

# PROJECT MANUAL SPECIFICATIONS

Rhode Island Department of Transportation  
State Office Building  
2 Capitol Hill Providence, RI 02903

Antenna Room Improvements



RGB #6887  
August 2025

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## SPECIFICATIONS GROUP

### *General Requirements Subgroup*

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## SECTION 01 02 00 - CONTRACT – LIST OF DRAWINGS

## PART 1 - GENERAL

## 1.1 GENERAL CONDITIONS

- A. See Modified State of Rhode Island AIA Document A201.

## 1.2 SPECIFICATIONS

- A. Titles to Divisions and paragraphs in these specifications and in the notes on the drawings are introduced for convenience, and shall not be taken as an exact, correct or complete segregation of materials and labor.
- B. No responsibility is assumed by the Architect and Owner for omissions or duplications by the Contractor or his subcontractors due to real or alleged error in arrangement of matter in this specification or in notes on the drawings.
- C. Latest revisions of Federal, State and ASTM Specifications shall be used where only the specification number without date or revision number is given in specifications.
- D. The omissions from the plans and/or specification of express reference to any labor, equipment, system, assembly to make such system/assembly operational or materials reasonably to be inferred therefrom and necessary for the proper execution of the work shall not relieve the Contractor or Subcontractor from furnishing them of a kind in keeping with the general character of the work.

## 1.3 DRAWINGS

- A. List of Drawings:

GENERAL

|      |                         |
|------|-------------------------|
| G000 | COVER                   |
| G001 | ABBREVIATIONS & SYMBOLS |

ARCHITECTURAL

|      |                 |
|------|-----------------|
| A100 | LOCATION PLAN   |
| D101 | DEMOLITION PLAN |
| A101 | FLOOR PLAN      |

STRUCTURAL

|      |              |
|------|--------------|
| S1.1 | FRAMING PLAN |
| S2.1 | FRAMING PLAN |

END OF SECTION 01 02 00

## SECTION 01 10 00 - SUMMARY OF THE WORK

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. The General Conditions, Supplementary Conditions and applicable portions of Division 1 of the Specification are a part of this Section, which shall consist of 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; and as related to the project or projects defined in the Bidding Requirements.
- B. The specification format used herein is in accordance with MASTERFORMAT, CSI (2020 Format) and in no way intends to restrict this Contractor from expediting his work as he/she sees fit, nor is there any intention of segregating the units of work as related to specific trades involving jurisdictional problems.

## 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Rhode Island Department of Transportation State Office Building Capital Improvements
  - 1. Project Location: 2 Capitol Hill Providence, RI 02903
  - 2. Owner: State of Rhode Island Department of Administration
  - 3. Owner's Representative: Jacob Lautman, P.E. Project Manager for the Department of Administration (DCAMM)
  - 4. Architect: RGB Architects, 50 Holden Street, Providence, RI 02908
  - 5. Contractor: To be determined.

## 1.3 SUMMARY OF THE WORK

- A. The overall scope of work includes but not limited to the following:
  - 1. The structural reinforcement and repair of the Antenna Room exterior walls. The Antenna Room is located in the Penthouse building. The Penthouse building is located on the roof of the RIDOT building and is accessed from an interior stair.
  - 2. The structural reinforcement of the exterior Antenna Room walls will create a framework that will be used to support new antenna and antenna mounting equipment in the future. Antenna mounting equipment and antenna dish installation and power will be by others.
  - 3. The removal of existing antenna equipment that is no longer in use. The reinforcement of an existing interior terracotta wall at the Antenna Room.
  - 4. Remove existing photovoltaic equipment at the Antenna Room north wall interior if needed to install structural reinforcement. Reinstall photovoltaic equipment after work is complete and ensure existing equipment.
- B. Contractor shall comply with the following standards during the performance of the Work:

**Other Specifications**  
RI State Building Codes

IBC 2018  
RI Fire Code  
SMACNA Standards  
ASTM  
NFPA 70 National Electrical Code  
NFPA 101 Life Safety Code  
NFPA 780 Standard for the Installation of Lightning Protection Systems  
NFPA 241

#### 1.4 CONTRACTOR'S DUTIES

- A. The Contractor is responsible for all personnel involved in the work, including those of his direct employ, his/her sub-contractors and suppliers of materials and equipment and/or labor. The Technical Specifications have been divided for convenience only to cover the scope of work, and where reference to a particular contractor is noted, it is for convenience only. The Owner and Architect only recognize one Contractor as party to this Contract.
- B. As it is impractical to enumerate every piece of equipment, device and/or accessory required for proper operation of the indicated systems specified within their respective Sections or Divisions of the Project Manual; it is intended that all materials, systems, and/or equipment, required to insure proper operation of the equipment, device, and/or accessory, be provided as a part of the Work of this Project so the specified work or system functions, and/or performs as required by the specification. To infer the intent is otherwise, is to render the specified work or system less than required.
- C. Except as specifically noted, provide and pay for:
  - 1. Labor, materials and equipment.
  - 2. Tools, construction equipment and machinery.
  - 3. Water and utilities required for construction.
  - 4. Other facilities and services necessary for proper execution and completion of the Work.
- D. This is a tax-exempt project.
- E. Secure and pay for, as necessary for proper execution and completion of the Work, and as applicable at time of receipt of Bids:
  - 1. Permits.
  - 2. Inspections.
  - 3. Government fees.
  - 4. Licenses.
- F. Give required notices for operations which may disturb the functions of adjacent facilities.
- G. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on the performance of the Work.
- H. Promptly submit written notice, within five business days of discovery, to the Architect of observed variance of Contract Documents from legal requirements.
- I. Lay out all work and be responsible for all lines, elevations, measurements of the building, utilities and site work executed under the Contract. Verify the figures shown before laying out the Work and be responsible for any error resulting from failure to do so. Employ a competent registered engineer or registered land surveyor, approved by the Architect and Owner, to establish all lines, levels and dimensions, and place at the disposal of the Architect, as required for checking purposes.

- J. Enforce strict discipline and good order among employees. Do not employ people who are not skilled in assigned tasks.
- K. Notify all trades, subcontractors and suppliers of all designated alternatives and be responsible for their coordination.
- L. At your option, certain indicated materials and/or procedures are specified herein to be used instead of other indicated materials and/or procedures, at no change in Contract Price. Such options should be analyzed and coordinated during the bidding period, so that the selection of any may immediately be brought to the Architect's attention, once the Contract is awarded (within thirty days thereafter).

## 1.5 HEALTH AND SAFETY PRECAUTIONS

### A. OSHA:

- 1. These construction documents, and the joint and several phases of construction hereby contemplated, are to be governed, at all times, by the applicable portions of the Federal Laws, including but not limited to, the latest amendments of the following:
  - a. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-956;
  - b. Part 1910 - Occupational Safety and Health Standards, Title 29, Code of Federal Regulations, as amended to date;
  - c. Part 1926 - Safety and Health Regulations for Construction, Title 29, Code of Federal Regulations, as amended to date.
- 2. This Project, the Contractor and his sub-contractors shall, at all times, be governed by applicable Chapters of Title 29, Code of Federal Regulations, Part 1926 - Safety and Health Regulations for Construction, as amended to date.
  - a. Note: Furnish the Owner and Architect copies of all accident reports.

### B. Emergencies:

- 1. Should a tornado, hurricane, gale or heavy wind warnings be issued, take precautions to minimize the danger to people, to the work, and to the adjacent property. Damage caused to any part of the work shall be rectified or replaced to complete satisfaction of the Architect and Owner and at no expense to the Owner. Injury to personnel or damage to adjacent property because of the work shall be the complete responsibility of the Contractor, and he accepts exclusive responsibility for same.

### C. Loading:

- 1. Do not load any part of the existing work involved in this Contract, during construction, with a load greater than it is calculated to carry with safety. Should any accidents or damage occur through any violation of this requirement, the Contractor shall be held responsible under his Contract and Bond. When, in the opinion of the Architect, portions of the existing areas appear to be overloaded, it shall be the Contractor's responsibility to prove otherwise, or the Contractor shall follow the instructions of the Architect in connection with reduction of the loads.
- 2. Contractor to review existing site conditions and survey to determine location of underground utility systems and structures. Protect systems from damage. Repair, replace any existing to remain systems, unless noted otherwise.

## 1.6 PROJECT RECORD DOCUMENTS

### A. Maintain at job site, one copy of:

- 1. Contract Drawings.
- 2. Specifications.

3. Addenda.
  4. Reviewed Shop Drawings.
  5. Record Drawings.
  6. Change Orders.
  7. Other modifications to Contract.
  8. Field Test Reports.
  9. Approved materials, samples and colors.
- B. Store documents in approved field construction office, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
1. Provide red pen and pencil for all markings.
- D. File documents in accordance with Project Filing Format of MASTERFORMAT.
- E. Maintain documents in clean, dry, legible condition.
- F. Do not use record documents for construction purposes.
- G. Make documents available at all times for inspection by Architect and Owner.
- H. Recording changes:
1. Keep record documents current.
  2. Do not permanently conceal any work until the required information has been recorded.
  3. Contract Drawings: Legibly mark to record actual construction and the following:
    - a. Record various elements of foundations in relation to lowest floor elevation.
    - b. Reference horizontal and vertical location of underground utilities and appurtenances to permanent surface improvements.
    - c. Reference location of internal utilities and appurtenances concealed in construction to visible and accessible features of structure.
    - d. Record field changes of dimensions and details.
    - e. Record changes made by Change Order or Field Order.
    - f. Record details not on original Contract Drawings.
  4. Specifications and Addenda: Legibly mark up each Section to record the following:
    - a. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
    - b. Changes made by Change Order and Field Order.
    - c. Other matters and materials not previously specified.
  5. Shop Drawings: Maintain as record documents; legibly annotate drawings to record changes after review.

#### 1.7 TRANSPORTATION AND HANDLING

- A. Transport all materials and equipment on legally approved conveyances as required or recommended by the respective manufacturer or supplier.
1. Obtain all required permits.
- B. Receive and handle all materials and equipment, at the project site, by conveyances or methods as recommended by the respective manufacturer or supplier.
- C. Coordinate delivery of equipment and materials when two or more trades, contractors or suppliers are involved.

- D. Remove from the site any material or item of equipment damaged during the transportation or handling process and immediately replace at no additional cost to the Owner.

#### 1.8 STORAGE AND PROTECTION

- A. Store all materials and equipment as recommended by the respective manufacturer or supplier, including the following minimum requirements.
- B. Upon receipt of such materials and equipment, check, distribute, store and safeguard in a clean, dry, ventilated location.
- C. Elevate off the ground, items which can be stored in exterior locations, and completely cover with approved tarpaulins. Protect against the elements at all times.
- D. Maintain all storage areas in a clean and orderly condition at all times.
- E. Immediately replace any material or item of equipment damaged, due to inadequate storage protection, at no additional cost to the Owner.

#### 1.9 CUTTING AND PATCHING

- A. Execute cutting, including excavating, fitting or patching work required to:
  - 1. Make several parts fit properly.
  - 2. Uncover work to provide for installation of ill-timed work.
  - 3. Remove and replace defective work.
  - 4. Remove and replace work not conforming to the Contract Documents.
  - 5. Remove samples of installed work, as specified, for testing.
  - 6. Install specified work in existing construction.
- B. In addition to the Contract requirements, upon written instructions from Architect:
  - 1. Uncover work to provide for Architect's observation of covered work, as required by General Conditions.
  - 2. Remove samples of installed materials for testing; as required by General Conditions.
- C. Do not endanger any work by cutting or altering work, or any part of it.
- D. Do not cut or alter the work of another Contractor without written permission of the Architect.
- E. Prior to cutting which affects structural safety of Project, or work of another Contractor, submit written notice to Architect requesting consent to proceed with cutting.
- F. Prior to cutting and patching, done on instruction of the Architect, submit written cost estimate.
- G. Should conditions of work, or schedule, indicate change of materials or methods, submit written recommendations to the Architect and Owner including:
  - 1. Conditions indicating change.
  - 2. Recommendations for alternative materials or methods.
  - 3. Submittals required for Substitutions.
  - 4. Impact on operations and maintenance, both long and short term.
- H. Submit written notices to the Architect and Owner, designating time work will be uncovered, to provide for observation.



- I. Payment for costs caused by ill-timed or defective work, or work not conforming to the Contract Documents, including costs for additional services of Architect or other costs to the Owner will be borne by the Contractor.
- J. Contractor Inspection:
  - 1. Inspect existing conditions of work, including existing underground structures and elements subject to movement or damage during:
    - a. Cutting and patching.
  - 2. After uncovering work, inspect conditions affecting installation of new products.
- K. Preparation: (prior to cutting)
  - 1. Provide shoring, bracing and support as required to maintain structural integrity of the Project.
  - 2. Provide appropriate protection to fully protect other portions of the Project from dust, fumes, humidity, etc.
  - 3. Provide protection from the elements.
- L. Performance: Perform all work of fitting, adjustment, cutting, patching, finishing, and restoration to perfectly match the quality as specified throughout these specifications by trade persons skilled in the work being performed.

#### 1.10 OWNER-FURNISHED PRODUCTS

- A. Where Owner furnished and/or Owner Vendor furnished equipment is specified, the Contractor is responsible to verify and coordinate, with the Owner, the extent of the Work under this Contract, associated with such product or equipment.
- B. Owner's duties:
  - 1. Schedule delivery date, with supplier, in accordance with the Construction Schedule, as developed with both the Architect and Owner in regard to furnished products.
  - 2. Obtain installation drawings and instructions.
- C. Contractor's duties:
  - 1. Designate the required delivery date for each product in accordance with the Construction Schedule, as developed with both the Architect and Owner in regard to furnished products.
  - 2. Promptly inspect delivered products, report damage or defective products.
  - 3. Handle at site, including uncrating and storage.
  - 4. Protect from exposure to elements and from damage.
  - 5. The Contractor shall endeavor to work with the Owner in their schedule to accommodate the work.
  - 6. Repair or replace items damaged as a result of Contractor's operations.
  - 7. Refer to the drawings for additional responsibilities

#### 1.11 CONTRACTOR USE OF PREMISES

- A. Confine operations at site to areas permitted by:
  - 1. Law.
  - 2. Ordinances.
  - 3. Permits.
  - 4. Contract Documents.

