL

1.01 SUMMARY

A Section Includes:
1. Site-applied interior opaque paint systems.
2. Application of finish paint coats to factory- or shop-primed items.

1.02 DEFINITIONS

A Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.03 ACTION SUBMITTALS

A Prepare submittals per requirements of Section 01 3300 – Submittal Procedures.
1. Submit all action submittals in a single group, regardless of the number of applicators.
2. All paint products for each paint system shall be supplied by a single manufacturer.

B Product Data: Product data are not required for proprietary products named in this Section.

C Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
1. Label each Sample. Use same designations indicated on Drawings and in schedules.

D Product List: For each product indicated, include the following:
1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.04 MAINTENANCE MATERIAL SUBMITTALS

A Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Paint: 1 gal. [<>] of each material and color applied.

1.05 DELIVERY, STORAGE, AND HANDLING

A Deliver materials to site in unopened original packaging with intact labels bearing product name and following information:
1. Manufacturer`s product designation and date of manufacture.
2. Color name and number.

B Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
1. Maintain containers in clean condition, free of foreign materials and residue.

1.06 FIELD CONDITIONS

A Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 -PRODUCTS

2.01 INTERIOR PAINT SYSTEMS

A Supply all products for each required system from a single manufacturer.
1. BM = Benjamin Moore
2. PPG = PPG Paints
3. SW = Sherwin-Williams

B Factory- or Shop-Primed Surfaces: Determine whether primer is compatible with specified finish coats.
1. Compatible Primer: Touch up bare and damaged areas with specified primer before applying finish coats.
2. Incompatible Primer: Remove primer or provide barrier coat before applying specified primer and finish coats.

C Steel Surfaces: MPI INT 5.1B Water Based Light Industrial Coating
1. MPI #107- One Coat:
   a. PPG: Pitt-Tech Plus Int/Ext DTM Industrial Primer 90-908/909/912
   b. BM: Super Spec HP Acrylic Metal Primer P04/KP04
   c. SW: Pro Industrial Pro-Cryl Universal Primer B66W310
2. MPI #153- Two Coats:
   a. PPG: Pitt-Tech Plus Int/Ext Semi-Gloss DTM Industrial Enamel 90-1210
   b. BM: Super Spec HP D.T.M. Acrylic Semi-Gloss HP29/FP29
   c. SW: DTM Acrylic Semi-Gloss B66W00211

D Gypsum Board: MPI INT 9.2F Acrylic Modified Latex
1. MPI #50- One Coat:
   a. PPG: Speedhide Interior Latex Sealer Quick-Drying 6-2
   b. BM: Super Spec Premium Interior Latex Primer 253/K253
   c. SW: Drywall Latex Primer B28W08150
2. MPI #115- Two Coats:
   a. PPG: Aquapon WB Water Based Polyamide Acrylic 98-1
   b. BM: Super Spec HP Water Borne High Gloss Acrylic P42
   c. SW: Pro Industrial Waterbased Catalyzed Acrylic B73W311/B73V300

PART 3 -EXECUTION

3.01 EXAMINATION

A Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

C Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A Comply with manufacturer`s written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

E Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F Wood Substrates:
   1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
   2. Sand surfaces that will be exposed to view, and dust off.
   3. Prime edges, ends, faces, undersides, and backsides of wood.

3.03 APPLICATION

A Apply paints according to manufacturer`s written instructions and to recommendations in "MPI Manual."
   1. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
   2. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
   3. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   4. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.04 CLEANING AND PROTECTION

A At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

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