- B. Do not unreasonably encumber the site with materials and equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on the premises.
- E. Move any stored products which interfere with operations of Owner or other Contractor.
- F. Obtain and pay for use of additional storage or work areas needed for operations.
- G. Limit use of site for work and storage within confines of the Project Limit Line.
- H. Use of Site: Limit use of Project site to work in areas or areas within the Contract limits indicated. Do not disturb portions of the Project site beyond areas in which the work is indicated.
  - 1. Limits: Confine construction operations to construction areas indicated on drawings and allowed by the Owner.
  - 2. Driveways, Walkways and Entrances: Keep driveways, loading areas and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

#### 1.12 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  - 1. Comply with limitations on the use of public streets and with other requirements of authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  - 1. Notify Owner not less than two days in advance of the proposed utility interruptions.
  - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
  - 1. Notify Owner not less than two days in advance of the proposed disruptive operations.
  - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- D. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.
- E. Controlled Substances: Use of tobacco products and other controlled substances within the existing building and/or on Project site is not permitted.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

## SECTION 01 22 00 - UNIT PRICES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. The section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
  - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
  - 2. Division 01 Section "Quality Requirements" for general testing and inspecting requirements.

## 1.3 DEFINITIONS

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

## 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes (when required), overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

## PART 2 - EXECUTION

**UNIT PRICES:**

Submit this completed section with the bid form if unit costs are not provided on the bid form.

The undersigned agrees that the following unit prices are applicable for additional work required from that as specified or shown on the Contract Documents. The prices herein established are for additional work and include the net cost plus overhead and profit. The contractor's fees listed under (A) items will apply to account for pricing.

The following Unit Prices will constitute the basis for additions to the Contract as may be required during the life of the Contract:

**LIST OF UNIT PRICES****1. Crack Repair:**

- a. Description: Repair cracks at existing terracotta block walls. Crack repair to include all items and components needed to repair cracks as directed on structural drawings. Masonry mortar to match joint size, texture, color, and pointing. Demolished materials to be removed and properly disposed of offsite.
- b. Amount per Unit of Measurement: \$\_\_\_\_\_ / Per LF.

**2. Terracotta block replacement:**

- a. Description: New 12" wide x 12" high x 3.5" terracotta block to match existing. New block and mortar to match existing texture, color, and pointing of adjacent wall. Demolished materials to be removed and properly disposed of offsite.
- b. Amount per Unit of Measurement: \$\_\_\_\_\_ / Per SF.

END OF SECTION

## SECTION 01 25 00 - SUBSTITUTION PROCEDURES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. The section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Division 01 Section "Project Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
  - 2. Divisions 02 through 9 Sections for specific requirements and limitations for substitutions.

## 1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer an advantage to Contractor or Owner.

## 1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use CSI Form 13.1A and/or facsimile of form provided in Project Manual.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified products, fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a 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.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include an annotated copy of the applicable Specification Section. Significant qualities may include attributes such as performance, weight,

- size, durability, visual effects, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with the building code in effect for Project, from ICC-ES.
  - j. 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.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

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

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

## 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - b. The substitution request is fully documented and properly submitted.
  - c. Requested substitution will not adversely affect Contractor's construction schedule.
  - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - e. Requested substitution is compatible with other portions of the Work.
  - f. Requested substitution has been coordinated with other portions of the Work.
  - g. Requested substitution provides specified warranty.
  - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not permitted.

## PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

## 1.3 MINOR CHANGES IN THE WORK

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

## 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request or 15 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    - e. Quotation Form: Use forms acceptable to Architect, provide example to Architect for approval.



- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, the Contractor may initiate a claim by submitting a request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  4. Include costs of labor and supervision directly attributable to the change.
  5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
  7. Proposal Request Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail."

#### 1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Unit-Price Adjustment: See Division 01 Section "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

#### 1.6 CHANGE ORDER PROCEDURES

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

#### 1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Architect may issue a Work Change Directive on AIA Document G714. Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Work 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 Work Change Directive.

END OF SECTION 01 26 00

## SECTION 01 29 00 - PAYMENT PROCEDURES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. The section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
  - 1. Division 01 Section "Unit Prices" for administrative requirements governing the use of unit prices.
  - 2. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 3. Division 01 Section "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

## 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by the 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.

## 1.4 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 ten days before the date scheduled for submittal of initial Applications for Payment.
- 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 a breakdown of the 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 the Contract Sum.
  - a. Include separate line items under Contractor and principal subcontracts for documentation and Project closeout requirements.
5. Round amounts to the nearest whole dollar; total shall equal the Contract Sum.
6. Provide a 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. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
9. 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.

10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. 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 period covered by each Application for Payment is one month, ending on the last day of the month.
  1. Submit draft copy of Application for Payment seven days prior to due date 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 are 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 the 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 the 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. As-Built documentation: As-Built documentation is required as a condition for application of payment processing and approval. Documentation is to be provided for Owner and/or Architect to review at the time of the draft review of the monthly application, but no later than five days prior to submission of the application for payment. Failure to maintain the as-built documentation may result in the delay of processing of the Application for Payment until such time as the as-built documentation is provided for review.
- G. Transmittal: Submit four signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
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. The owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. 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.
  5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.
- 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. Products list (preliminary if not final).
  5. Schedule of unit prices.
  6. Submittal schedule (preliminary if not final).
  7. List of Contractor's staff assignments.
  8. List of Contractor's principal consultants.
  9. Copies of building permits.
  10. Copies of authorizations and licenses from authorities having jurisdiction for the Work.
  11. Initial progress report.
  12. Report of preconstruction conference.
  13. Certificates of insurance and insurance policies.
  14. Performance and payment bonds.
  15. Data needed to acquire Owner's insurance.
- J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an 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 Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

- K. Final Payment Application: After completing Project closeout requirements, submit the final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
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.
  10. Build code required contractor certification.

END OF SECTION

## SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Coordination drawings.
  - 3. Requests for Information (RFIs).
  - 4. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
  - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
  - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

## 1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

## 1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use an industry standard form that includes the following information in tabular form:
  - 1. Name, address, and telephone number of the entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project

site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in the project meeting room, in temporary field office, on Project Web site, and by each temporary telephone. Always keep the list current.

## 1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
  1. Schedule construction operations in sequence are required to obtain the best results where the installation of one part of the Work depends on installation of other components, before or after its own installation.
  2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.
  1. Schedule construction operations in sequence are required to obtain the best results where installation of one part of the Work depends on the installation of other components, before or after its own installation.
  2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors when appropriate and/or required, 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.



- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
  - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

## 1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings, at a scale not less than 1/4" = 1'-0", according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
  - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe the relationship of various systems and components.
    - b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides coordination of the information and resolution of conflicts between installed components before submitting for review.
    - c. Indicate functional and spatial relationships of components of architectural and structural items.
    - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
    - e. Indicate required installation sequences.
    - f. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
  - 1. Floor Plans and enlarged plans: Show architectural and structural elements.
  - 2. Supplement plan drawings with section drawings where required to adequately represent the Work.
  - 3. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
- C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
  - 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
  - 2. File Preparation Format: DWG, ACAD 2024, operating in Microsoft Windows operating system.

3. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format and Portable Data File (PDF) format.
- D. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Contractor to submit all RFIs to Architect.
  2. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  3. Coordinate and submit RFIs in a prompt manner so as to avoid delays in the Contractor's work or the work of subcontractors.
- E. Content of the RFI: Include a 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 (and Construction Manager when identified).
  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.
- F. RFI Forms: Contractors standard AIA form or AIA Document G716, Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- G. Architect's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven 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. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 7 days of receipt of the RFI response with quantified change of time and/or contract sum.
- H. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use forms and/or Software log that is part of a Project Web based site with not less than the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect (and Construction Manager when required).
  4. RFI numbers, including RFIs that were returned without action or withdrawn.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's (and Construction Manager's) response was received.
- I. On receipt of Architect's (and Construction Manager's) action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect (and Construction Manager) within five (5) days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
  2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

## 1.7 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 the meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager, and Architect, within three (3) days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than ten (10) 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. Agenda: Discuss items of significance that could affect progress, including the following:

- a. Tentative construction schedule.
- b. Phasing or work stages.
- c. Critical work sequencing and long-lead items.
- d. Designation of key personnel and their duties.
- e. Lines of communications.
- f. Procedures for processing field decisions and Change Orders.
- g. Procedures for RFIs.
- h. Procedures for testing and inspecting.
- i. Procedures for processing Applications for Payment.
- j. Distribution of the Contract Documents.
- k. Submittal procedures.
- l. Preparation of the record documents.
- m. Use of the premises and/or existing building.
- n. Work restrictions or Working hours.
- o. Owner's occupancy requirements.
- p. Responsibility for temporary facilities and controls.
- q. Procedures for moisture and mold control.
- r. Procedures for disruptions and shutdowns.
- s. Construction waste management and recycling.
- t. Parking availability.
- u. Office, work, and storage areas.
- v. Equipment deliveries and priorities.
- w. Security.
- x. Progress cleaning.

4. Minutes: Entity responsible for conducting the meeting will record and distribute meeting minutes.

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 the Architect and Owner's Commissioning Authority of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

- a. Contract Documents.
- b. Related RFIs.
- c. Related Change Orders.
- d. Purchases & Deliveries.
- e. Submittals.
- f. Review of mockups.
- g. Possible conflicts or Compatibility requirements.
- h. Time schedules.
- i. Weather limitations.
- j. Manufacturer's written instructions.
- k. Warranty requirements.
- l. Acceptability of substrates.
- m. Temporary facilities and controls.

- n. Space and access limitations.
  - o. Regulations of authorities having jurisdiction.
  - p. Testing and inspecting requirements.
  - q. Installation procedures.
  - r. Coordination with other work.
  - s. Required performance results.
  - t. Protection of adjacent work.
  - u. 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 the performance of the Work and reconvene the conference at the earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.
- 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  - 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 meeting. Participants at the meeting shall be familiar with the 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 the record documents.
    - b. Procedures required prior to 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, 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. Owner's partial occupancy requirements.
    - k. Installation of Owner's furniture, fixtures, and equipment.
    - l. Responsibility for removing temporary facilities and controls.
  - 4. Minutes: Entity conducting meetings will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at weekly and/or regular intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
  - 2. Attendees: In addition to representatives of Owner, Owner's Construction Manager, 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 the 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 the 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 the present and future needs of each entity present, including the following:
      - 1) Sequence of operations.
      - 2) Status of submittals.
      - 3) Deliveries.
      - 4) Off-site fabrication.
      - 5) Access.
      - 6) Site utilization.
      - 7) Temporary facilities and controls.
      - 8) Progress cleaning.
      - 9) Quality and work standards.
      - 10) Status of correction of deficient items.
      - 11) Field observations.
      - 12) Status of RFIs.
      - 13) Status of Change Orders.
      - 14) Pending claims and disputes.
      - 15) Documentation of information for payment requests.
  4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
    - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- F. Coordination Meetings: Conduct Project coordination meetings at weekly and/or regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.
1. Attendees: In addition to representatives of Owner, Owner's Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with the Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of

schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
  - c. Review the present and future needs of each contractor present, including the following:
    - 1) Interface requirements and Sequence of operations.
    - 2) Resolution of component conflicts.
    - 3) Status of submittals.
    - 4) Off-site fabrication.
    - 5) Access, Deliveries.
    - 6) Site utilization.
    - 7) Temporary facilities and controls.
    - 8) Work hours.
    - 9) Hazards and risks.
    - 10) Progress cleaning.
    - 11) Quality and work standards.
    - 12) Change Orders.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

END OF SECTION

## SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Startup 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.
- B. Related Requirements:
  - 1. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
  - 2. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

## 1.3 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 Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date
  - 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.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
  - 1. Working electronic copy of schedule file, where indicated.
  - 2. 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.
  - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- 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 Work 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.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.
- J. Special Reports: Submit at time of unusual event.
- K. Qualification Data: For scheduling consultant.

## 1.5 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.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
  - 1. Review software limitations and content and format for reports.
  - 2. Verify availability of qualified personnel needed to develop and update schedule.
  - 3. Discuss constraints, including phasing or work stages, area separations, interim milestones, and partial Owner occupancy.
  - 4. Review delivery dates for Owner-furnished products.
  - 5. Review schedule for work of Owner's separate contracts.
  - 6. Review submittal requirements and procedures.
  - 7. Review time required for review of submittals and resubmittals.
  - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
  - 9. Review time required for Project closeout and Owner startup procedures including commissioning activities.
  - 10. Review and finalize list of construction activities to be included in schedule.
  - 11. Review procedures for updating schedule.

## 1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from entities involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## PART 2 - PRODUCTS

## 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend the schedule from date established for the Notice to Proceed to date of final completion.
  - 1. The 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 days, unless specifically allowed by Architect.
  - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" 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 and Owner's Construction Manager's, administrative procedures necessary for certification of Substantial Completion.
  - 5. Punch List and Final Completion: Include not more than 45 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in the schedule, and show how the sequence of the Work is affected.
  - 1. Phasing or Work Stages: Arrange list of activities on schedule by phase or work stage.
  - 2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  - 3. 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. Use of premises restrictions.
    - e. Provisions for future construction.
    - f. Seasonal variations.
  - 4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    - a. Subcontract awards.
    - b. Submittals.
    - c. Purchases.
    - d. Mockups.

- e. Fabrication.
  - f. Deliveries.
  - g. Installation.
  - h. Tests and inspections.
  - i. Adjusting.
  - j. Curing.
5. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
- a. Structural completion.
  - b. Substantial Completion.
6. Other Constraints: TBD
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion, and the following interim milestones:
- 1. Site demolition and recycling 50%, 100% completion
  - 2. Steel and Masonry 25%, 50%, 100% completion.
  - 3. Exterior finish
- E. Cost Correlation: Super impose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
- 1. See Division 01 Section "Payment Procedures" for cost reporting and payment procedures.
- F. Upcoming Work Summary: Prepare a summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
- 1. Unresolved issues.
  - 2. Unanswered Requests for Information.
  - 3. Rejected or unreturned submittals.
  - 4. Notations on returned submittals.
  - 5. Pending modifications affecting the Work and Contract Time.
- G. Recovery Schedule: When periodic update indicates the Work is 5 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
- H. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
- 2.2 STARTUP CONSTRUCTION SCHEDULE
- A. Grantt Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within 30 calendar days of date established for commencement of the Work.

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

## 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT BAR CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 calendar days of date established for the Notice to Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify the first workday of each week with a continuous vertical line.
  - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

## 2.4 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 days of date established for the Notice of Award. Outline significant construction activities for the first 90 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 no later than 60 days after date established for the Notice to Proceed.
    - 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. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 3. 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. Testing and commissioning.
  - i. Punch list and final completion.
  - j. 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 the 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.
5. Cost- and Resource-Loading of CPM Schedule: Assign a cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
  - a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
  - b. Total cost assigned to activities shall equal the total Contract Sum.
- 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. Immediately 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. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests, coordinate timing with progress meetings.
  - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
  - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

## 2.5 REPORTS

A. 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 the 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. Substantial Completions authorized.

B. Material Location Reports: At monthly 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 a list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.

3. Material stored following previous report and remaining in storage.

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

## 2.6 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day(s) 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.

## 2.7 RECORD DOCUMENTS

- A. Prior to the start of construction, the Architect shall deliver to the Contractor, a complete set of "Issued for Construction" drawings, and a complete project manual, including addenda, for the purpose of maintaining record documents.
- B. Also, maintain a copy of all modifications and change orders.
- C. Maintain the documents in a safe, dry location during the entire construction process. The Contractor, together with his sub-contractors, shall indicate clearly and accurately, any and all changes necessitated by field conditions. In addition, accurately maintain dimensions locating all pipes, ducts, etc. built into or under concrete slabs or masonry walls, including elevations, inverts, etc.
- D. With each monthly requisition, send a certification, signed by the Contractor's Superintendant and Owner's Field Representative, that the documents are being maintained accurately and currently. At the completion of the Project, return the documents to the Architect, along with certification that the documents are complete in that they represent the true constructed conditions.
- E. Electronic Submission of Record Drawings in AutoCAD is mandatory in addition to hard copies.

## 2.8 ELECTRONIC FILES

- A. The Robinson Green Beretta Corporation shall make electronic drawing files available to the successful General Contractor, at the cost of \$500 for the purpose of preparing submittals, record drawings, etc in accordance with the following policy:
1. Drawings shall be transferred electronically.
  2. Requester must sign an Electronic File Transmittal Form.
  3. Copies of documents that may be relied upon by the Contractor are limited to the printed copies (also known as hard copies) that are signed or sealed by the Architect. Files in electronic media format or test, data, graphic or other types that are furnished by the



Architect to the Contractor are only for the convenience of the Contractor. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. When transferring documents in electronic media format, the Architect make no representations as to long-term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems or computer hardware differing from those in use by the Architect at the beginning of this project.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise the 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 an 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, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

## SECTION 01 33 00 - SUBMITTAL PROCEDURES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
  - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
  - 3. Division 01 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
  - 4. Division 01 Section "Closeout Procedures" for submitting warranties.
  - 5. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 6. Division 01 Section "Project Record Data" for submitting record Drawings, record Specifications, and record Product Data.
  - 7. Division 02 through 33 Sections for specific requirements for submittals in those Sections.

## 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### 1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include the time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
  4. Format: Arrange the following information in a tabular format:
    - a. Scheduled date for first submittal.
    - b. Specification Section number and title.
    - c. Submittal category: Action; informational.
    - d. Name of subcontractor.
    - e. Description of the Work covered.
    - f. Scheduled date for Architect's final release or approval.
    - g. Scheduled date of fabrication.
    - h. Scheduled dates for purchasing.
    - i. Scheduled dates for installation.
    - j. Activity or event number.

#### 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
    - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Digital Drawing Software Program: The Contract Drawings are available as a CAD file.
    - c. Contractor shall execute a data licensing agreement in the form of AIA Document C106, Digital Data Licensing Agreement.
- B. Coordination: Coordinate the preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Architect will advise the Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in the same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
  5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. The submittal will be returned to Architect before being returned to Contractor.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with submittal number or other unique identifier, including revision identifier.
    - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of firm or entity that prepared submittal.
    - g. Names of subcontractor, manufacturer, and supplier.
    - h. Category and type of submittal.
    - i. Submittal purpose and description.

- j. Specification Section number and title.
  - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
  - l. Drawing number and detail references, as appropriate.
  - m. Location(s) where product is to be installed, as appropriate.
  - n. Related physical samples submitted directly.
  - o. Indication of full or partial submittal.
  - p. Transmittal number, numbered consecutively.
  - q. Submittal and transmittal distribution record.
  - r. Other necessary identification.
  - s. Remarks.
5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
- a. Project name.
  - b. Number and title of appropriate Specification Section.
  - c. Manufacturer name.
  - d. Product name.
- E. Options: Contractor to clearly identify all products selections for review. Clearly identify options requiring selection by Architect.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
- 1. Submit electronic submittals via email as PDF electronic files.  
[All submittals should be in unlocked PDF format with searchable text.](#)

- a. The Architect will return the annotated file. Annotate and retain one copy of file as an electronic Project record document file.
2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
  - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.
    - e. Testing by recognized testing agency.
    - f. Application of testing agency labels and seals.
    - g. Notation of coordination requirements.
    - h. Availability and delivery time information.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Printed performance curves.
    - b. Clearances that are required to other construction, if not indicated on accompanying Shop Drawings.
  5. Submit Product Data before or concurrent with Samples.
  6. Submit Product Data in the following format:
    - a. PDF electronic file.
- C. Shop Drawings: Contractor to review all shop drawings for conformance to specifications and contract drawings prior to submitting to Architect. Prepare Project-specific information, drawn accurately to scale.
  1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products with product line and model name/number
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and the attachment to adjoining construction clearly indicated.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
    - e. Specification paragraph number and generic name of each item.
  3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. 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.
    - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three sets of Samples. The architect will retain two Sample sets; the remainder will be returned.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

- 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
  5. Submit product schedule in the following format:
    - a. PDF electronic file.
- F. Coordination Drawing Submittals: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other specified information.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.



- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
1. Name of evaluation organization.
  2. Date of evaluation.
  3. Time period when report is in effect.
  4. Product and manufacturers' names.
  5. Description of product.
  6. Test procedures and results.
  7. Limitations of use.
- U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Identify information requiring Architect's confirmation. Mark with approval stamp before submitting it to Architect.

- B. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.2 ARCHITECT'S ACTION

- A. Action Submittals: The Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: The Architect will review each submittal and will not return it or will return it if it does not comply with requirements. Architect will forward each submittal to the appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION

## SECTION 01 40 00 - QUALITY REQUIREMENTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve the 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 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, Commissioning Authority and/or Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
  - 1. Divisions 02 through 09 Sections for specific test and inspection requirements.

## 1.3 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 the Architect and/or or Construction Manager.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

- D. 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.
- E. 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.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. 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.
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of 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.

#### 1.4 CONFLICTING REQUIREMENTS

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

#### 1.5 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
  - 1. Indicate manufacturer and model number of individual components.
  - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

#### 1.6 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. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit a copy of a written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
  - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
  - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.
- D. 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 a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of tests 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.

#### 1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format that is 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. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
  - 1. Project quality-control manager may also serve as Project superintendent for small or limited projects.
  - 2. Project quality control manager shall not have other project responsibilities for large and/or complex projects.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of the submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a 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. Contractor-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by the Commissioning Authority.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including 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.

## 1.8 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 the 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.

## 1.9 QUALITY ASSURANCE

- A. **General:** Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Specialists:** Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy the qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- F. **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's National Voluntary Laboratory Accreditation Program.
- G. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
  3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
  4. Demonstrate the proposed range of aesthetic effects and workmanship.
  5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
  6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  7. Demolish and remove mockups when directed unless otherwise indicated.
- H. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings and/or as indicated on Drawings. Coordinate installation of exterior materials and products for which mockups are required in individual Specification Sections, along with supporting materials.

#### 1.10 QUALITY CONTROL

- A. Contractor Responsibilities: Where quality-control services are indicated as Contractor's responsibility, Contractor will engage a qualified testing agency to perform these services. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Contractor will furnish Owner 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.
  3. 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.
  4. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  5. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  6. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  7. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. 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 Division 01 Section "Submittal Procedures."
- C. 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 pre-installation 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.



- D. 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.
- E. 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.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify the 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 the 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.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. 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

## 3.1 ACCEPTABLE TESTING AGENCIES

- A. Firms acceptable to perform designated tests and inspections are:
  - 1. As approved by Architect and Structural engineer

## 3.2 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
  - 1. Date test or inspection was conducted.
  - 2. Description of the Work tested or inspected.
  - 3. Date tests 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, Commissioning Authority's, and Construction Manager's reference during normal working hours.

## 3.3 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 in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

## SECTION 014200 - REFERENCES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey 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.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "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."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

## 1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

REFERENCES

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

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

#### 1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

|          |                                                                                                   |                                  |
|----------|---------------------------------------------------------------------------------------------------|----------------------------------|
| AASHTO   | American Association of State Highway and Transportation Officials                                | (202) 624-5800                   |
| ABMA     | <a href="http://www.abma-dc.org">www.abma-dc.org</a>                                              |                                  |
| ACI      | American Concrete Institute                                                                       | (248) 848-3700                   |
| AF&PA    | <a href="http://www.afandpa.org">www.afandpa.org</a>                                              | (202) 463-2700                   |
| AGA      | American Gas Association                                                                          | (202) 824-7000                   |
| AIA      | American Institute of Architects (The)                                                            | (800) 242-3837                   |
| AISC     | American Institute of Steel Construction<br><a href="http://www.aisc.org">www.aisc.org</a>        | (800) 644-2400<br>(312) 670-2400 |
| AISI     | American Iron and Steel Institute<br><a href="http://www.steel.org">www.steel.org</a>             | (202) 452-7100                   |
| ANSI     | American National Standards Institute<br><a href="http://www.ansi.org">www.ansi.org</a>           | (202) 293-8020                   |
| APA      | Architectural Precast Association<br><a href="http://www.archprecast.org">www.archprecast.org</a> | (239) 454-6989                   |
| ASCE/SEI | American Society of Civil Engineers/Structural Engineering Institute<br>(See ASCE)                |                                  |
| ASME     | ASME International<br><a href="http://www.asme.org">www.asme.org</a>                              | (800) 843-2763                   |
| ASTM     | ASTM International                                                                                | (610) 832-9500                   |

#### REFERENCES

|              |                                                                                                                             |                                  |
|--------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------|
|              | (American Society for Testing and Materials International)                                                                  |                                  |
| AWS          | American Welding Society<br>www.aws.org                                                                                     | (800) 443-9353<br>(305) 443-9353 |
| BIA          | Brick Industry Association (The)                                                                                            | (703) 620-0010                   |
| BICSI        | BICSI, Inc.<br>www.bicsi.org                                                                                                | (800) 242-7405<br>(813) 979-1991 |
| CISPI        | www.cispi.org                                                                                                               |                                  |
| CLFMI        | Chain Link Fence Manufacturers Institute                                                                                    | (301) 596-2583                   |
| CRSI         | Concrete Reinforcing Steel Institute                                                                                        | (847) 517-1200                   |
| CSI          | www.csinet.org                                                                                                              | (703) 684-0300                   |
| ECA          | Electrical Components Association<br>www.ec-central.org                                                                     | (703) 907-8024                   |
| EIA          | www.eia.org                                                                                                                 |                                  |
| EIMA         | EIFS Industry Members Association                                                                                           | (800) 294-3462                   |
| EJCDC        | Engineers Joint Contract Documents Committee<br><a href="http://content.asce.org/ejcdc/">http://content.asce.org/ejcdc/</a> | (703) 295-6000                   |
| EJMA         | Expansion Joint Manufacturers Association, Inc.<br>www.ejma.org                                                             | (914) 332-0040                   |
| ESD          | (Electrostatic Discharge Association)<br>www.esda.org                                                                       |                                  |
| ETL SEMCO    | (Formerly: ITS - Intertek Testing Service NA)<br>www.intertek-etlsemko.com                                                  |                                  |
| FM Approvals | www.fmglobal.com                                                                                                            |                                  |
| FM Global    | FM Global<br>www.fmglobal.com                                                                                               | (401) 275-3000                   |
| FSA          | Fluid Sealing Association<br>www.fluidsealing.com                                                                           | (610) 971-4850                   |
| ICBO         | International Conference of Building Officials<br>www.iccsafe.org                                                           | (888) 422-7233                   |

## REFERENCES

|       |                                                                                                               |                                  |
|-------|---------------------------------------------------------------------------------------------------------------|----------------------------------|
| ICEA  | <a href="http://www.icea.net">www.icea.net</a>                                                                |                                  |
| ICRI  | International Concrete Repair Institute, Inc.                                                                 | (847) 827-0830                   |
| ICPA  | International Cast Polymer Association<br><a href="http://www.icpa-hq.org">www.icpa-hq.org</a>                | (703) 525-0320                   |
| IEC   | International Electrotechnical Commission<br><a href="http://www.iec.ch">www.iec.ch</a>                       | 41 22 919 02 11                  |
| IEEE  | <a href="http://www.ieee.org">www.ieee.org</a>                                                                |                                  |
| IENT  | Institute of Environmental Sciences and Technology<br><a href="http://www.iliai.com">www.iliai.com</a>        | (847) 255-1561                   |
| ISA   | Instrumentation, Systems, and Automation Society, The                                                         | (919) 549-8411                   |
| ISO   | International Organization for Standardization<br><a href="http://www.iso.ch">www.iso.ch</a>                  | 41 22 749 01 11                  |
| ITU   | International Telecommunication Union                                                                         | 41 22 730 51 11                  |
| LPI   | Lightning Protection Institute                                                                                | (800) 488-6864                   |
| MCA   | Metal Construction Association<br><a href="http://www.metalconstruction.org">www.metalconstruction.org</a>    | (847) 375-4718                   |
| MH    | Material Handling<br>(Now MHIA)                                                                               |                                  |
| MHIA  | Material Handling Industry of America<br><a href="http://www.mhia.org">www.mhia.org</a>                       | (800) 345-1815<br>(704) 676-1190 |
| MPI   | Master Painters Institute                                                                                     | (888) 674-8937                   |
| NAAMM | National Association of Architectural Metal Manufacturers<br><a href="http://www.naamm.org">www.naamm.org</a> | (630) 942-6591                   |
| NACE  | (National Association of Corrosion Engineers International)<br><a href="http://www.nace.org">www.nace.org</a> | (281) 228-6200                   |
| NCMA  | National Concrete Masonry Association                                                                         | (703) 713-1900                   |
| NCTA  | National Cable & Telecommunications Association<br><a href="http://www.ncta.com">www.ncta.com</a>             | (202) 222-2300                   |
| NFPA  | NFPA                                                                                                          | (800) 344-3555                   |

REFERENCES

|       |                                                                   |                |
|-------|-------------------------------------------------------------------|----------------|
| NLGA  | www.nfpa.org                                                      |                |
|       | www.nlga.org                                                      |                |
| NOMMA | National Ornamental & Miscellaneous Metals Association            | (888) 516-8585 |
| NRMCA | National Ready Mixed Concrete Association                         | (888) 846-7622 |
|       | www.nrmca.org                                                     | (301) 587-1400 |
| PCI   | Precast/Prestressed Concrete Institute<br>www.pci.org             | (312) 786-0300 |
| PTI   | Post-Tensioning Institute<br>www.post-tensioning.org              | (248) 848-3180 |
| RCSC  | Research Council on Structural Connections<br>www.boltcouncil.org |                |
| SCTE  | www.scte.org                                                      | (610) 363-6888 |
|       | (See ASCE)                                                        |                |
| SIA   | Security Industry Association                                     | (866) 817-8888 |
| SSINA | Specialty Steel Industry of North America                         | (800) 982-0355 |
|       | www.ssina.com                                                     | (202) 342-8630 |
| TMS   |                                                                   |                |
| UL    | www.masonrysociety.org                                            |                |
|       | www.ul.com                                                        | (847) 272-8800 |
| USGBC | U.S. Green Building Council                                       | (800) 795-1747 |
|       | www.usgbc.org                                                     |                |
| WCLIB | West Coast Lumber Inspection Bureau                               | (800) 283-1486 |
|       | www.wclib.org                                                     | (503) 639-0651 |

- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

|        |                                                |                                  |
|--------|------------------------------------------------|----------------------------------|
| ICC    | International Code Council<br>www.iccsafe.org  | (888) 422-7233                   |
| ICC-ES | ICC Evaluation Service, Inc.<br>www.icc-es.org | (800) 423-6587<br>(562) 699-0543 |

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

|       |                                                                                               |                                  |
|-------|-----------------------------------------------------------------------------------------------|----------------------------------|
| COE   | Army Corps of Engineers<br><a href="http://www.usace.army.mil">www.usace.army.mil</a>         |                                  |
| CPSC  | Consumer Product Safety Commission<br><a href="http://www.cpsc.gov">www.cpsc.gov</a>          | (800) 638-2772<br>(301) 504-7923 |
| DOC   | Department of Commerce<br><a href="http://www.commerce.gov">www.commerce.gov</a>              | (202) 482-2000                   |
| DOD   | Department of Defense<br><a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>  | (215) 697-6257                   |
| DOE   | Department of Energy<br><a href="http://www.energy.gov">www.energy.gov</a>                    | (202) 586-9220                   |
| EPA   | Environmental Protection Agency                                                               | (202) 272-0167                   |
| FAA   | Federal Aviation Administration<br><a href="http://www.faa.gov">www.faa.gov</a>               | (866) 835-5322                   |
| FCC   | Federal Communications Commission<br><a href="http://www.fcc.gov">www.fcc.gov</a>             | (888) 225-5322                   |
| FDA   | <a href="http://www.fda.gov">www.fda.gov</a>                                                  |                                  |
| GSA   | General Services Administration                                                               | (800) 488-3111                   |
| LBL   | Lawrence Berkeley National Laboratory<br><a href="http://www.lbl.gov">www.lbl.gov</a>         | (510) 486-4000                   |
| NCHRP | (See TRB)                                                                                     |                                  |
| NIST  | National Institute of Standards and Technology                                                | (301) 975-6478                   |
| OSHA  | Occupational Safety & Health Administration<br><a href="http://www.osha.gov">www.osha.gov</a> | (800) 321-6742<br>(202) 693-1999 |
| PBS   | Public Buildings Service<br>(See GSA)                                                         |                                  |
| PHS   | <a href="http://www.hhs.gov/ophs/">http://www.hhs.gov/ophs/</a>                               |                                  |
| SD    | State Department<br><a href="http://www.state.gov">www.state.gov</a>                          | (202) 647-4000                   |
| TRB   | Transportation Research Board                                                                 | (202) 334-2934                   |

REFERENCES



<http://gulliver.trb.org>

USPS    Postal Service    (202) 268-2000  
      [www.usps.com](http://www.usps.com)

- E.    Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG    Americans with Disabilities Act (ADA)  
          Architectural Barriers Act (ABA)    (202) 272-0080  
          Accessibility Guidelines for Buildings and Facilities  
          Available from U.S. Access Board  
          [www.access-board.gov](http://www.access-board.gov)

CFR        Code of Federal Regulations    (866) 512-1800  
          Available from Government Printing Office    (202) 512-1800  
          [www.gpoaccess.gov/cfr/index.html](http://www.gpoaccess.gov/cfr/index.html)

FED-STD    Federal Standard  
          (See FS)

Available from General Services Administration    (202) 619-8925

Available from National Institute of Building Sciences    (202) 289-7800  
[www.wbdg.org/ccb](http://www.wbdg.org/ccb)

FTMS        Federal Test Method Standard  
          (See FS)

UFAS        Available from Access Board    (202) 272-0080  
          [www.access-board.gov](http://www.access-board.gov)

- F.    State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

## SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. The section includes requirements for temporary utilities, support and security facilities.
- B. Related Requirements:
  - 1. Division 01 Section "Summary of Work" for work restrictions and limitations on utility interruptions.

## 1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's agent/representative, Architect, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Where 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.
- C. 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.

## 1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas. Note parking areas for construction personnel will be available on the site. Contingent on Owners preference and designation.
- B. Fire-Safety Program: Contractor shall develop the NFPA 241 plan. Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- C. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
  - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
  - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.

3. Indicate sequencing of work that requires water and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of the finish materials

#### 1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

#### 1.6 DRINKING WATER AND SERVICE

- A. Provide potable water in convenient and accessible locations for construction personnel.
- B. Provide all piping, fittings, valves, or connections necessary for furnishing water during the construction period.

#### 1.7 TEMPORARY FIRE PROTECTION

- A. Provide general, temporary fire protection requirements.
- B. Permanent fire protection equipment, used for fire protection during construction, shall be the responsibility of the Installer.

#### 1.8 STORAGE

- A. Coordinate the use and location of storage areas for various trades and subcontractors.
- B. Storage areas shall be approved by the Owner/Architect.
- C. Storage areas shall be always maintained in clean conditions.

#### 1.9 SPECIAL CONTROLS

- A. Maintain premises and property free from accumulations of waste, debris, and rubbish caused by operations.
- B. Hazards Control:
  1. Store volatile waste in covered metal containers and remove them from the premises daily.
  2. Prevent accumulation of waste and debris, creating hazardous conditions.
  3. Provide adequate ventilation during use of volatile or noxious substances.
  4. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  5. Do not burn or bury rubbish and waste materials on the project site.
  6. Do not dispose of volatile waste such as mineral spirits, oil or paint thinner into the storm or sanitary drains.
  7. Do not dispose of waste into streams or waterways.
  8. Remove snow and ice from access to buildings.

9. Maintain cleaning until the project, or portion thereof, is occupied by the Owner.

#### 1.10 OTHER TEMPORARY FACILITIES AND CONTROLS

##### A. Project Sign:

1. Provide a temporary project sign, conforming to Architect's Sketch, with lettering as approved, and by a professional sign provider.
2. Project Sign: Provide one (1), as follows.
  - a. Construction fence banner.
  - b. Size: 4 x 8 feet.
  - c. Material: Vinyl.
  - d. Provide the following minimum information on sign:
    - 1) Project name.
    - 2) Owner's name.
    - 3) Architect's name.
    - 4) Contractor's name.
3. Project sign: Architect to provide sketch.
4. No other signs or advertisements will be allowed to be displayed without the written approval of the Owner.
5. Locate where directed.
  - a. Do not post other signs, unless approved by the Architect and Owner, within the Project or Contract Limit Line.

##### B. Protection of Work-In-Place:

1. Thoroughly protect all completed work and stored materials.
2. Provide boards, cloths, planks, waterproof paper, canvas or other means of protection and use as required to prevent damage.
3. Replace or rectify work or materials damaged by workmen, by the elements or by any other cause, to the satisfaction of the Architect and at no additional expense to the Owner.
4. Do not allow workmen, including those of any sub-contractor or supplier, to mark finish surfaces with marking pens or other such devices which are not readily erasable.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Portable Chain-Link Fencing: Minimum 2-inch thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide cast concrete bases for support of fence posts.

#### 2.2 TEMPORARY FACILITIES

- A. Storage and Fabrication Sheds: Provide shed or container sized and equipped to accommodate materials and equipment for construction operations.

## 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shut off. Configure filter system to run continuously.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide these units ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of complete permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Connect to existing service.
  - 1. Arrange with utility company and Owner.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for the use of construction personnel. Comply with the requirements of the authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- C. General: Comply with the following:
  - 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that are noncombustible according to ASTM E 136. Comply with NFPA 241.
- D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas, to the greatest extent possible.
  - 1. Prior to commencing work, isolate any system in work areas to be performed according to drawings.
  - 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
  - 3. Perform daily construction cleanup using approved, HEPA-filter-equipped vacuum equipment.
- E. Ventilation and Humidity Control: Provide temporary protection of construction activities requiring curing or drying of completed installations of construction from adverse effects of high humidity. Select components and equipment that will not have a harmful effect on completed installations or elements being installed. Insert gas or other utility services if required for the Project.

- F. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to the Owner.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Provide storage sheds located within construction areas or within 30 feet of building lines that are noncombustible according to ASTM E 136. Comply with NFPA 241.
  - 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Permanent Roads and Traffic Controls: Comply with the requirements of authorities having jurisdiction.
  - 1. Protect existing roads and site improvements to remain including curbs, pavement, and utilities.
  - 2. Maintain access for city fire-fighting equipment and access to fire hydrants.
- C. Parking: As illustrated on the drawings, otherwise Owner to designate areas of the existing parking area and parking spaces to be used by construction personnel.
- D. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
  - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
  - 2. Temporary Signs: Provide other signs as indicated and as required to inform the public and individuals seeking entrance to the Project.
    - a. Provide temporary, directional signs for construction personnel and visitors.
  - 3. Maintain and touchup signs so they are always legible.
- E. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with the requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 01 Section "Execution."
- G. Temporary Stairs: Provide temporary staging and scaffold stairs where ladders are not adequate.
- H. Temporary Use of Permanent Stairs: Use of existing stairs must be protected from damage and degradation during construction. All existing finishes will be restored to new condition by the contractor at time of Substantial Completion.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair any and all damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
  - 1. Inspect, repair, and maintain erosion and sedimentation control measures during construction.
  - 2. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from the Project site during construction of the Project.
  - 3. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Site Enclosure Fence: Before construction operations begin prior to commencing work, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering the construction site except by appropriate entrance gates.
  - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and storage areas.
  - 2. Maintain security by limiting the number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner when required by Owner.
- E. Non Penetrating Fall Edge Protection: Provide fall edge protection systems per Code of Federal Regulations (CFR) and OSHA and including structural performance.
  - 1. 29 CFR 1910.28 - Duty to have fall protection and falling object protection.
  - 2. 29 CFR 1910.29 - Fall protection systems and falling object protection - criteria and practices.
- F. Protect existing roofing systems, roof top and building equipment from damage and wear during construction. Maintain temporary roof protection and leave it in place until construction is complete. Correct any deficiencies that result from construction to the satisfaction of the Owner and Architect.
- G. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- H. Temporary Fire Protection:
  - 1. Smoking is prohibited in construction areas.

### 3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
  - 1. Protect porous materials from water damage.
  - 2. Protect stored and installed material from flowing or standing water.
  - 3. Keep porous and organic materials from coming into prolonged contact with concrete.

### 3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in the use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Termination and Removal: Remove each temporary facility when the need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facilities. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of Contractor. The Owner reserves the right to take possession of Project identification signs.
  - 2. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
  - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION



## SECTION 01 60 00 - PRODUCT REQUIREMENTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
  - 1. Division 01 Section "Substitution Procedures" for requests for substitutions.
  - 2. Division 01 Section "References" for applicable industry standards for products specified.
  - 3. Division 01 Section "Project Management and Coordination"

## 1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

## 1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
    - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

## 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

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

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

## 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturers' disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
  1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
  1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
  3. See Divisions 02 through 09 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
  1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Architect will make selection.
  5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
  6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in the "Comparable Products" Article to obtain approval for use of an unnamed product.

## B. Product Selection Procedures:

## 1. Products:

- a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
- b. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

## 2. Manufacturers:

- a. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with the requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
3. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in the "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

## C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether the proposed product matches.

1. If no product available within the specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.

## D. Visual Selection Specification: Where Specifications include the phrase "as selected by the Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select the color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

## A. Conditions for Consideration: The Architect will consider the Contractor's request for comparable products when the following conditions are satisfied. If the following conditions are not satisfied, the Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

3. Evidence that the proposed product provides a specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

## SECTION 01 71 00 - CLEANING

## PART 1 - GENERAL

## 1.1 REQUIREMENTS INCLUDED

- A. Execute cleaning, during progress of the work, and at completion of the work, as required by General Conditions.

## 1.2 RELATED REQUIREMENTS

- A. Conditions of the contract.
- B. Each Specification Section: Cleaning for specific products or work.

## 1.3 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with all local codes, ordinances, regulations and anti-pollution laws.

## PART 2 - PRODUCTS

## 2.1 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property, and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by the manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material the manufacturer.

## PART 3 - EXECUTION

## 3.1 DURING CONSTRUCTION

- A. Execute periodic cleaning, not less than weekly, to keep the work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris resulting from construction operations.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish per Section 01 50 00.
- C. Remove waste materials, debris and rubbish from the site periodically, and dispose of at legal disposal areas away from the site.

## 3.2 DUST CONTROL

- A. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

## 3.3 PROGRESSIVE CLEANING

- A. Cleaning during construction is the responsibility of the Contractor. All areas shall be cleaned in a manner acceptable to the Owner's Representative.

## 3.4 FINAL CLEANING

- A. Final cleaning before final inspection. Interior and exterior areas of the building effected by construction shall be cleared of all rubbish and thoroughly cleaned by the Contractor, including the following:
  - 1. All construction facilities, debris, and rubbish shall be removed from the Owner's property and legally disposed of.
  - 2. All finished surfaces effected by construction shall be swept, dusted, washed, waxed and polished. This includes cleaning of the work of all finished trades where needed, whether or not cleaning for such trades is included in their respective SECTIONS.

## 3.5 OTHER CLEANING

- A. Broom clean exterior paved surfaces, rake clean other surfaces of the grounds disturbed by construction.
- B. Prior to final completion or Owner occupancy, the Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify that the entire work is clean.

END OF SECTION

## SECTION 017300 - EXECUTION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Installation of the Work.
  - 3. Cutting and patching.
  - 4. Progress cleaning.
  - 5. Protection of installed construction.
  - 6. Correction of the Work.
- B. Related Requirements:
  - 1. Division 01 Section "Submittal Procedures" for submitting surveys.
  - 2. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

## 1.3 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.

## 1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  - 3. Products: List products 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 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 the length of time permanent services and systems will be disrupted.
  - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

## 1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  1. Structural Elements: When cutting and patching structural elements, notify the 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. Operational elements include the following:
    - a. Primary operational systems and equipment.
    - b. Fire-detection and -alarm systems.
  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. Other construction elements include but are not limited to the following:
    - a. Water, moisture, or vapor barriers.
    - b. Membranes and flashings.
    - c. Piping
  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.
- B. 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.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

## 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of utilities and construction indicated as existing are not guaranteed. Before beginning the work, investigate and verify the existence and location of utilities, equipment and other construction affecting the Work.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Examine walls, floors, and other surfaces for suitable conditions where products and systems are to be installed.
  - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, including the following:
  - 1. Description of the Work.
  - 2. List of detrimental conditions, including substrates.
  - 3. List of unacceptable installation tolerances.
  - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

## 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

### 3.3 INSTALLATION

- A. 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 the space available for maintenance and ease of removal for replacement.
- B. Comply with the manufacturer's written instructions and recommendations for installing products in the applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, clips, 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 the exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

## 3.4 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the 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 as required to restore surfaces to their 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. Temporary Support: Provide temporary support of work to be cut.
- D. 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.
- E. Existing Utility Services and Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, 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 and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Proceed with patching after construction operations requiring cutting are complete.
- G. 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. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

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

### 3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold waste materials for more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  - 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. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."
- G. 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.
- H. 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.
- I. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 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 the manufacturer's written instructions for temperature.

END OF SECTION

## SECTION 01 74 20 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Recycling non-hazardous demolition and construction waste.
  - 2. Disposing of nonhazardous demolition and construction waste.
- B. Related Requirements:
  - 1. Division 02 Section "Selective Structure Demolition" for disposition of waste resulting from demolition of site improvements.
  - 2. Division 04 Section "Unit Masonry" for disposal requirements for masonry waste.

## 1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal of off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

## 1.4 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of **75** percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:
  - 1. Construction Waste (which may include the following when within the project scope):
    - a. Metals.
    - b. Piping.
    - c. Electrical conduit.
    - d. Concrete

- e. Unit Masonry
  - f. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
    - 1) Paper.
    - 2) Cardboard.
    - 3) Boxes.
    - 4) Plastic sheet and film.
    - 5) Polystyrene packaging.
    - 6) Wood crates.
    - 7) Plastic pails.
2. Recycled Waste: At minimum separate, store, coordinate the recycled pickup, and track the recycling of the following materials:
- a. Mixed paper
  - b. Corrugated cardboard
  - c. Glass or glazing
  - d. Plastics
  - e. Metals
  - f. Batteries
  - g. Lamps containing mercury.

#### 1.5 ACTION SUBMITTALS

- A. Waste Management Plan: Submit a plan within 30 days of date established for the Notice to Proceed.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use Form CWM-7 for construction waste and Form CWM-8 for demolition waste. Include the following information:
  - 1. Material category.
  - 2. Generation the point of waste.
  - 3. Total quantity of waste in tons.
  - 4. Quantity of waste salvaged, both estimated and actual in tons.
  - 5. Quantity of waste recycled, both estimated and actual in tons.
  - 6. Total quantity of waste recovered (salvaged plus recycled) in tons.
  - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.



- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Qualification Data: For waste management coordinator and recovery technician.

## 1.7 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Waste Management Conference: Conduct a conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
  - 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
  - 2. Review requirements for documenting quantities of each type of waste and its disposition.
  - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  - 5. Review waste management requirements for each trade.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PLAN IMPLEMENTATION

- A. General: Implement an approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
  - 1. Comply with operation, termination, and removal requirements in Division 01 Section "Temporary Facilities and Controls."
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
  - 1. Distribute a waste management plan to everyone concerned within three days of submittal return.

2. Distribute a waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

### 3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: Use only available recycling receivers and processors licensed to do business in the local area. Coordinate with local Quonset Business Park for recommended or approved recycling providers and for providing access to site for recycle pickup.
- C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall be documented, tracked, and shared equally by Owner and Contractor.
- D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Confirm requirements of facility prior to commencing demolition. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- E. Document Waste and Recycling Disposal:
1. Identify the following for each disposal:
    - a. Project Name.
    - b. Job Location.
    - c. The name, address, phone number of contractor disposing of the general construction debris and recycling material.
    - d. Materials/types of material disposed of.
    - e. Weight of each of the materials being disposed of.
    - f. Record when material was picked up.
    - g. Record where the material was dropped off.
- F. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include a list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from the construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect them from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

### 3.3 RECYCLING CONSTRUCTION WASTE

#### A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
  - a. "Plants." for use of clean ground gypsum board as inorganic soil amendment.

### 3.4 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION

## SECTION 01 77 00 - CLOSEOUT PROCEDURES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This section includes administrative and procedural requirements for contract close-out, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 2. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

## 1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

## 1.4 CLOSEOUT SUBMITTALS

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

## 1.5 MAINTENANCE MATERIAL SUBMITTALS

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

## 1.6 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 Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at the 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, and final record information.
  - 3. Submit closeout submittals specified in individual Divisions 02 through 09 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Submit maintenance material submittals specified in individual Divisions 02 through 09 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect and/or Construction Manager. Label with manufacturer's name and model number where applicable.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List the items below that are incomplete at time of request.
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
  - 3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 4. Complete final cleaning requirements, including touchup painting.
  - 5. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
  - 6. Provide the Contractor's comprehensive list of incomplete work items prior to requesting the Architect to perform any inspection for determination of Substantial Completion.
    - a) Note that if no reasonable list of incomplete work items remaining is provided by the Contractor that will be considered an admission by the Contractor that the Contractor is not ready for a Substantial Inspection determination by the Architect. As such, no inspection will occur by the Architect.
    - b) The Contractor is thus responsible for any failure to meet the Contractor's commitments of construction schedule to the Owner.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion with a reasonable work remaining list a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect, Engineer and/or Construction Manager 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 the certificate will be issued.
  - 1. Re-inspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  - 2. Results of completed inspection will form the basis of requirements for final completion.

## 1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
  2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. A certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, the Architect, Engineer and Construction Manager 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. Re-inspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

## 1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize items applying to each space by major element, including categories.
  2. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect and/or Construction Manager.
    - d. Name of Contractor.
    - e. Page number.
  3. Submit list of incomplete items in the following format:
    - a. PDF electronic file. Architect, through Construction Manager, will return the annotated file.

## 1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or 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 (215-by-280-mm) 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

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations at the maximum allowable VOC levels.

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with the manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to the building.
    - f. 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.
    - g. Remove debris and surface dust from limited access spaces.
    - h. Sweep concrete floors broom clean.
    - i. Clean transparent materials, including doors and windows in the affected work area.

- j. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- k. Leave Project broom clean.
- C. Pest Control: Comply with pest control requirements in Division 01 Section "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls." Division 01 Section "Construction Waste Management and Disposal."

### 3.2 REPAIR OF THE WORK

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

END OF SECTION



## SECTION 01 78 20 - MAINTENANCE DATA

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. The section includes administrative and procedural requirements for preparing maintenance manuals, including the following:
  - 1. Maintenance manuals.
- B. Related Requirements:
  - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Divisions 02 through 09 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

## 1.3 CLOSEOUT SUBMITTALS

- A. Manual Content: 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. The Architect will comment on whether the content of maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
  - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media is 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. One paper copy for Owner. Include a 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 days before commencing demonstration and training. The architect will comment on whether the general scope and content of manual are acceptable.

- D. Final Manual Submittal: Submit each manual in the final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect may return a copy with comments.
  - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

## PART 2 - PRODUCTS

### 2.1 MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of 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. Table of contents.
- B. Tables of Contents: Include a table of contents for each maintenance manual.
- C. Identification: In the documentation directory and in each operation and maintenance manual, identify each used in the Contract Documents.

### 2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: 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 Construction Manager.
  - 7. Name and contact information for Architect.
  - 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 on USB thumb drive.
1. Electronic Files: Use electronic files prepared by the 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 the 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 each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and 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: When needed to enclose electronic media.
  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 the same size as text pages and use them 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.

## 2.3 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. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

- A. Manufacturers' 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.
- B. 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 Division 01 Section "Project Record Documents."
- C. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

## SECTION 017830 - PROJECT RECORD DOCUMENTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. The section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Division 01 Section "Execution" for final property survey.
  - 2. Division 01 Section "Closeout Procedures" for general closeout procedures.
  - 3. Division 01 Section "Maintenance Data" for maintenance manual requirements.
  - 4. Divisions 02 through 09 Sections for specific requirements for project record documents of the Work in those Sections.

## 1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of record Drawings as follows:
    - a. Initial Submittal:
      - 1) Submit PDF electronic files of scanned record prints.
      - 2) The Architect will indicate whether the general scope of changes, additional information recorded, and quality of drafting are acceptable.
    - b. Final Submittal:
      - 1) Submit PDF electronic files of scanned record prints and one set(s) of prints.
      - 2) Print each drawing, whether or not changes and additional information were recorded.
- 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 is required as part of 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.
- E. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
  - 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.
    - e. Cross-reference record prints to corresponding archive photographic documentation.
  - 2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Revisions to existing routing of piping, conduits and electrical circuitry needed to install new work.
    - d. Changes made by Change Order or Construction Change Directive.
    - e. Changes made following Architect's written orders.
    - f. Details not on the original Contract Drawings.
    - g. Field records for variable and concealed conditions.
    - h. 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 the same location.
  - 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  - 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
  2. Format: Annotated PDF electronic file.
  3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
  4. Refer instances of uncertainty to the Architect for resolution.
  5. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
    - a. See Division 01 Section "Submittal Procedures" for requirements related to use of Architect's digital data files.
    - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
  2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Format: Annotated PDF electronic file.
  3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
  4. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark a copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file.

## 2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in the manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

## 2.4 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.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

## PART 3 - EXECUTION

### 3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION



## SECTION 024113 - SELECTIVE DEMOLITION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

1. Demolition and removal of existing building components.
2. Demolition and removal of existing antenna structural components.
3. Disconnecting, capping or sealing, and abandoning in-place, existing utilities.

## B. Related Sections:

1. Division 01 Section "Summary of Work" for use of the premises and phasing requirements.
2. Division 01 Section "Project Management and Coordination" for overview management requirements
3. Division 01 Section "Construction Waste Management and Disposal"

## 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner. Include fasteners or brackets needed for reattachment elsewhere.

## 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste, not identified in Division-1 to be recycled nor accepted by the recycling facility, becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit informational report, including Drawings, that indicates the measures proposed for protecting individuals and property for environmental protection, for dust control, and for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Building Demolition Activities: Indicate the following:
  - 1. Detailed sequence of demolition work, with starting and ending dates for each activity.
    - a. Clearly identify start and end dates of any phased construction
  - 2. Identify the sequence and dates of recycled waste to be stored and transferred to the recycling facility.
  - 3. Temporary interruption of utility services.
  - 4. Shutoff and capping or re-routing of utility services.
- C. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- D. Pre-demolition Photographs: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations.

## 1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.
- C. Pre-demolition Conference: Conduct conference at project site:
  - 1. Inspect and discuss the condition of construction to be demolished.
  - 2. Review structural load limitations of existing structures.
  - 3. Review and finalize demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review and finalize protection requirements.
  - 5. Review procedures for noise control and dust control.
  - 6. Review procedures for protection of adjacent buildings.
  - 7. Review items to be salvaged and returned to Owner.

## 1.7 PROJECT CONDITIONS

- A. The area of the building adjacent to demolition will be vacated. The remaining area of the building will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted. Adjacent buildings will be occupied.
  - 1. Provide not less than 72 hours' notice of activities that will affect operations of occupied areas of the buildings.
  - 2. Maintain access to existing walkways, exits, and other facilities used by occupants of the building and adjacent buildings.

- a. Do not close or obstruct walkways, exits, or other facilities used by occupants of the existing buildings without written permission from authorities having jurisdiction.
  - B. The owner assumes no responsibility for structures to be demolished.
  - C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
    - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
  - D. On-site storage or sale of removed items or materials is not permitted.
- 1.8 COORDINATION
- A. Arrange demolition schedule so as not to interfere with Owner's on-site operations or operations of adjacent occupied buildings.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting demolition operations.
- B. Review Project Record Documents of existing construction provided by Owner. The owner does not guarantee that existing conditions are the same as those indicated in Project Record Documents.

### 3.2 PREPARATION

- A. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished (if encountered).
  - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
  - 2. Cut off pipe or conduit a minimum of 24 inches (610 mm) below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
- B. Temporary Shoring: Provide and maintain shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.
  - 1. Strengthen or add new support when required during the progress of demolition.
- C. Salvaged Items: Comply with the following:
  - 1. Clean salvaged items of dirt and demolition debris. Prep for re-use if possible.

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2. Protect items from damage during transport and storage.

### 3.3 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.
- B. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations.
  1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
  2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.
    - a. Provide at least 72 hours' notice to occupants of affected buildings if a shutdown of service is required during changeover.
- C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Division 01 Section "Temporary Facilities and Controls."
  1. Protect adjacent buildings and facilities from damage due to demolition activities.
  2. Protect existing site improvements, appurtenances, and landscaping to remain.
  3. Provide protection to ensure safe passage of people around building demolition areas and to and from occupied portions of adjacent buildings and structures.
  4. Protect walls, windows, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
  5. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupy portions of adjacent buildings.
- D. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

### 3.4 DEMOLITION, GENERAL

- A. General: Demolish indicated building components as directed on the drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:
  1. Do not use cutting torches until the work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
  2. Maintain fire watch during and for at least 1 hour after flame cutting operations.
  3. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Site Access and Temporary Controls: Conduct demolition and debris-removal operations to ensure minimum interference with roads, streets, walkways, and other adjacent occupied and used facilities.
  1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide

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alternate routes around closed or obstructed traffic paths if required by authorities having jurisdiction.

2. Use water mist and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

- C. Explosives: Use of explosives is not permitted.

### 3.5 DEMOLITION BY EXPLOSIVES

- A. Explosives: Not permitted.

### 3.6 REPAIRS

- A. Promptly repair damage to adjacent building areas caused by demolition operations.

### 3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and legally dispose of them in an EPA-approved landfill acceptable to authorities having jurisdiction. See Division 01 Section "Construction Waste Management and Disposal" for recycling and disposal of demolition waste.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

- B. Do not burn demolished materials.

### 3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways and walkways of debris caused by debris transport.

END OF SECTION

## SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Structural steel.
  - 2. Grout.
- B. Related Sections:
  - 1. Division 01 Section "Quality Requirements" for independent testing agency procedures and administrative requirements.
  - 2. Division 05 Section "Metal Fabrications" for steel lintels and shelf angles not attached to structural-steel frame, miscellaneous steel fabrications and other metal items not defined as structural steel.
  - 3. Division 06 Section – "General Carpentry".
  - 4. Division 09 Section – "Painting".

## 1.3 DEFINITIONS

- A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- B. Heavy Sections: Rolled and built-up sections as follows:

## 1.4 PERFORMANCE REQUIREMENTS

- A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator, including comprehensive engineering analysis by a qualified professional engineer, to withstand loads indicated and comply with other information and restrictions indicated.

## 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication of structural-steel components.
  - 1. Include details of cuts, connections, splices, holes, and other pertinent data.
  - 2. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.
  - 3. Identify members and connections of the seismic-load-resisting system.
  - 4. Indicate locations and dimensions of protected zones.
  - 5. For structural-steel connections indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer, fabricator, professional engineer, and/or testing agency.
- B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- C. Mill test reports for structural steel, including chemical and physical properties.
- D. Product Test Reports: For the following:
  - 1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
  - 2. Tension-control, high-strength bolt-nut-washer assemblies.
  - 3. Shop primers.
  - 4. Structural steel
- E. Source quality-control reports.

## 1.7 QUALITY ASSURANCE

- A. The erection contractor is required to have a minimum of five 5 years' experience in the erection of projects of the size, scope, and project requirements or two 2 years with a AISC Certified Steel Erector Certification [CSE]. A CSE while not a mandatory requirement for this project nor is it specifically required for this project. Certification is preferred. However, at a minimum the following is required for the erection contractor.
  - 1. Written bolting procedures, compliant with the Research Council on Structural Connections (RCSC) specifications are required.
  - 2. An effective procedure for contract and project specification review that provides information necessary for contract compliance to all responsible individuals in the organizations.
  - 3. An effective method is in place to issue and manage requests for information [RFI] necessary to resolve discrepancies or variations from original contract requirements.
  - 4. Methods for qualification of inspection personnel and a procedure for inspection to verify that product quality meets project requirements.
  - 5. Material is ordered in accordance with design drawings and specifications, and an inspection procedure is in place to ensure material received meets the purchase order and ASTM requirements.
  - 6. Written procedures for correction of non-conforming work are understood and used.
  - 7. Machine operators are certified or have equivalently trained and/or experienced. Written documentation will be required.
- B. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
- C. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
- D. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P1, P2, P3 or SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."
- E. Comply with applicable provisions of the following specifications and documents:
  - 1. AISC 303.
  - 2. AISC 341 and AISC 341s1.
  - 3. AISC 360.
  - 4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- F. Preinstallation Conference: Conduct conference at Project site.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and the packaged materials from corrosion and deterioration.
  - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
  - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
  - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

## 1.9 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

## PART 2 - PRODUCTS

## 2.1 STRUCTURAL-STEEL MATERIALS

- A. Recycled Content of Steel Products: Post consumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.
- B. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of pre-consumer recycled content is not less than the following:
  - 1. Channels, Angles: 60 percent.
  - 2. Plate and Bar: 25 percent.
  - 3. Cold-Formed Hollow Structural Sections: 25 percent.
  - 4. Steel Pipe: 25 percent.
  - 5. All Other Steel Materials: 25 percent.
- C. Channels, Angles: ASTM A 36/A 36M.
- D. W-Shapes: ASTM A 992 or ASTM A 572, Grade 50
- E. Plate and Bar: ASTM A 36/A 36M.
- F. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.
- G. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.
  - 1. Weight Class: Standard.
  - 2. Finish: Black except where indicated to be galvanized.



- H. Steel Castings: ASTM A 216/A 216M, Grade WCB with supplementary requirement S11.
- I. Steel Forgings: ASTM A 668/A 668M.
- J. Welding Electrodes: Comply with AWS requirements.

## 2.2 BOLTS, CONNECTORS, AND ANCHORS

- A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.
  - 1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish.
- B. High-Strength Bolts, Nuts, and Washers: ASTM A 490, Type 1, heavy-hex steel structural bolts or tension-control, bolt-nut-washer assemblies with splined ends; ASTM A 563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers with plain finish.
  - 1. Direct-Tension Indicators: ASTM F 959, Type 490, compressible-washer type with plain finish.
- C. Zinc-Coated High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers.
  - 1. Finish: Hot-dip or mechanically deposited zinc coating.
  - 2. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with mechanically deposited zinc coating, baked epoxy-coated finish.
- D. Headed Anchor Rods: ASTM F 1554, Grade 55, weldable, straight.
  - 1. Nuts: ASTM A 563hex carbon steel.
  - 2. Plate Washers: ASTM A 36/A 36M carbon steel.
  - 3. Washers: ASTM F 436, Type 1, hardened carbon steel.
  - 4. Finish: Plain or Hot-dip zinc coating, ASTM A 153/A 153M, Class C as indicated.
- E. Threaded Rods: A 572/A 572M, Grade 50.
  - 1. Nuts: ASTM A 563hex carbon steel.
  - 2. Washers: ASTM F 436, Type 1, hardened carbon steel.
  - 3. Finish: Plain or Hot-dip zinc coating, ASTM A 153/A 153M, Class C as indicated.

## 2.3 PRIMER

- A. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- B. Primer: Fabricator's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.
- C. Galvanizing Repair Paint: MPI#18, MPI#19, or SSPC-Paint 20.

**2.4 GROUT**

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

**2.5 FABRICATION**

- A. Structural Steel: Fabricate and assemble in shop to the greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.
  - 1. Fabricate beams with rolling camber up.
  - 2. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
  - 3. Mark and match-mark materials for field assembly.
  - 4. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to the greatest extent possible.
  - 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 1, "Solvent Cleaning SSPC-SP 2, "Hand Tool Cleaning or SSPC-SP 3, "Power Tool Cleaning."
- F. Shear Connectors: Prepare steel surfaces as recommended by the manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

**2.6 SHOP CONNECTIONS**

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.

**2.7 GALVANIZING**

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.
  - 1. Galvanize steel plates and other structural components at the exterior of the exterior wall assembly.

**2.8 SOURCE QUALITY CONTROL**

- A. Testing Agency: G.C. will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports.
- B. Correct deficiencies in Work that test reports and inspections indicate do not comply with the Contract Documents.

- C. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. In addition to visual inspection, shop-welded shear connectors will be tested and inspected according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
  - 1. Bend tests will be performed if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
  - 2. Tests will be conducted on additional shear connectors if weld fracture occurs on shear connectors already tested, according to requirements in AWS D1.1/D1.1M.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify, with steel Erector present, elevations of bearing surfaces and locations of anchor rods, bearing plates, and other embedment for compliance with requirements.
  - 1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedment showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.
  - 1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

#### 3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- C. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
  - 1. Level and plumb individual members of structure.
  - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- D. Splice members only where indicated.
- E. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.
- F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

- G. Shear Connectors: Prepare steel surfaces as recommended by the manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

### 3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened, Pretensioned and/or Slip critical as required by structural documents.

### 3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections.
- B. Bolted Connections: Bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

### 3.6 REPAIRS AND PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.
- B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- C. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.

END OF SECTION

## SECTION 05 50 00 - METAL FABRICATIONS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. DESCRIPTION OF THE WORK:
  - 1. The extent of metal fabrication work is shown and includes items fabricated from aluminum and steel shapes, plates which are not part of structural steel or other metal systems in other sections of these specifications. Such work includes but is not limited to:
  - 2. Section Includes:
    - a. Miscellaneous steel framing and supports.
    - c. Miscellaneous steel trim.
    - f. Bolts, anchors, nuts, washers, fastening devices, etc.
    - g. Miscellaneous structural steel, metals and supports, framing and supports.
- C. Products furnished, but not installed, under this Section:
  - 1. Through bolts to be built into unit masonry.

## 1.2 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
  - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

## 1.3 RELATED WORK UNDER OTHER SECTIONS

- A. Division 09 Section Painting

## 1.4 QUALITY ASSURANCE:

- A. Code and Standards:
  - 1. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", including "Commentary of the AISC Specifications".
- B. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting wherever taking field measurements before fabrication might delay work.
- C. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in and built into masonry for installation of miscellaneous metal work. Provide setting drawings, templates, instructions and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

- E. Shop Assembly: Pre-assemble items in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

## 1.5 SUBMITTALS

- A. Product Data: For the following:
  - 1. Break Metal trim and fastening clips
  - 2. Steel framing and supports
- B. Manufacturer's Data: For information only, submit copies of manufacturer's specifications, anchor details and installation instructions for products to be used in the fabrication of miscellaneous metal work, including paint products. Transmit copy of instructions to Installer.
- C. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal assemblies. Include plans and elevations at not less than 1" to 1'-0" scale and include details of sections and connections at not less than 3" to 1'-0" scale. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.
- D. Samples: For each type and finish of extruded nosing and tread.

## PART 2 - PRODUCTS

### 2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.

### 2.2 FERROUS METALS

- A. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trades names and roughness.
- B. Recycled Content of Steel Products: Provide products with average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent
- C. Steel Plates, Shapes: ASTM A 36/A 36M.

### 2.3 NONFERROUS METALS

- A. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T6.

### 2.4 FASTENERS

- A. General: Provide zinc-coated fasteners, with galvanizing complying with ASTM A 153, for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required for the installation of miscellaneous metal items.
  - 1. Standard Bolts and Nuts: ASTM A 307, Grade A, regular hexagon head.
  - 2. Lag Bolts: FS FF-B-561, square head type.
  - 3. Machine Screws: FS FF-S-92, cadmium plated steel.
  - 4. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
  - 5. Toggle Bolts: Tumble-wing type; FS FF-B-588, type, class and style as required.

## 2.5 PAINT:

- A. Metal primer Paint: Primer selected must be compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Division 09.
- B. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in galvanized steel, complying with Military Specification MIL-P-21035 (Ships).
  - 1. Product conforming to above specification: ZRC cold galvanizing compound.
- C. Where galvanizing prior to completing fabrication cannot be avoided, joints shall be welded after fabrication, ground smooth and finished with four (4) full coats of California Products Corp. WW Totrust, Sealube ZRC, ZIRP by Duncan Galvanizing or approved equal.

## 2.6 FABRICATION, GENERAL

- A. Workmanship: Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in the finished product. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of materials shown or specified for various components of work.
- B. Shop Assembly: Preassemble items in the shop to the greatest extent possible. Use connections that maintain structural value of joined pieces.
- C. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown or, if not shown, Phillips flat-head (countersunk) screws or bolts.
- D. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices as shown and as required to provide adequate support for intended use.
- E. Cut, reinforce, drill and tap miscellaneous metal work as required to receive finish hardware and similar items.
- F. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
- G. Galvanizing: provide a hot-dip zinc coating, with the addition of 0.05 – 0.09% Nickel to the zinc bath, for those items supporting or built-into exterior masonry or concrete, steel items exposed to the weather, and other items shown or specified to be galvanized, as follow:
- H. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

## 2.7 MISCELLANEOUS METAL FABRICATIONS:

- A. Miscellaneous Framing and Supports:
  - 1. Provide miscellaneous steel framing and supports which are not a part of structural steel framework, as required to complete work.
  - 2. Fabricate miscellaneous units to sizes, shapes and profiles shown or, if not shown, required dimensions to receive adjacent other work to be retained by framing. Except as otherwise shown, fabricate from structural steel shapes and plates and steel bars, of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware and similar items.
  - 3. Miscellaneous Steel trim:
    - a. Galvanize exterior miscellaneous steel trim.

**2.8 MISCELLANEOUS MATERIALS**

- A. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- B. Shop Primers: Provide primers that comply with Division 09 painting Sections.
- C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- E. Non-shrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by the manufacturer for interior and exterior applications.

**2.9 FRAMING AND SUPPORTS**

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

**2.10 FRAMING AND SUPPORTS**

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

**2.11 MISCELLANEOUS STEEL TRIM**

- A. Unless otherwise indicated, fabricate units from steel shapes, plates of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
- C. Galvanize exterior miscellaneous steel trim.

**2.12 FINISHES, GENERAL**

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.



## PART 3 - EXECUTION

## 3.1 INSPECTION:

- A. Examine the areas and conditions under which miscellaneous metal items are to be installed. Do not proceed with the work until unsatisfactory conditions have been corrected.

## 3.2 PREPARATION:

- A. Furnish setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

## 3.3 GALVANIZING:

- A. Completely clean interior as well as exterior surfaces and coat with zinc.
- B. Interconnect all sections of fabricated pipework with full open tee or with miter joints. Each enclosed section must be provided with a vent hole at each end.
- C. Completely submerge tubular structures in one dip in the galvanizing kettle.

## 3.4 FASTENING TO IN-PLACE CONSTRUCTION:

- A. Provide anchorage devices and fasteners where necessary for securing miscellaneous metal items to in-place construction; using threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, wood screws and other connectors as required.

## 3.5 CUTTING, FITTING AND PLACEMENT:

- A. Perform cutting, drilling and fitting required for installation of miscellaneous metal items. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction.
- B. Fit exposed connections accurately together to form tight hairline joints.

## 3.6 ADJUSTING AND CLEANING:

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

## 3.7 TOUCH-UP PAINTING:

- A. Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Division 09.

## 3.8 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION

## SECTION 06 10 00 - ROUGH CARPENTRY

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Materials and installation requirements for other work, commonly assigned to carpentry trade, are specified in other sections of these specifications.
- B. The types of carpentry work specified in this section include (but are not necessarily limited to) the following:
  - 1. Wood furring.
  - 2. Wood nailers and blocking.
  - 3. Miscellaneous wood framing.

## 1.3 RELATED WORK UNDER OTHER SECTIONS

- 1. Division 05 Metal Fabrications

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering it with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## PART 2 - PRODUCTS

## 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
  - 3. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.

## 2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC2 for interior construction not in contact with the ground.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
  - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
  - 1. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.

## 2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Provide wood for support or attachment of other work such as, nailers, blocking, furring, grounds, stripping and similar members. Provide lumber of sizes shown or specified, worked to shapes shown, and as follows:
    - a. Moisture Content: 15% maximum for lumber items not specified to receive wood preservative treatment.
  - 2. Grade: Construction Grade light framing size lumber of any species, or board size lumber, as required. Provide Construction Grade boards (RIS or WCLIB) or No. 2 boards (SPIB or WWPB).
- B. For items of dimension lumber size, provide Construction, or No. 2 grade lumber and any of the following species with moisture content not exceeding 15%:
  - 1. Hem-fir (north); NLGA.
  - 2. Mixed southern pine; SPIB.
  - 3. Spruce-pine-fir; NLGA.
  - 4. Hem-fir; WCLIB or WWPB.
  - 5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPB.
  - 6. Western woods; WCLIB or WWPB.
  - 7. Northern species; NLGA.
  - 8. Eastern softwoods; NeLMA.
- C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
  - 1. Mixed southern pine; No. 2 grade; SPIB.
  - 2. Hem-fir or hem-fir (north); Construction or No. 2 Common grade; NLGA, WCLIB, or WWPB.
  - 3. Spruce-pine-fir (south) or spruce-pine-fir; Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPB.
  - 4. Eastern softwoods; No. 2 Common Grade; NeLMA.
  - 5. Northern species; No. 2 Common Grade; NLGA.
  - 6. Western woods; Construction or No. 2 Common grade; WCLIB or WWPB.

- D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

## 2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
- B. Power-Driven Fasteners: NES NER-272.
- C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- D. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
  - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
  - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).
- E. Wood Screws: ASME B18.6.1
- F. Screws for securing wood to metal stud framing: Self tapping: Teks #12 2-3/4 in. Phillips Flat-Head Self-Drilling Screws manufactured by ITW Buildex and Illinois Tool Works, Inc; Phillips II Plus Wood to Metal Screws manufactured by Phillips Fasteners, Fastenal or other similar products specifically recommended for securing wood to metal stud framing.
- G. Screws specifically designed for securing through metal to wood blocking #10-24x 1-7/16-inch self-drilling flat head as manufactured by Fastenal; ITW Buildex and Illinois Tool Works; Phillips Fasteners, or other manufacturers providing products specifically designed for securing blocking when first drilling through metal to engage the wood blocking.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

- C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- D. Install sill sealer gasket to form continuous seal between sill plates.
- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- F. Comply with AWP A M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  - 1. Use inorganic boron for items that are continuously protected from liquid water.
  - 2. Use copper naphthenate for items not continuously protected from liquid water.
- G. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. NES NER-272 for power-driven fasteners.
  - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
  - 3. Wood Screws: ASME B18.6.1
- H. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
  - 1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- I. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive the finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- J. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
  - 1. Comply with approved and/or indicated fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
  - 2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
  - 3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

### 3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

- D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

### 3.3 WOOD FURRING INSTALLATION

- A. Install plumb and level with closure strips at edges and openings. Shim with wood as required.
  - 1. Firestop furred spaces on walls at each floor level, with wood blocking or incombustible materials, accurately fitted to close furred spaces. Comply with governing regulations.
- B. Tolerance: Shim and level wood furring to a tolerance of 1/8" in 10'-0", except 1/4" in 10'-0" at thick coat plaster work.

### 3.4 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from the weather. If, despite protection, rough carpentry becomes wet or sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- C. Where wood preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

END OF SECTION

## SECTION 07 21 15 - THERMAL INSULATION, SPRAY APPLIED

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Spray polyurethane foam insulation.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.
- C. Research/Evaluation Reports: For foam-plastic insulation, from ICC-ES.

## 1.4 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
  - 1. Do not to expose to sunlight except to necessary extent for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site before installation time.
  - 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

## 1.6 QUALITY ASSURANCE

- A. Source Limitations:
  - 1. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.



## PART 2 - PRODUCTS

## 2.1 SPRAY POLYURETHANE FOAM INSULATION

- A. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
  - 1. Manufacturers: Subject to compliance with the requirements available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Basis of Design: DuPont Performance Building Solutions (formerly Dow).
  - 2. Minimum density of 1.5 lb /cu. ft. (24 kg/cu. m), thermal resistivity of 6.2 deg F x h x sq. ft./Btu x in. at 75 deg F (43 K x m/W at 24 deg C).
  - 3. Provide the manufacturer ESR Report to Architect and R.I. State Fire Marshall with product submittal prior to installation.

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation or that interfere with insulation attachment.

## 3.2 INSTALLATION, GENERAL

- A. Comply with the insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide thickness to fit applications indicated and install per manufacturer's requirements. Apply to produce thickness indicated using multiple layers as required to make up total thickness indicated.

## 3.3 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

- A. Spray-Applied Insulation: Apply spray-applied insulation according to manufacturer's written instructions. Do not apply insulation until the installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
  - 1. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

## 3.4 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

- B. Insulation Type: Polyurethane spray foam insulation.

END OF SECTION

## SECTION 076200 - SHEET METAL FLASHING AND TRIM

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Formed Products:
    - a. Formed wall sheet metal fabrications.
- B. Related Sections:
  - 1. Division 06 Section Rough Carpentry

## 1.3 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies as indicated 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 remain watertight.

## 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
  - 1. Identification of material, thickness, weight, and finish for each item and location in Project.
  - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
  - 3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
  - 4. Details of termination points and assemblies, including fixed points.

5. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
  6. Details of edge conditions, including counter flashings as applicable.
  7. Details of special conditions.
  8. Details of connections to adjoining work.
  9. Detail formed flashing and trim at a scale of not less than 1-1/2 inches per 12 inches
- C. Samples for Initial Selection: For each type of sheet metal flashing, trim, and accessory indicated with factory-applied color finishes involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
1. Sheet Metal Flashing: 12 inches (300 mm) long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
  2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches (300 mm) long and in required profile. Include fasteners and other exposed accessories.
  3. Accessories and Miscellaneous Materials: Full-size Sample.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified fabricator.
- B. Warranty: Sample of special warranty.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.

#### 1.7 QUALITY ASSURANCE

- A. Fabricator Qualifications: A shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## D. Preinstallation Conference: Conduct conference at the project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim.
2. Review methods and procedures related to sheet metal flashing and trim.
3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Review the condition of other construction that will affect sheet metal flashing.
5. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

## 1.9 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
  1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  2. Finish Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

## 2.1 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.
  1. Surface: Smooth, flat
  2. Thickness: .032" as indicated on the drawings.

3. Factory Prime Coating: Where painting after installation is indicated, pretreat with white or light-colored, factory-applied, baked-on epoxy primer coat; minimum dry film thickness of 0.2 mil (0.005 mm).

## 2.2 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
  1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
    - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
    - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
    - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
  2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
- D. Elastomeric Sealant: ASTM C 920, elastomeric [polyurethane, silicone] polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

## 2.3 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to the greatest extent possible.
  1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

2. Obtain field measurements for accurate fit before shop fabrication.
  3. Form the sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
  4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
- C. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant.
- D. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
- E. Fabricate cleats and attachment devices from same material as the accessory being anchored or from compatible, noncorrosive metal.
- F. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.
- G. Do not use graphite pencils to mark metal surfaces.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
1. Verify compliance with requirements for installation tolerances of substrates.
  2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. For the record, prepare a written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  3. Space cleats no more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
  4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
  5. Install a sealant tape where indicated.
  6. Torch cutting of sheet metal flashing and trim is not permitted.
  7. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
1. Coat back side of uncoated aluminum sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
- C. Fastener Sizes: Use fasteners of sizes appropriate for wall assembly.
- D. Seal joints as shown and as required for watertight construction.
1. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

### 3.3 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

### 3.4 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

### 3.5 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean off excess sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On



completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.

- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

## SECTION 07 92 00 - JOINT SEALANTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes: The extent of each type of joint sealer is indicated. Provide "sealant" for all exterior joints, certain indicated interior joints, and where "mastic" is indicated. Provide "calking" at all remaining interior joints.
- B. The required applications include, but are not limited to the following:
  - 1. Exterior building wall joints.
  - 2. Flashing joints.
  - 3. Joints at openings and indicated frames or structural components where indicated

## 1.3 PRE-INSTALLATION MEETING:

- A. Pre-Installation Meeting: Meet at the project well in advance of the time scheduled for work, (a minimum of one week), and review requirements for the work and conditions which could possibly interfere with successful performance of the work. Require all parties concerned with the work, or required to coordinate with it, or to protect it thereafter, to attend the meeting, including:
  - 1. Owner or Representative
  - 2. General Contractor
  - 3. Installer
  - 4. Manufacturer(s) Representatives
  - 5. Architect

## 1.4 QUALITY ASSURANCE:

- A. At the Owner's option, testing of depth of joint material may be undertaken to ensure compliance with the specification and conformance to manufacturer's specifications and recommendations for joint design. If the joint fails to comply with design requirements, the Contractor shall pay for the cost of testing and replacement of all affected joints.

## 1.5 SUBMITTALS:

- A. Product Data:

1. For information only, submit copies of manufacturer's specifications, recommendations and installation instructions for each type of material required. Include manufacturer's published data, or letter of certification, or certified test laboratory report indicating that each material complies with the requirements and is intended generally for the applications shown.

B. Samples:

1. Submit samples of each color required (except black) for each type of joint sealer exposed to view. Install sample between two strips of material similar to or representative of typical surfaces where sealer will be used, held apart to represent typical joint widths. Samples will be reviewed for color and texture only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

C. Guarantee:

1. Submit copies of written two-year guarantee agreeing to repair or replace joint sealers which fail to perform as air-tight and water-tight joints; or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability; or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated.
  - a. Provide guarantee signed by the Installer and Contractor.

1.6 JOB CONDITIONS:

- A. Examine the joint surfaces and backing, and their anchorage to the structure, and the conditions under which the joint sealer work is to be performed. Do not proceed with the joint sealing work until unsatisfactory conditions have been corrected.
- B. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations for installation. Proceed with the work only when weather conditions are favorable for proper cure and development of high early bond strength. Where joint width is affected by ambient temperature variations, install elastomeric sealants when temperatures are in the lower third of manufacturer's recommended installation temperature range.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL:

- A. Colors: For exposed materials provide color as indicated or, if not indicated, as selected from manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.
- B. Hardness: As recommended by manufacturer for application shown.

- C. Modulus of Elasticity: Provide the lowest available modulus of elasticity, which is consistent with exposure to weathering, indentation, vandalism, abrasion, support of loading, and other requirements.
- D. Compatibility: Before purchase of each required material, confirm its compatibility with each material it will be exposed to in the joint system.
- E. Size and Shape: As shown or, if not shown, as recommended by the manufacturer for the type and condition of joint, and for the indicated joint performance or movement.
- F. Grade of Sealant: For each application, provide the grade of sealant (non-sag, self-leveling, no-track, knife grade, preformed, etc.) recommended by the manufacturer for the particular condition of installation (location, joint shape, ambient temperature, and similar conditions), to achieve the best possible overall performance. Grades specified herein are for normal condition of installation.

## 2.2 SEALANTS (See Sealant Schedule at end of Section for specific use of sealants.)

### A. Urethanes:

- 1. Type "A2": Two-Part Urethane: Non-Sag, ASTM C920, Type M, Grade NS, Class 25. (Fed. Spec. TT-S-00227E Type II, Class A.)
  - a. Chem-Calk 500, by Bostik.
  - b. Vulkem 227, by Tremco.
  - c. Dynatrol II, by Pecora Corporation.
  - d. Sikaflex-2c NS/SL, by Sika Corporation.
  - e. Sonolastic NP 2, by Sonneborn Building Products, ChemRex Inc.
  - f. Dymeric, by Tremco
- 2. Type "A4": One-Part Urethane: Non-Sag, ASTM C920, Type S, Grade NS, Class 25. (Fed. Spec. TT-S-00230C Type II, Class A.)
  - a. Chem-Calk 900, by Bostik.
  - b. Vulkem 116, by Tremco.
  - c. Sonolastic NP I, by Sonneborn Building Products, ChemRex Inc.
  - d. Dymonic, by Tremco.

### B. Silicones:

- 1. Type "B1": One-Part Silicones: ASTM C920, Type S, Grade NS, Class 25. Vertical Surfaces Only.
  - a. 795 Silicone Structural Glazing, Glazing, and Weatherproofing Sealant, by Dow Corning.
  - b. 864 Architectural Silicone, by Pecora Corporation.
  - c. Sonolastic 150 Silyl Terminated polyether, by Sonneborn
  - d. Spectrem 3, by Tremco.

## 2.3 MISCELLANEOUS ACCESSORIES:

- A. Joint Primer/Sealer: Provide the type of joint primer/sealer recommended by the sealant manufacturer for the joint surfaces to be primed or sealed.
- B. Bond Breaker Tape: Polyethylene tape or other plastic tape recommended by the sealant manufacturer to be applied to sealant-contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape where applicable.

### PART 3 - EXECUTION

#### 3.1 Manufacturer's Instructions:

- 1. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.

#### B. Joint Preparation:

- 1. Clean joint surfaces immediately before installation of sealant or calking compound. Remove dirt, insecure coatings, moisture and other substances which would interfere with bond of sealant or calking compound. Etch concrete and masonry joint surfaces and roughen vitreous or glazed joint surfaces as recommended by the sealant manufacturer.
- 2. Prime or seal the joint surfaces where it is recommended by the sealant manufacturer. Do not allow primer/sealer to spill or migrate onto adjoining surfaces.

#### 3.2 INSTALLATION:

- A. Set joint filler units at proper depth or position in the joint to coordinate with other work, including the installation of bond breakers, backer rods and sealants. Do not leave voids or gaps between the ends of joint filler units.
- B. Install sealant backer rod for liquid elastomeric sealants, except where it is shown to be omitted or recommended to be omitted by sealant manufacturer for the application shown.
- C. Install bond breaker tape where it is required by the manufacturer's recommendations to ensure that elastomeric sealants will perform properly.
- D. Employ only proven installation techniques, which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides. Fill sealant rabbet to a slightly concave surface, between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.
- E. Install sealants to depths recommended by the sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:
  - 1. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.
  - 2. For joints sealed with non-elastomeric sealants and calking compounds, fill joints to a depth in the range of 75% to 125% of joint width.

3. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces. Clean the adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.
4. Do not overheat hot-applied sealants.
5. Recess exposed edges of joint fillers slightly behind adjoining surfaces, so compressed units will not protrude from the joint.

### 3.3 CURE AND PROTECTION:

- A. Cure sealants and calking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Advise the Contractor of procedures required for the cure and protection of joint sealers during the construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at the time of acceptance.

### 3.4 SEALANT SCHEDULE

#### A. Exterior Joints:

1. Perimeters of exterior openings where frames and other penetrations meet exterior facade of building: precast concrete, brick, CMU, reinforced concrete.
  - a. Sealant Type - A2
  - b. Sealant Type - B1 (for prefinished materials only)
2. Painted metal lap or flashing joints.
  - a. Sealant Type - B1

#### B. Interior Joints:

1. Seal interior perimeters of exterior openings.
2. Expansion and control joints on interior of exterior surfaces of masonry walls.
3. Interior masonry vertical control joints and intersecting masonry walls.
  - a. For all of the above interior joints:
    - 1) Sealant Type - A2
    - 2) Sealant Type - A4
    - 3) Sealant Type - B1 (for prefinished materials only)

END OF SECTION

## SECTION 09 91 00 – PAINTING Interior &amp; Exterior

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

- 1. Painting and finishing of interior and exterior exposed items and surfaces throughout the project, except as otherwise indicated.
- 2. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of the work.
- 3. Field painting of exposed bare exposed steel, structural components and accessories, and metal surfaces, metal siding except as otherwise noted.

- B. "Paint", as used herein, is defined as all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

- C. Paint all exposed surfaces except where the natural finish of the material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas.

## D. Paint prefinished metal items such as:

- 1. Structural steel and framing
- 2. Galvanized metal
- 3. Metal Trim

- E. Colors: As selected.

## 1.3 PAINTING NOT INCLUDED:

- A. The following categories of work are not included as part of the field-applied finish work, or are included in other sections of these specifications.

- 1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as architectural woodwork, wood casework, and shop-fabricated or factory-built mechanical and electrical equipment or accessories.

2. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing is specified for such items as (but not limited to) light fixtures, switchgear and distribution cabinets. Prefinished items to be painted are hereinbefore indicated.
3. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, furred areas, utility tunnels, pipe spaces.
4. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting. (Note: Copper tubing and piping is not a finished metal.)
5. Operating Parts and Labels:
  - a. Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.
  - b. Do not paint over code-required labels, such as Underwriters' Laboratories and Factory Mutual, or equipment identification, performance rating, name, or nomenclature plates. Permanently remove all other labels, prior to painting.

#### 1.4 QUALITY ASSURANCE:

- A. Product Data: For information only, submit copies of manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.
  1. Submit a list of manufacturer's products proposed for use.
  2. Upon approval of the list, submit a detailed schedule of each surface to be painted, and include the specific sealer, primer, underbody and finish coats proposed for each such surface.
  3. After approval is granted, submit complete color catalog(s) for color selections.
- B. Samples: Submit samples for review of color and texture only. Compliance with all other requirements is the exclusive responsibility of the Trade Contractor. Provide a listing of the material and application for each coat of each finish sample.
- C. Maintenance Sample Stock: Provide the Owner with one (1) gallon, air-tight covered, of each applied paint color for future use. Identify each container with manufacturer's name, number and color designation.
- D. Submit certification that materials proposed herein conform to the above requirements and to the fire test requirements of ASTM E84, Class "A" - 0-25 Flame Spread.
  1. Flame Spread Rating: Provide materials with ratings in accordance with NFPA #101, "Life Safety Code", 25 or less in exit ways, corridors, stairways, storage rooms or other areas of high hazard; 75 or less elsewhere.
- E. VOC Compliance: Provide LOW VOC materials conforming to the State and local regulations relating to VOC/VOS requirements at the time of application, and as follows:
  1. VOC Compliance: All paints and coatings must comply with the Green Seal Testing Program Limits as follows:
    - a. Non-Flat Primer / Paint: 150g/L. VOC Limit
    - b. Flat Primer / Paint: 50g/L. VOC Limit



## 1.5 DELIVERY AND STORAGE:

## A. Delivery:

1. Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label, and application instructions thereon.
2. Provide labels on each container with the following information:
  - a. Name of title of material.
  - b. Fed. Spec. number, if applicable.
  - c. Manufacturer's stock number.
  - d. Manufacturer's name.
  - e. Contents by volume, for major pigment and vehicle constituents.
  - f. Paint thinning instructions.
  - g. Application instructions.

## B. Storage:

1. Provide a secure space for the storage of all paint materials and equipment for the exclusive use of this work and maintain and leave it free from fire hazards due to improperly stored rags or thinners.

## 1.6 JOB CONDITIONS:

- A. Apply water-base paints when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 90 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist; or when the relative humidity exceeds 85% or to damp or wet surfaces, unless otherwise permitted by the paint manufacturer's printed instructions.
  1. Continue painting during inclement weather, if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

## PART 2 - PRODUCTS

## 2.1 COLORS AND FINISHES:

- A. Painting, surface treatments and finishes, are indicated in the "schedules" of the contract documents.
- B. See Drawings for color schedule for surfaces to be painted.

1. Provide the necessary compatible base color for the selected finish colors. Should color coverage appear to be a problem, notify the Architect prior to base coat application. Sample areas may be required (approximately four areas of four-square feet each).
  2. Use representative colors when preparing samples for review.
- C. Upon completion of the first coat, notify the Architect for the Architect's review and approval.
- D. Color Pigments: Pure, non-fading, applicable types to suit the substrates and service indicated.
1. Lead content in the pigment, if any, is limited to contain no more than 0.06% lead, as lead metal based on the total non-volatile (dry-film) of the paint by weight.
- E. Paint Coordination: Provide finish coats, compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime, as required. Notify the Architect, in writing, of any anticipated problems using specified coating systems with substrates primed by others.

## 2.2 MATERIAL QUALITY:

- A. Provide the best quality grade of the various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying the manufacturer's identification as a standard, best-grade product will not be acceptable.
- B. Exterior Paint Manufacturers:
1. Sherwin Williams, as specified.
  2. Benjamin Moore, as specified.
  3. Or equivalent products by the following: PPG Industries or Devoe
- C. Interior Paint Manufacturers:
1. Sherwin-Williams Co. "Harmony" Coating System as specified.
  2. Benjamin Moore Company "Eco-Spec", as specified.
  3. Or equivalent products by the following:
    - a. PPG Industries "Pure Performance" Low VOC line
    - b. Devoe "Wonder-Pure" Low VOC line
- D. Proprietary names, used to designate colors or materials, are not intended to imply that products of the named manufacturers are required to the exclusion of equivalent products of other manufacturers.
- E. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer and use only within recommended limits.

## 2.3 EXTERIOR PAINT SYSTEMS:

- A. Provide the following paint systems for the various substrates, as indicated.

## B. Concrete Masonry Units

1st coat - Sherwin-Williams Loxon Exterior Acrylic Masonry Acrylic Primer - A24W300 Series  
2nd coat - Sherwin-Williams Loxon Exterior Masonry Acrylic Flat Coating - A24W301 Series  
3rd coat - Sherwin-Williams Loxon Exterior Masonry Acrylic Flat Coating - A24W301 Series

or;

1st coat - Benjamin Moore Acrylic Masonry Sealer- 066  
2nd coat - Benjamin Moore Super Spec 100% Acrylic Exterior Flat - 183  
3rd coat - Benjamin Moore Super Spec 100% Acrylic Exterior Flat - 183

## C. Galvanized/Zinc Coated Metal: (architecturally exposed structural steel, including fascia; if not aluminum)

Gloss Finish: (4 mils wet, 1.3 mils dry per coat)

1st Coat - S-W All Surface Enamel Latex Primer, A41W210 (10 mils wet, 5 mils dry)  
2nd Coat - S-W A-100 Exterior Latex Gloss, A8 Series  
3rd Coat - S-W A-100 Exterior Latex Gloss, A8 Series

Semi-Gloss Finish (3-5 mils dry per coat)

1st Coat - S-W All Surface Enamel Latex Primer, A41W210 (10 mils wet, 5 mils dry)  
2nd Coat - S-W Metalatex Semi-Gloss Coating, B42 Series  
3rd Coat - S-W Metalatex Semi-Gloss Coating, B42 Series

or;

1st coat - Benjamin Moore M04 Acrylic Metal Primer - M04  
2nd coat - Benjamin Moore D.T.M. Acrylic (Semi-Gloss M29) (Gloss M28)  
3rd coat - Benjamin Moore D.T.M. Acrylic (Semi-Gloss M29) (Gloss M28)

## D. Aluminum: (including roof top mechanical units; fascia, if not zinc coated)

Semi-Gloss Finish (3-5 mils dry per coat)

1st Coat: S-W Metalatex Semi-Gloss Coating, B42 Series  
2nd Coat: S-W Metalatex Semi-Gloss Coating, B42 Series  
3rd Coat: S-W Metalatex Semi-Gloss Coating, B42 Series

Gloss (4 mils wet, 1.3 mils dry per coat)

1st Coat: S-W A-100 Exterior Latex Gloss, A8 Series  
2nd Coat: S-W A-100 Exterior Latex Gloss, A8 Series  
3rd Coat: S-W A-100 Exterior Latex Gloss, A8 Series  
(4 mils wet, 1.3 mils dry per coat)

or;

1st coat - Benjamin Moore M04 Acrylic Metal Primer - M04  
2nd coat - Benjamin Moore D.T.M. Acrylic (Semi-Gloss M29) (Gloss M28)  
3rd coat - Benjamin Moore D.T.M. Acrylic (Semi-Gloss M29) (Gloss M28)

## 2.4 LOW ODOR - LOW VOC COMPLIANT INTERIOR PAINTS

A. Coordinate with the Finish Schedule for material and colors required.

B. Concrete Masonry Units:

1st coat - Sherwin-Williams Loxon Block Surfacers

2nd coat - Sherwin-Williams Promax 200 Interior Latex Eggshell B9 Series

3rd coat - Sherwin-Williams Promax 200 Interior Latex Eggshell B9 Series

or;

1st coat- Benjamin Moore Super Craft Latex Block Filler-285

2nd coat - Benjamin Moore Eco Spec Interior Latex Eggshell 223

3rd coat- Benjamin Moore Eco Spec Interior Latex Eggshell 223

C. Masonry / Terracotta:

1st coat - Sherwin-Williams PrepRite Masonry Primer or Harmony Interior Latex Primer B11W900

2nd coat - Sherwin-Williams Promax 200 Interior Latex Eggshell B9 Series

3rd coat - Sherwin-Williams Promax 200 Interior Latex Eggshell B9 Series

or;

1st coat- Benjamin Moore Acrylic Masonry Sealer-066 or Eco Spec Interior Latex Primer Sealer-231

2nd coat - Benjamin Moore Eco Spec Interior Latex Eggshell 223

3rd coat- Benjamin Moore Eco Spec Interior Latex Eggshell 223

D. Ferrous Metals: (for all exposed to view metal, in finished rooms, including grilles, diffusers, piping, ducts, conduit, metal doors and frames and miscellaneous metals. When concealed from view and in mechanical equipment rooms, spot prime, only):

1st coat - Sherwin-Williams DTM Acrylic Primer/Finish

2nd coat - Sherwin-Williams Harmony Interior Latex Eggshell B9 Series

3rd coat - Sherwin-Williams Harmony Interior Latex Eggshell B9 Series

or;

1st coat - Benjamin Moore M04 Acrylic Metal Primer-M04

2nd coat - Benjamin Moore Eco Spec Interior Latex Eggshell 223

3rd coat- Benjamin Moore Eco Spec Interior Latex Eggshell 223

E. Wood:

1st coat - Sherwin-Williams PrepRite Classic Primer B28 Series or Harmony Inter Latex Primer B11W900

2nd coat - Sherwin-Williams Harmony Interior Latex Eggshell B9 Series

3rd coat - Sherwin-Williams Harmony Interior Latex Eggshell B9 Series

or;

1st coat- Benjamin Moore Regal FirstCoat 216 Interior Latex Primer and Underbody-216  
2nd coat - Benjamin Moore Eco Spec Interior Latex Eggshell 223  
3rd coat- Benjamin Moore Eco Spec Interior Latex Eggshell 223

F. Ceilings (drywall or concrete):

Flat Finish (4 mils wet, 1.6 mils dry per coat)

1st Coat - S-W Harmony Low Odor Interior Latex Primer, B11W900 (0 VOC)  
2nd Coat - S-W Harmony Low Odor Interior Latex Flat, B5 Series (0 VOC)  
3rd Coat - S-W Harmony Low Odor Interior Latex Flat, B5 Series (0 VOC)

or;

1st coat Benjamin Moore Super Spec Latex Enamel Undercoater & Primer Sealer- 253  
2nd coat Benjamin Moore Moorecraft Super Spec Latex Flat- 275  
3rd coat Benjamin Moore Moorecraft Super Spec Latex Flat- 275

G. Galvanized/Zinc Coated Metal: (for all exposed to view metal, in finished rooms, including metal decking, ducts, conduit, grilles, diffusers, miscellaneous metals):

Semi-Gloss Finish (4 mils wet, 1.6 mils dry per coat)

1st Coat - S-W ProCryl Universal Primer, B66-310 Series (110 g/L)  
2nd Coat - S-W Harmony Low Odor Interior Latex Semi-Gloss, B10 Series (0 VOC)  
3rd Coat - S-W Harmony Low Odor Interior Latex Semi-Gloss, B10 Series (0 VOC)

H. Aluminum: (for all exposed to view items, including grilles, diffusers, louvers, ducts, conduit and miscellaneous items not prefinished)

Semi-Gloss Finish (4 mils wet, 1.6 mils dry per coat)

1st Coat - S-W ProCryl Universal Primer, B66-310 Series (110 g/L)  
2nd Coat - S-W Harmony Low Odor Interior Latex Semi-Gloss, B10 Series (0 VOC)  
3rd Coat - S-W Harmony Low Odor Interior Latex Semi-Gloss, B10 Series (0 VOC)

### PART 3 - EXECUTION

#### 3.1 INSPECTION:

- A. Examine the areas and conditions under which painting work is to be applied and do not proceed with the work until unsatisfactory conditions have been corrected.
- B. The start of the painting work will be construed as acceptance of the surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.

## 3.2 PREPARATION:

## A. New Substrates:

1. General: Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as specified, for each particular substrate condition.
  - a. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program the cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly-painted surfaces.
2. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
  - a. Coordinate with Division 4. Determine if liquid cleaning solutions have been removed from surfaces abutting masonry.
  - b. Wire brush or mechanically sand rust spots to bright metal and spot prime.
  - c. Touch-up shop-applied prime coats wherever damaged or bare, where it is required by other sections of these specifications. Clean and touch-up with the same type of shop primer.
3. Galvanized Surfaces: Clean free off any oil and surface contaminate with an acceptable non-petroleum-based solvent.

## 3.3 MATERIALS PREPARATION:

- A. Mix and prepare painting materials in accordance with the manufacturer's directions.
- B. Store materials that are not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density and stir as required during the application of the materials. Do not stir surface film into the material. Remove the film and if necessary, strain the material before using.

## 3.4 APPLICATION:

## A. General:

1. Apply paint in accordance with the manufacturer's directions. Use applicators and techniques best suited for the substrate and type of material being applied.
- B. Apply primer, intermediate and finish coats to not less than the manufacturer's recommended wet film and dry film thicknesses and spreading rates for each of the various types of materials specified.
    1. Verify mil thickness, wet or dry, by use of recommended gauges.

- C. Apply additional coats when undercoats, stains or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to ensure that all surfaces, including edges, corners, crevices, welds and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
- D. Paint surfaces behind movable equipment in the same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
- E. Sand lightly between each succeeding enamel or varnish coat.
- F. Omit the first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.
- G. Scheduling Painting:
  - 1. Apply the 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.
  - 2. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- H. Minimum Coating Thickness: Apply each material at not less than the manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- I. Prime Coats: Apply a prime coat of material which is required to be painted or finished, and which has not been prime coated by others.
  - 1. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
  - 2. Apply prime coat to all surfaces including surfaces indicated to receive other finishes.
- J. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.
- K. Transparent (Clear) Finishes: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes or other surface imperfections.
  - 1. Provide satin finish for final coats, unless otherwise indicated.
- L. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

### 3.5 CLEAN-UP AND PROTECTION:

- A. Clean-up: During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each workday.

1. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- B. Protection: Protect the work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.
  1. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
  2. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION