

**Southcentral  
Foundation**



**CONSTRUCTION DOCUMENTS  
SPECIFICATIONS**

**BENTEH NUUTAH VALLEY  
PRIMARY CARE CENTER**

**WASILLA, ALASKA**



December 3, 2024

**RIM**

SECTION 00 01 10

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**SECTION 01 11 00  
SUMMARY OF WORK**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Work Summary

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.

**PART 2 – PRODUCTS – NOT USED**

**PART 3 – EXECUTION**

**3.01 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Work Summary:  
Contractors will review existing conditions and prepare a bid for the Valley Native Primary Care Center Benteh Nuutah Project based on the information contained in this Project Manual and the Drawings dated 12/03/2024 and Specifications dated 12/03/2024. Additionally, the contractor shall comply with all administrative requirements of the contract, including the submission of a Contractor's Construction Schedule, safety plan, Schedule of Values, daily reports, Submittals, and other deliverables required under the contract.

**3.02 METHOD**

- A. Construct the Work under a Guaranteed Maximum Price contract.

**3.03 WORK BY OWNER**

- A. Not Applicable

**3.04 CONTRACTOR'S USE OF PREMISES**

- A. **The Southcentral Foundation Campus and the Valley Native Primary Care Center Benteh Nuutah is a Tobacco Free campus. No smoking is permitted on the campus or in any Areas of Work.**
- B. The Contractor will coordinate with SCF for area of use.
- C. Limit use of premises for the Work and for storage to allow for:
  - 1. Owner occupancy.
  - 2. Public use.

3. Coordinated use of premises under direction of Owner.
  4. Full responsibility for protection and safekeeping of products under this Contract stored at Project Site.
  5. Moving any stored products, under Contractor's control, which interfere with operations of Owner or separate Contractor(s).
- D. Obtain and pay for use of any additional storage or work areas needed for operations.

### **3.05 OWNER'S OCCUPANCY**

- A. The Owner will continue to occupy and operate the Valley Native Primary Care Center Benteh Nuutah. The Contractor shall coordinate with the Owner to allow normal operations to continue.
- B. Contractor shall schedule and coordinate with the Valley Native Primary Care Center Benteh Nuutah, any work which could interfere with the Owner operations.
- C. Cooperate with the Owner in construction operations to minimize conflict and to facilitate Owner usage.
- D. After substantial completion, schedule work to maintain Owner's operation. Include in contract sum sufficient funds as may be required for any "after hours" work caused by this requirement. No additional payment to Contractor will be authorized because of Contractor's failure to anticipate required "after hours work".
- E. Contractor shall conduct operations to insure the least inconvenience to staff, visitors, and the public.

### **3.06 EXCESSIVE NOISE**

- A. Minimize noise during Owner's normal working hours. Notify Owner at least 72 hours prior to noisy operations.

### **3.07 USE OF OWNER'S PROPERTY AND EQUIPMENT**

- A. Use of Owner's property or equipment such as tools, ladders, furniture, janitorial equipment and supplies etc., is strictly prohibited.

**END OF SECTION**

**SECTION 01 20 00  
PRICE AND PAYMENT PROCEDURES**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 01 11 00 - Summary of Work
- C. Section 01 26 00 - Contract Modification Procedures
- D. Section 01 30 00 – Administrative Requirements
- E. Section 01 60 00 - Product Requirements
- F. Section 01 70 00 – Execution and Closeout Requirements
- G. Section 01 70 00 – Closeout Submittals

**1.02 SCHEDULE OF VALUES**

- A. Coordinate with Contractor's construction schedule and Application for Payment.
- B. Submit typed Schedule of Values using form AIA G703-1992 for Bid-Build projects, AIA G743 for Design-Build projects, or alternate form pre-approved by Owner.
- C. Submit Schedule of Values to the Architect, Owner, and Owner's Representative as soon as possible, but no later than 20 days after Notice to Proceed for Construction has been issued.
- D. Format: When using a pre-approved, non-AIA G702-1992 form for a Schedule of Values, the format shall be as follows: Utilize the Table of Contents of this Project Manual and include other significant work items. At a minimum, rough-in and finish work shall be broken out separately.
  - 1. Identify each line item with number and title of the Specification Section. Identify site mobilization, bonds, and insurance.
  - 2. Tabular form indicating:
    - a. Related Specification Section or Division.
    - b. Description of 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.
    - 1) Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items.
  4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
  5. Provide a separate line item in the Schedule of Values for each part of the Work where an Application for Payment may include materials or equipment, purchased, or fabricated and stored, but not yet installed.
    - a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing, if required.
  6. Margins of Cost: Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin 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 the Contractor's option.
  7. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.
- E. Include within each line item, a directly proportional amount of Contractor's overhead and profit.
- F. Provide sub schedule for each separate stage of work specified in Section 01 11 00 - Summary of Work.
- G. Revise schedule to list approved Change Orders, with each Application for Payment.

### **1.03 APPLICATIONS FOR PAYMENT**

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect (or Owner on Design-Build Projects) and paid for by the Owner.
  - 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment-Application Times: Each progress-payment date is indicated in the Agreement. The period of construction Work covered by each Application for Payment is the period indicated in the General Conditions.
- C. Payment Application Form: Use AIA Document G702-1995 and Continuation Sheets G703-1992 or alternative form pre-approved by Owner.
- D. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Architect (or Owner if project is Design-Build) will return incomplete applications without action.
  - 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
  - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 1 completed, signed, and notarized copy of each Application for Payment to the Architect (or Owner if a Design-Build Project) by a method pre-approved by the Owner, including waivers of lien and similar attachments, when required by contract.
  - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect and Owner.
- F. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment, include the following:
  - 1. List of subcontractors.
  - 2. List of principal suppliers and fabricators.
  - 3. Approved Schedule of Values.
  - 4. Contractor's Construction Schedule (preliminary if not final).
  - 5. Submittal Schedule (preliminary if not final).
  - 6. Certificates of insurance and insurance policies.
- G. Applications for Progress Payments
  - 1. Payment Period: Submit at intervals stipulated in Contract.

2. Electronic media printout including equivalent information will be considered in lieu of standard form specified: submit sample to Architect for approval.
  3. Submit Applications for Payment on an approved form per the Contract and this specification.
  4. For each item, provide a column for listing each of the following:
    - a. Item Number.
    - b. Description of work.
    - c. Scheduled Values.
    - d. Previous Applications.
    - e. Work in Place and Stored Materials under this application.
    - f. Authorized Change Orders.
    - g. Total Completed and Stored to Date of Application.
    - h. Percentage of Completion.
    - i. Balance to Finish.
    - j. Retainage, if applicable (see contract).
  5. Execute certification by signature of authorized officer and notarize payment applications.
  6. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
  7. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
  8. Submit Application for Payment utilizing Owner's project information management software, or in a manner agreed upon by Owner.
  9. Include the following with the application:
    - a. Construction Progress Schedule; revised and current as specified in Section 01 32 00 Construction Progress Documentation.
  10. When Architect or Owner requires substantiating information, submit data justifying dollar amounts in question. Provide data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.
- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
  2. Administrative actions and submittals that shall precede or coincide with this application include those required for Substantial Completion as outlined in Section 01 70 00 Execution and Closeout Requirements.
- I. Final Payment Application: Administrative actions and submittals that

must precede or coincide with submittal of the final Application for Payment including Section 01 70 00 - Execution and Closeout Requirements and Section 01 78 00 – Closeout Submittals.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 23 00  
ALTERNATES**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Description of Alternates.

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Document 005213 – Agreement Form
- C. Document 002113 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.

**1.03 ACCEPTANCE OF ALTERNATES**

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

**1.04 SCHEDULE OF ALTERNATES**

- A. Alternate No. \_\_\_\_ - \_\_\_\_\_:
  - 1. Base Bid Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.
  - 2. Alternate Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.
- B. Alternate No. \_\_\_\_ - \_\_\_\_\_:
  - 1. Base Bid Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.
  - 2. Alternate Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.
- C. Alternate No. \_\_\_\_ - \_\_\_\_\_:
  - 1. Base Bid Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.
  - 2. Alternate Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.
- D. Alternate No. \_\_\_\_ - \_\_\_\_\_:

1. Base Bid Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.
2. Alternate Item: Section \_\_\_\_\_ and Drawing number \_\_\_\_ including \_\_\_\_\_.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **SECTION 01 25 00 SUBSTITUTION PROCEDURES**

### **PART 1 – GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Procedural requirements for proposed substitutions.

#### **1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 002113 - Instructions to Bidders: Restrictions on timing of substitution requests.
- C. Section 012300 - Alternates, for product alternatives affecting this section.
- D. Section 013000 - Administrative Requirements: Submittal procedures, coordination.
- E. Section 016000 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

#### **1.03 DEFINITIONS**

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

### **PART 2 - PRODUCTS - NOT USED**

### **PART 3 – EXECUTION**

#### **3.01 GENERAL REQUIREMENTS**

- A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
  2. Agrees to provide the same warranty for the substitution as for the specified product.
  3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
  4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
  5. Waives claims for additional costs or time extension that may subsequently become apparent.
  6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
- B. Documentation: Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on Contractor.
- C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
1. No specific form is required. Contractor's Substitution Request documentation must include the following:
    - a. Project Information:
      - 1) Official project name and number, and any additional required identifiers established in Contract Documents.
      - 2) Owner's, Architect's, and Contractor's names.
    - b. Substitution Request Information:
      - 1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
      - 2) Indication of whether the substitution is for cause or convenience.
      - 3) Request date.
      - 4) Reference to particular Contract Document(s) specification section number, title, article/paragraph(s), and/or sheet number, drawing number, drawing title, etc.
      - 5) Description of Substitution.
      - 6) Reason why the specified item cannot be provided.
      - 7) Differences between proposed substitution and specified item.
      - 8) Description of how proposed substitution affects other parts of work.
    - c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
      - 1) Physical characteristics.
      - 2) In-service performance.
      - 3) Expected durability.
      - 4) Visual effect.
      - 5) Sustainable design features.

- 6) Warranties.
- 7) Other salient features and requirements.
- 8) Include, as appropriate or requested, the following types of documentation:
  - (a) Product Data:
  - (b) Samples.
  - (c) Certificates, test, reports or similar qualification data.
  - (d) Drawings, when required to show impact on adjacent construction elements.
- d. Impact of Substitution:
  - 1) Savings (or additional cost) to Owner for accepting substitution.
  - 2) Change to Contract Time due to accepting substitution.

- D. Quantity/ Limitation: Limit each request to a single proposed substitution item.
  - 1. Submit an electronic document, combining the request form with supporting data into single document, to the Architect and Owner.

### **3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT**

- E. Submittal Time Restrictions:
  - 1. Owner will consider requests for substitutions only if submitted at least 10 days prior to the date for receipt of bids.

### **3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION**

- F. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to the time required for review and approval by Architect, in order to stay on approved project schedule.
- G. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect and Owner, in order to stay on approved project schedule.
  - 1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
  - 2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
  - 3. Bear the costs engendered by proposed substitution of:
    - a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
- H. Substitutions will not be considered under one or more of the following circumstances:
  - 1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
  - 2. Without a separate written request.

### **3.04 RESOLUTION**

- I. Architect or Owner may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
- J. Architect will notify Contractor in writing of decision to accept or reject request.
  - 1. Architect's decision following review of proposed substitution will be noted on the submitted form.

### **3.05 ACCEPTANCE**

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

### **3.06 CLOSEOUT ACTIVITIES**

- L. See Section 017800 - Closeout Submittals, for closeout submittals requirements.
- M. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected requests.

**END OF SECTION**

**SECTION 01 26 00  
CONTRACT MODIFICATION PROCEDURES**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Procedures for documenting and processing contract modifications.

**1.02 RELATED SECTIONS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 00 52 13 – Agreement Form.
- C. Section 01 20 00 – Price and Payment Procedures.
- D. Section 01 60 00 - Product Requirements.
- E. Section 01 70 00 – Execution and Closeout Requirements.

**1.03 SUBMITTALS**

- A. Submit name of the individual authorized to receive change documents and be responsible for informing others in contractor's employ or subcontractors of changes to the Work.
- B. Proposal Form (for proposed change): AIA Document G709-2018 or another form acceptable to Owner.
- C. Change Order Form: AIA Form G701-2017 - Change Order or other form acceptable to Owner.

**1.04 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME**

- A. Maintain detailed records of work done on a time and materials basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
- C. On request, provide additional data to support computations:
  - 1. Quantities of products, labor, and equipment.
  - 2. Taxes, insurance and bonds.
  - 3. Overhead and profit.

4. Justification for any change in Contract Time.
  5. Credit for deletions from Contract, similarly documented.
- D. Support each claim for additional costs and for work done on a time and materials basis, with additional information:
1. Origin and date of claim.
  2. Dates and times work was performed, and by whom.
  3. Time records and wage rates paid.
  4. Invoices and receipts for products, equipment and subcontracts, similarly documented.

### **1.05 CHANGE PROCEDURES**

- A. Architects Supplemental Instructions: The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time, by issuing supplemental instructions on AIA Form G710-2017 - Architect's Supplemental Instructions.
- B. Proposal Request: The Owner may issue a Proposal Request (AIA Document G709 or form acceptable to Owner) which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid.
- C. Change Proposal: The Contractor may propose a change by submitting a request for change to the Owner, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation. Document any requested substitutions in accordance with Section 016000 – Product Requirements.
- D. It is the Owners decision whether a change directive is stipulated sum, unit price, or time and materials.

### **1.06 CONSTRUCTION CHANGE AUTHORIZATION**

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

### **1.07 STIPULATED SUM CHANGE ORDER**

- A. Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by the Owner.

### **1.08 TIME AND MATERIAL CHANGE ORDER**

- A. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- B. Maintain detailed records of work done on time and materials.
- C. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

### **1.09 EXECUTION OF CHANGE ORDERS**

- A. Architect or Owner's Representative may prepare Change Orders for signatures of Owner, Contractor, and Architect as provided in the Conditions of the Contract, Article 7.

### **1.10 CORRELATION OF CONTRACTOR SUBMITTALS**

- A. Promptly revise Schedule of Values and Application for Payment Forms to record each authorization Change Order as a separate line item and adjust the Contract Sum.
- B. Promptly revise Construction Progress Schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of work affected by the change, and resubmit.
- C. Promptly enter changes in Project Record Documents.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 30 00  
ADMINISTRATIVE REQUIREMENTS**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. General administrative requirements.
- B. Accident Prevention Plan.
- C. Preconstruction meeting.
- D. Progress meetings.
- E. Construction progress schedule.
- F. Progress photographs.
- G. Submittals for review, information, and project closeout.
- H. Number of copies of submittals.
- I. Requests for Information (RFI) procedures.
- J. Submittal procedures.

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 005213 – Agreement Form.
- C. Section 016000 - Product Requirements.
- D. Section 017000 - Execution and Closeout Requirements.

**1.03 REFERENCE STANDARDS**

- A. AIA G716 - Request for Information 2004.
- B. AIA G810 - Transmittal Letter 2001.

**1.04 GENERAL ADMINISTRATIVE REQUIREMENTS**

- A. Comply with requirements of Section 017000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
- B. Utilize SCF's Autodesk Construction Cloud (ACC) project management site for tracking and memorialization of all meeting agendas/minutes, submittals, RFI's ASI's, posting of drawings/specifications, document filing, and for all other project document tracking, as directed by the Owner.

- C. Make the following types of submittals to Architect:
1. Requests for Interpretation (RFI).
  2. Requests for substitution.
  3. Shop drawings, product data, and samples.
  4. Test and inspection reports.
  5. Design data.
  6. Manufacturer's instructions and field reports.
  7. Applications for payment and change order requests.
  8. Progress schedules.
  9. Coordination drawings.
  10. Correction Punch List and Final Correction Punch List for Substantial Completion.
  11. Closeout submittals.

### **1.05 ACCIDENT PREVENTION PLAN**

A. Plan Overview

1. The APP (aka Construction Safety & Health Plan) shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and ensure it is site-specific. The Prime Contractor is considered to be the "controlling authority" for all worksite safety and health of each subcontractor(s). Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out.

B. Plan Content

1. Include and address in the APP the following, at a minimum.
  - a. Type of Project/ Project Description
  - b. Scope of Work
  - c. Contact Information
  - d. Identification of person(s) responsible for safety at the project location and lines of authority
  - e. Project Location
  - f. Geographic Risks
  - g. Site drawings and hazard locations: Contractor's site safety plan, including mustering point, location of nearest hospital/ emergency clinic, vehicular and pedestrian traffic flow graphics, site security checkpoints, area of work limits/fencing, etc., at a minimum.
  - h. Procedures to avoid hazards (in the form of Activity Hazard Analysis and Work Plan, as needed, for each unique task where hazards exist).
    - 1) Crane work, confined space entry, scaffolding, walking and working surfaces including fall protection, and other specialized

work shall require a separate and specific Work Plan to address the unique risks and hazards associated with the work.

- i. Security risks and securing of supplies and the worksite.
  - j. Safety check schedule
  - k. Safety orientation for new workers and visitors to the site and accident notification process to Owner.
  - l. Accident notification and investigation process
  - m. PPE Guidelines
  - n. Safety Training
  - o. First Aid Locations
  - p. Hazard communication plan
  - q. All content required by OSHA and AHJs
  - r. Signature sheet signed by an Officer of the company and the Responsible Person onsite
- C. Plan Approval
- 1. Submit APP for Owner's approval a minimum of 3 weeks prior to any work being performed.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 – EXECUTION**

### **3.01 PRECONSTRUCTION MEETING**

- A. Schedule meeting after Notice of Award.
- B. Attendance Required:
  - 1. Owner.
  - 2. Architect.
  - 3. Contractor.
  - 4. Owner's Representative (if applicable).
- C. Agenda:
  - 1. Execution of Owner-Contractor Agreement.
  - 2. Submission of executed bonds and insurance certificates.
  - 3. Distribution of Contract Documents.
  - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
  - 5. Submission of initial Submittal schedule.
  - 6. Designation of personnel representing the parties to Contractor, Owner, Architect, and Owner's Representative (if applicable).
  - 7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, change orders, and contract closeout procedures.
  - 8. Scheduling.

- D. Record minutes and distribute copies electronically to Architect, Owner, Owner's Representative (if applicable), participants, and those affected by decisions made.

### **3.02 PROGRESS MEETINGS**

- A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with electronic copies for participants (to be distributed 24 hours prior to meeting), preside at meetings.
- C. Attendance Required:
  - 1. Contractor.
  - 2. Owner.
  - 3. Architect.
  - 4. Special consultants.
  - 5. Contractor's superintendent.
  - 6. Major subcontractors.
- D. Agenda:
  - 1. Review minutes of previous meetings.
  - 2. Review of work progress.
  - 3. Field observations, problems, and decisions.
  - 4. Identification of problems that impede, or will impede, planned progress.
  - 5. Review of submittals schedule and status of submittals.
  - 6. Review of RFIs log and status of responses.
  - 7. Maintenance of progress schedule.
  - 8. Corrective measures to regain projected schedules.
  - 9. Planned progress during succeeding work period.
  - 10. Coordination of projected progress.
  - 11. Maintenance of quality and work standards.
  - 12. Effect of proposed changes on progress schedule and coordination.
  - 13. Other business relating to work.
- E. Record minutes and distribute electronic copies within two days after meeting to Architect, Owner, and participants, and those affected by decisions made.

### **3.03 CONSTRUCTION PROGRESS SCHEDULE**

- A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated construction schedule with each Application for Payment.

### **3.04 PROGRESS PHOTOGRAPHS**

- A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.
- B. Photography Type: Digital; electronic files.
- C. Provide high quality digital photographs of site and construction throughout progress of work, using the ACC photo application.
- D. In addition to periodic, recurring views, take photographs of each of the following events:
  1. Excavations in progress.
  2. Foundations in progress and upon completion.
  3. Structural framing in progress and upon completion.
  4. Enclosure of building, upon completion.

### **3.05 REQUESTS FOR INFORMATION (RFI)**

- A. Definition: A request seeking one of the following:
  1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
  2. A resolution to an issue which has arisen due to field conditions and affects design intent.
- B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
- C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
  1. Prepare a separate RFI for each specific item.
    - a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
    - b. Do not forward requests which solely require internal coordination between subcontractors.
  2. Prepare in a format and with content acceptable to Owner.
    - a. Use AIA G716-2004 - Request for Information.

3. Combine RFI and its attachments into a single electronic file. PDF format is preferred.
- D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is not included.
1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
  2. Unacceptable Uses for RFIs: Do not use RFIs to request the following:
    - a. Approval of submittals (use procedures specified elsewhere in this section).
    - b. Approval of substitutions (see Section - 016000 - Product Requirements)
    - c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
    - d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
  3. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
- E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
1. Official Project name and number, and any additional required identifiers established in Contract Documents.
  2. Owner's, Architect's, and Contractor's names.
  3. Discrete and consecutive RFI number, and descriptive subject/title.
  4. Issue date and requested reply date.
  5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
  6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
  7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example, routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.
- F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.

1. Indicate current status of every RFI. Update log promptly and on a regular basis.
  2. Note dates of when each request is made, and when a response is received.
  3. Highlight items requiring priority or expedited response.
  4. Highlight items for which a timely response has not been received to date.
- H. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt, excluding SCF recognized holidays. For the purpose of establishing the start of the mandated response period, RFIs received after 2:00PM (Owner's local time) will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
  2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
  3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
  4. Notify Architect within seven calendar days, excluding SCF recognized holidays, if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

### **3.06 SUBMITTAL SCHEDULE**

- A. Submit to Architect for review a schedule for submittals in tabular format.
1. Format schedule to allow tracking of status of submittals throughout duration of construction.
  2. Account for time required for preparation, review, manufacturing, fabrication, and delivery when establishing submittal delivery and review deadline dates.
    - a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

### **3.07 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product data.
  - 2. Shop drawings.
  - 3. Samples for selection.
  - 4. Samples for verification.
- B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.
- C. Samples will be reviewed for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017000 – Execution and Closeout Requirements.

### **3.08 SUBMITTALS FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner.

### **3.09 SUBMITTALS FOR PROJECT CLOSEOUT**

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 - Closeout Submittals:
  - 1. Project record documents.
  - 2. Operation and maintenance data.
  - 3. Warranties.
  - 4. Bonds.
  - 5. Other types as indicated.
- D. Submit for Owner's benefit during and after project completion.

### **3.10 NUMBER OF COPIES OF SUBMITTALS**

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
  - 1. After review, produce duplicates.
  - 2. Retained samples will not be returned to Contractor unless specifically so stated.

### **3.11 SUBMITTAL PROCEDURES**

- A. General Requirements:
  - 1. Use a separate transmittal for each item.
  - 2. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
  - 3. Transmit using approved form.
    - a. Use Form AIA G810-2001.
  - 4. Identify each item based on applicable specification section. For revised submittals use original number and a sequential numerical suffix.
  - 5. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
  - 6. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
  - 7. Schedule submittals to expedite the Project, and coordinate submission of related items.
    - a. For each submittal for review, allow 14 calendar days, excluding SCF recognized holidays.
    - b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 calendar days.
    - c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's approval, allow an additional 30 calendar days.
  - 8. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
  - 9. Provide space for Contractor and Architect review stamps.
  - 10. When revised for resubmission, identify all changes made since previous submission.
  - 11. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.

12. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work and have received prior approval for their use.
  13. Submittals not requested will not be recognized or processed.
- B. Product Data Procedures:
1. Submit only information required by individual specification sections.
  2. Collect required information into a single submittal.
  3. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
  2. Do not reproduce Contract Documents to create shop drawings.
  3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Samples Procedures:
1. Transmit related items together as a single package.
  2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

### **3.12 SUBMITTAL REVIEW**

- A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.
- C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
- D. Architect's and consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
    - a. "Approved", or language with same legal meaning.
    - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
  2. Not Authorizing fabrication, delivery, and installation:
    - a. "Revise and Resubmit".
    - b. "Rejected".
- E. Architect's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
    - a. "Received" - to notify the Contractor that the submittal has been received for record only.
  2. Items for which action was taken:
    - a. "Reviewed" - no further action is required from Contractor.

**END OF SECTION**

**SECTION 01 31 00  
PROJECT MANAGEMENT AND COORDINATION**

**PART 1 - GENERAL**

**1.01 RELATED SECTIONS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 00 52 13 – Agreement Form
- C. Section 01 30 00 – Administrative Requirements
- D. Section 01 70 00 – Execution and Closeout Requirements

**1.02 DEFINITIONS**

- A. Request for Information (RFI): Request from Owner, Architect, or Contractor seeking information required by a clarification of the Contract Documents.
- B. Architect's Supplemental Instructions (ASI): Information provided by Architect to clarify scope of work in Contract Documents.

**1.03 PROJECT SCHEDULE**

- A. Provide a project schedule for approval by the Architect and Owner prior to starting work. The Project Schedule shall use the Critical Path Method "CPM" or other Owner approved method. The Schedule shall have adequate detail that provides information on the planned work and tasks and shall be relationship driven using either predecessor or successor relationships. The schedule shall be updated and submitted with every Application for Payment, and uploaded to Autodesk Construction Clout (ACC).

**1.04 COORDINATION**

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications and with other contractors and entities that depend on each other for proper installation, connection, and operation to ensure efficient and orderly installation of each part of the Work.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, 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.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. 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. Startup and adjustment of systems.
  8. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

## **1.05 COORDINATION DRAWINGS**

- A. General: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.

- b. Coordinate the addition of trade-specific information to the coordination drawings in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
- c. Indicate functional and spatial relationships of components.
- d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
- f. Indicate required installation sequences.
- g. 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.

## **1.06 KEY PERSONNEL**

- A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
  - 1. Post copies of list in project meeting room, in temporary field office, on Project Website, and by each temporary telephone. Keep list current at all times.

## **1.07 PROJECT MEETINGS**

- A. General: Contractor will schedule and conduct meetings and conferences at Project site, unless otherwise indicated. Meeting agendas and notes shall utilize Autodesk Construction Cloud (ACC) software.
  - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and

Architect, within two days of the meeting.

- B. Preconstruction Conference: Contractor will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 20 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
  2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing.
    - 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 and ASIs.
    - h. Procedures for testing and inspecting.
    - i. Procedures for processing Applications for Payment.
    - j. Distribution of the Contract Documents.
    - k. Submittal procedures.
    - l. Sustainable design requirements.
    - m. Preparation of record documents.
    - n. Use of the premises [and existing building if applicable].
    - o. Work restrictions.
    - p. Working hours.
    - q. Owner's occupancy requirements.
    - r. Responsibility for temporary facilities and controls.
    - s. Procedures for moisture and mold control.
    - t. Procedures for disruptions and shutdowns.
    - u. Construction waste management and recycling.
    - v. Parking availability.
    - w. Office, work, and storage areas.
    - x. Equipment deliveries and priorities.
    - y. First aid.
    - z. Security.
    - aa. Progress cleaning.
- C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the activity under consideration, including requirements for the following:
  - a. Contract Documents.
  - b. Options.
  - c. Related RFIs and ASIs.
  - d. Related Change Orders.
  - e. Purchases.
  - f. Deliveries.
  - g. Submittals.
  - h. Review of mockups.
  - i. Possible conflicts.
  - j. Compatibility problems.
  - k. Time schedules.
  - l. Weather limitations.
  - m. Manufacturer's written recommendations.
  - n. Warranty requirements.
  - o. Compatibility of materials.
  - p. Acceptability of substrates.
  - q. Temporary facilities and controls.
  - r. Space and access limitations.
  - s. Regulations of authorities having jurisdiction.
  - t. Testing and inspecting requirements.
  - u. Installation procedures.
  - v. Coordination with other work.
  - w. Required performance results.
  - x. Protection of adjacent work.
  - y. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress and Coordination Meetings: Contractor will conduct progress meetings at appropriate intervals.

1. Coordinate dates of meetings with preparation of payment

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

E. Project coordination meetings are to be held weekly. Project coordination

meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 – EXECUTION (NOT USED)**

**END OF SECTION**

## **SECTION 01 40 00 QUALITY REQUIREMENTS**

### **PART 1 – GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Submittals.
- B. Quality assurance.
- C. References and standards.
- D. Testing and inspection agencies and services.
- E. Control of installation.
- F. Mock-ups.
- G. Tolerances.
- H. Manufacturers' field services.
- I. Defect Assessment.

#### **1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 013000 - Administrative Requirements: Submittal procedures.
- C. Section 014200 - Reference Standards and Definitions.
- D. Section 016000 - Product Requirements: Requirements for material and product quality.

#### **1.03 REFERENCE STANDARDS**

- A. Note: If a newer version of any reference standard exists, the newer version shall be incorporated and followed in lieu of the older version referenced herein.
- B. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants 2008 (Reapproved 2023).
- C. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation 2017.
- D. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry 2022a.
- E. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction 2019.

- F. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection 2021.
- G. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing 2021.
- H. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components 2016.
- I. IAS AC89 - Accreditation Criteria for Testing Laboratories 2021.

#### **1.04 DEFINITIONS**

- A. Contractor's Quality Control Plan: Contractor's management plan for executing the Contract for Construction.

#### **1.05 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Test Reports: After each test/inspection, promptly submit one electronic copy of report to Architect, Owner, and Owner's Representative.
  - 1. Include:
    - a. Date issued.
    - b. Project title and number.
    - c. Name of inspector.
    - d. Date and time of sampling or inspection.
    - e. Identification of product and specifications section.
    - f. Location in the Project.
    - g. Type of test/inspection.
    - h. Date of test/inspection.
    - i. Results of test/inspection.
    - j. Compliance with Contract Documents.
    - k. When requested by Architect, provide interpretation of results.
- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, as specified for Product Data.
  - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- D. Manufacturer's Instructions: When specified in individual specification sections, submit electronic instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- E. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner/ Owner's Representative.

1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

## **1.06 QUALITY ASSURANCE**

- A. Contractor's Quality Control (CQC) Plan:
  1. Thirty days prior to start of work, submit a comprehensive plan describing how contract deliverables will be produced. Tailor CQC plan to specific requirements of the project. Include the following information:
    - a. Management Structure: Identify personnel responsible for quality. Include a chart showing lines of authority.
    - b. Management Approach: Define, describe, and include in the plan specific methodologies used in executing the work.
      - 1) Management and control of documents and records relating to quality.
      - 2) Communications.
      - 3) Coordination procedures.
      - 4) Resource management.
      - 5) Process control.
      - 6) Inspection and testing procedures and scheduling.
      - 7) Control of noncomplying work.
      - 8) Tracking deficiencies from identification, through acceptable corrective action, and verification.
      - 9) Control of testing and measuring equipment.
      - 10) Project materials certification.
      - 11) Managerial continuity and flexibility.
    - c. Owner will not make a separate payment for providing and maintaining a Quality Control Plan. Include associated costs in Bid price.
    - d. Acceptance of the plan is required prior to start of construction activities not including mobilization work. Owner's acceptance of the plan will be conditional and predicated on continuing satisfactory adherence to the plan. Owner reserves the right to require Contractor to make changes to the plan and operations, including removal of personnel, as necessary, to obtain specified quality of work results.
- B. Quality-Control Personnel Qualifications. Engage a qualified person with requisite training and experience to implement and manage quality assurance (QA) and quality control (QC) for the project. QC personnel may be subject to SCF approval.

## **1.07 REFERENCES AND STANDARDS**

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

### **1.08 TESTING AND INSPECTION AGENCIES AND SERVICES**

- A. Owner will employ and pay for services of an independent testing agency to perform other specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 – EXECUTION**

### **3.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

### **3.02 MOCK-UPS**

- A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
- B. Accepted mock-ups establish the standard of quality the Architect will use to inspect against and to determine the acceptability of Work yet to be completed.
- C. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
- D. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- E. Architect will use accepted mock-ups as a comparison standard for the remaining Work.
- F. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect. Confirm with Architect and Owner prior to removal of mock-up.

### **3.03 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

### **3.04 TESTING AND INSPECTION**

- A. Testing Agency Duties:
  - 1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
  - 2. Perform specified sampling and testing of products in accordance with specified standards.
  - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
  - 4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
  - 5. Perform additional tests and inspections required by Architect.
  - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
  2. Agency may not approve or accept any portion of the Work.
  3. Agency may not assume any duties of Contractor.
  4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  2. Cooperate with laboratory personnel and provide access to the Work and to manufacturers' facilities.
  3. Provide incidental labor and facilities:
    - a. To provide access to Work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    - c. To facilitate tests/inspections.
    - d. To provide storage and curing of test samples.
  4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
  5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
  6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

### **3.05 MANUFACTURERS' FIELD SERVICES**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment, as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

### **3.06 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not complying with specified requirements.

**END OF SECTION**

**SECTION 01 40 10  
CLEAN CONSTRUCTION PROCEDURES**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Clean Construction procedures, policies, and best practices and requirements.

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.

**1.03 PURPOSE**

- A. To outline the process for selecting and implementing proper controls to reduce risk and to minimize impact of construction or renovation activities throughout Southcentral Foundation (SCF) facilities.

**1.04 SCOPE**

- A. This applies to all direct hire employees, Civil Service and Commissioned Corps Officers working under contractual agreements with Southcentral Foundation (SCF) and volunteers. Individuals and business entities that have entered into contractual agreements with Southcentral Foundation (SCF) are not exempt, unless otherwise stated in their contracts.

**1.05 DEFINITIONS**

- A. Customer-owner: Individuals who seek and receive services at SCF's programs and departments. The following terms may be used by SCF programs and departments in referring to customers:
  - 1. Patients
  - 2. Residents
  - 3. Students
  - 4. Members
  - 5. Beneficiaries
  - 6. Guests
  - 7. Event Participants
  - 8. Clients
- B. Infection Control Risk Assessment (ICRA) – A risk assessment tool that incorporates the facility's customer-owner population and type of construction work to reduce the risk of infection through phases of facility planning, design, construction, renovation, and maintenance.

## 1.06 PROCEDURE

- A. The Clean Construction Procedure with the accompanying Infection Control Risk Assessment (ICRA) Construction Permit will apply to all projects, including small construction and maintenance work.
- B. The ICRA will be implemented in the planning phase of each project and will be assessed by the Manager of Facilities or designee, in consultation with the Project Manager, Safety Manager and Quality Assurance (QA) Nurse Manager or designee.
- C. The Manager of Facilities or designee will provide updated documentation of the risk assessment throughout planning, design, and construction.
- D. Performance Standards
  - 1. ICRA will be initiated and maintained by the Manager of Facilities or designee, in consultation with the QA Nurse Manager or designee, and Safety Manager at all appropriate construction sites and areas with Infection Control (IC) deficiencies.
  - 2. Selected ICRA will be monitored by the Manager of Facilities in consultation with the QA Nurse Manager or designee, Safety Manager and Security Officers on weekends and holidays.
  - 3. The Manager of Facilities or designee, will provide briefings to the affected employees, including construction workers, to inform the staff of the particular ICRA for areas where they work.
- E. Manager of Facilities Responsibilities:
  - 1. The Manager of Facilities in consultation with the QA Nurse Manager or designee and the Safety Manager will select and implement appropriate infection control measures/actions for existing hazards that violate infection control standards and/or guidelines.
  - 2. The Manager of Facilities or designee will ensure the ICRA measures/actions are maintained and enforced.
    - a. The Manager of Facilities or designee will consult with the QA Nurse Manager or designee and the Safety Manager for all Type C and Type D projects as defined in this procedure.
  - 3. The Manager of Facilities or designee will ensure that ICRA measures/actions are incorporated into all contractor negotiations and contracts.
  - 4. The Manager of Facilities or designee will ensure that contractors and maintenance employees adhere to the implemented ICRA measures/actions.
  - 5. Contractors are responsible for training their employees and enforcing ICRA measures/actions with their employees.
  - 6. Employees are responsible for adhering to established ICRA measures/actions and for reporting any violations of this procedure to the Manager of Facilities or designee.

## F. Project Assessment

1. Each project will be assessed for risk during the planning phase by Facilities.
  - a. The project will be assigned a risk group to include employees from Corporate QA, Facilities, and the affected program and will be matched with a project type that will determine a class of precautions to be implemented.
2. The class of precautions will be determined by using the Type of Work Matrix described in this procedure.
3. Type of Projects (Work)
  - a. Type A (Minor) - Inspection and non-invasive projects including, but not limited to:
    - a) Removal of ceiling tiles for visual inspection
    - b) Painting with no sanding
    - c) Wall covering
    - d) Electrical trim work
    - e) Minor plumbing and
    - f) Other activities that do not generate dust
  - b. Type B (Maintenance) – Short duration / minimal dust projects which include, but are not limited to:
    - a) Setting brackets
    - b) Hanging items
    - c) Cutting of walls or ceilings where dust migration can be controlled to the immediate work area and the duration is less than one (1) work shift
    - d) Cutting of walls or ceilings where dust migration can be controlled, and the duration is less than one (1) work shift
  - c. Type C (Moderate) – Short duration / minor dust projects, including, but is not limited to:
    - a) Sanding
    - b) Removal of floor coverings, ceiling tiles, and casework
    - c) New wall construction
    - d) Minor duct work or electrical work above the ceiling
    - e) Major cabling activities
  - d. Type D (Major) – Projects that generate dust or require demolition of fixed building components which include, but are not limited to:
    - a) Activities which require consecutive work shifts
    - b) Require heavy demolition and/or removal of a complete cabling system
    - c) New construction
4. Type of Area
  - a. Low Risk:

- a) Plant area and other areas not intended for customer-owner use
  - b) Warehouse
  - c) Office areas
- b. Medium Risk:
- a) Physical Therapy
  - b) Radiology
  - c) Outpatient Clinics (not including office areas)
  - d) Dental Clinics
  - e) Pharmacy
  - f) Employee Family Center
  - g) Living quarters at residential treatment programs
  - h) Food service or kitchen areas
- c. High Risk:
- a) Endoscopy
  - b) Laboratory
- d. Highest Risk
- a) Dental Sterile Processing

5. Risk Group Classifications

| Risk Group Classification | Type A | Type B | Type C | Type D |
|---------------------------|--------|--------|--------|--------|
| Low Risk                  | I      | I/II   | II     | III/IV |
| Medium Risk               | I      | I/II   | III    | IV     |
| High Risk                 | I      | I/II   | III/IV | IV     |
| Highest Risk              | I/II   | III/IV | III/IV | IV     |

Note: Infection Control approval will be required when the construction activity and risk level indicate that **Class III** or **Class IV** control procedures are necessary.

6. Infection control measure based on class:

|                | During Construction Project                                                                                                                                                                                     | Upon Completion of Project                                                                 |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>Class I</b> | <ol style="list-style-type: none"> <li>Execute work by methods to minimize raising dust from construction operations.</li> <li>Immediately replace any ceiling tile displaced for visual inspection.</li> </ol> | <ol style="list-style-type: none"> <li>Clean work area upon completion of work.</li> </ol> |

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Class II</b>  | <ol style="list-style-type: none"> <li>1. Provide active means to prevent air-borne dust from dispersing into atmosphere.</li> <li>2. Water mist work surfaces to control dust while cutting.</li> <li>3. Seal unused doors with tape.</li> <li>4. Block off and seal air vents.</li> <li>5. Remove or isolate heating, ventilation, and air conditioning (HVAC) system in areas where work is being performed.</li> </ol>                                                                                                                                                                                                                                                                                                                 | <ol style="list-style-type: none"> <li>2. Wipe work surfaces with disinfectant.</li> <li>3. Contain construction waste before transport in tightly covered containers.</li> <li>4. Wet mop and/or vacuum with High-Efficiency Particulate Air (HEPA) filtered vacuum before leaving work area.</li> <li>5. Remove isolation of HVAC system in areas where work is being performed.</li> </ol>                                                                                                                                                                           |
| <b>Class III</b> | <ol style="list-style-type: none"> <li>1. Remove or isolate HVAC system in area where work is being done to prevent contamination of duct system.</li> <li>2. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.</li> <li>3. Maintain negative air pressure within the work site utilizing HEPA equipped air filtration units.</li> <li>4. Contain construction waste before transport in tightly covered containers.</li> <li>5. Cover transport receptacles or carts. Tape covering unless solid lid.</li> </ol> | <ol style="list-style-type: none"> <li>1. Do not remove barriers from work area until completed project is inspected by the Manager of Facilities, Safety Manger and QA Nurse Manager or designee, and is thoroughly cleaned by housekeeping.</li> <li>2. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction.</li> <li>3. Vacuum work area with HEPA filtered vacuums.</li> <li>4. Wet mop area with disinfectant.</li> <li>5. Remove isolation of HVAC system in areas where work is being performed.</li> </ol> |

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Class IV | <ol style="list-style-type: none"> <li>1. Isolate HVAC system in area where work is being done to prevent contamination of duct system.</li> <li>2. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.</li> <li>3. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units.</li> <li>4. Seal holes, pipes, conduits, and punctures appropriately.</li> <li>5. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave the work site.</li> <li>6. All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area.</li> <li>7. Do not remove barriers from the work area until completed project is inspected by owner's Safety Department and Infection Control Department and thoroughly cleaned by owner's Environmental Services Department.</li> </ol> | <ol style="list-style-type: none"> <li>1. Do not remove barriers from work area until completed project is inspected by the Manager of Facilities, Safety Manager and QA Nurse Manager or designee, and is thoroughly cleaned by Environmental Services Department.</li> <li>2. Remove barrier material carefully to minimize spreading of dirt and debris associated with construction.</li> <li>3. Contain construction waste before transport in tightly covered containers.</li> <li>4. Cover transport receptacles or carts. Tape covering unless solid lid.</li> <li>5. Vacuum work area with HEPA filtered vacuums.</li> <li>6. Wet mop area with disinfectant.</li> <li>7. Remove isolation of HVAC system in areas where work is being performed.</li> </ol> |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

7. Environmental monitoring:
  - a. The Manager of Facilities will conduct field inspections at any time during the life of the project with the assistance of the QA Nurse Manager or designee and Safety Manager.
  - b. The Manager of Facilities will monitor air quality throughout project as needed.
8. Implementation of Infection Control Measures
  - a) Temporary construction barriers and closures will be dust-tight.
  - b) Removal of debris will be in tightly covered containers.
  - c) Adhesive walk-off mats will be placed at all entrances to work site, as needed.
  - d) Any dust tracked outside of the barrier will be removed immediately.

- e) Any ceiling access panels opened for investigation beyond sealed areas will be replaced immediately when unattended.
  - f) Block off all ventilation and return ducts within the construction area.
  - g) Method of capping ducts will be dust tight and airflow to those devices will be shut off (either with the direct digital control (DDC) and/or damper).
  - h) Removal of construction barriers and ceiling protection will be done carefully.
  - i) Vacuum and clean all surfaces free of dust after the removal.
  - j) Housekeeping will be notified to do a follow up cleaning of the area.
  - k) When access panels are opened in occupied areas requiring protection, for work above ceilings, use a polyethylene enclosure around ladder, sealing off opening.
  - l) The device will be fitted/sealed tightly to the ceiling and floor per manufacturers' instructions.
9. Enforcement of Infection Control Measures
- a. The Manager of Facilities, QA Nurse Manager or designee, or Safety Manager may stop the work if this procedure is violated.
    - a) Work will not resume until all violations of this procedure are corrected and verified in writing.
  - b. The Manager of Facilities will record the following:
    - a) Document each violation with photographs and written reports
    - b) Extract contractor or department information from the work log
    - c) Maintain a record of all infection control violations
  - c. Violations of this procedure may affect status as a responsible contractor for bidding future work.

## **1.07 REFERENCES**

- A. Attachment A – Specification Section 01 40 10.01 – Infection Control Risk Assessment Construction Permit.
- B. Facility Guidelines Institute, Guidelines for Design and Construction of Healthcare Facilities (2022).

**END OF SECTION**

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM) Infection Prevention and Control (ICRA) Interim Utility System Measures (IUSM)  
*This form is an evaluation tool and **NOT** intended to replace required project, compliance, or safety documentation.*

**Instructions:** Please complete the entire form and submit to the Project Manager, SCF Facilities, and SCF Safety for review and approval. ILSM, ICRA, and IUSM approvals may require multiple steps and can take more than a week to approve, so plan accordingly. To expedite, consider attaching supporting documentation. Risk assessment should identify specific mitigation methods for each phase of the project. Utilize the clarification section to identify the applicability of additional forms (i.e. Demo higher ICRA need than finishing work)

**Once approved and signed; display and hang a copy at the work site to be available upon request.**

| Section 1: General Project Information<br><i>– required section –</i> |          | Anticipated project date range:                  |  | Today's Date:       |  |
|-----------------------------------------------------------------------|----------|--------------------------------------------------|--|---------------------|--|
| Submitted By<br>(name & company)                                      |          | Start Date:                                      |  | Estimated End Date: |  |
| Project Manager<br>(name & contact #):                                |          | Impacted Department(s)<br>(list all that apply): |  |                     |  |
| Contractor Contact<br>(name & contact #):                             |          | Impacted Department(s)<br>Contact #:             |  |                     |  |
| Appointed Site Safety Officer<br>(name & contact #)                   |          | Adjacent Department(s)<br>(list all that apply): |  |                     |  |
| Life Safety Occupancy<br>(business, hospital, etc.):                  | Business | Anticipated Accreditation or Regulatory Surveys: |  |                     |  |

|                            |                            |                          |                                 |
|----------------------------|----------------------------|--------------------------|---------------------------------|
| <b>Important Contacts:</b> | SCF Security: 907.729.5700 | SCF Safety: 907.575.8006 | Infection Control: 907.570.6475 |
|----------------------------|----------------------------|--------------------------|---------------------------------|

### Construction Project Type Assessment – Circle Class

| Risk                                                                                                                                                                                                                                                                        | Activity            |          |              |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|--------------|--------------|
|                                                                                                                                                                                                                                                                             | Type A              | Type B   | Type C       | Type D       |
| Each project is assessed by assigning a risk group and project type to determine infection prevention precautions required during project. Clean Construction Procedure #805-03 Infection Control Permit and Class Procedures provided below, <b>PM signature required.</b> | <b>LOW RISK</b>     | Class I  | Class II     | Class II     |
|                                                                                                                                                                                                                                                                             | <b>MEDIUM RISK</b>  | Class I  | Class II     | Class III    |
|                                                                                                                                                                                                                                                                             | <b>HIGH RISK</b>    | Class I  | Class II     | Class III/IV |
|                                                                                                                                                                                                                                                                             | <b>HIGHEST RISK</b> | Class II | Class III/IV | Class III/IV |

| Type A                                                                                                                                                                                                                                                                                                                                                            | Type B                                                                                                                                                                                                                                                                                                                                                     | Type C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Type D                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inspection and noninvasive activities such as:</b> <ul style="list-style-type: none"> <li>Removal of ceiling tiles for visual inspection only, limited to one tile per 50 square feet</li> <li>Painting (without sanding)</li> <li>Wall covering replacement</li> <li>Electrical trim work</li> <li>Minor plumbing</li> <li>Activities without dust</li> </ul> | <b>Small-scale, short-duration activities that create minimal dust:</b> <ul style="list-style-type: none"> <li>Includes, but is not limited to:</li> <li>Setting brackets</li> <li>Hanging items</li> <li>Cutting of walls or ceiling where dust migration can be controlled to the immediate work area and the duration is less than one shift</li> </ul> | <b>Work that generates moderate to high level of dust or requires demolition, or removal of any fixed building components or assemblies:</b> <ul style="list-style-type: none"> <li>Removal of floor/wall coverings, ceiling tiles, or casework</li> <li>Cutting walls or ceilings where dust migration can be controlled and the duration is less than one work shift</li> <li>Minor duct work or electrical work above ceilings</li> <li>Major or invasive cabling activities</li> <li>New wall construction</li> </ul> | <b>Major demolition and construction projects:</b> <ul style="list-style-type: none"> <li>Removal of floor/wall coverings, ceiling tiles, and casework</li> <li>Cutting of walls or ceilings where dust migration can be controlled and the duration is less than one shift</li> <li>Minor duct work or electrical work above ceilings</li> <li>Major or invasive cabling activities</li> <li>New wall construction</li> </ul> |
| Low Risk Areas                                                                                                                                                                                                                                                                                                                                                    | Medium Risk Areas                                                                                                                                                                                                                                                                                                                                          | High Risk Areas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Highest Risk Areas                                                                                                                                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>Plant areas</li> <li>Supply areas</li> <li>Office areas not near patient care</li> <li>Areas not intended for patient use</li> </ul>                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Outpatient clinics (<b>not specified in high or highest risk category</b>)</li> <li>Cardiology</li> <li>Dental</li> <li>Echocardiography</li> <li>Physical Therapy</li> <li>Radiology/MRI</li> <li>Respiratory Therapy</li> <li>Outpatient Pharmacy</li> </ul>                                                      | <ul style="list-style-type: none"> <li>Emergency Room/Fast Track</li> <li>Laboratory</li> <li>Maternal Child (Labor &amp; Delivery)</li> <li>Newborn Nursery</li> <li>Outpatient Surgery (Day Surgery)</li> <li>Inpatient Pharmacy (non-compounding)</li> <li>Corridors in high risk areas</li> </ul>                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Operating rooms; including C-Section</li> <li>Central Supply/Sterile Processing Department</li> <li>Intensive Care Units</li> <li>Endoscopy</li> <li>Negative Pressure Isolation Rooms</li> <li>Oncology</li> <li>Areas immune-compromised patients.</li> </ul>                                                                                                                         |

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM)    Infection Prevention and Control (ICRA)    Interim Utility System Measures (IUSM)  
*This form is an evaluation tool and **NOT** intended to replace required project, compliance, or safety documentation.*

| Infection Prevention & Control Requirements    |     |    |     | Identified Risk or Hazard                                                                                         | Req'd      | Additional info.                     |
|------------------------------------------------|-----|----|-----|-------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------|
| <b>Evaluation Required – accredited campus</b> | YES | NO | N/A | Completed Infection Control Risk Assessment (ICRA) – <b>IC signature required for Class III &amp; IV projects</b> | ICRA/Class | Coordinate w/ Infection Control (IC) |
|                                                | YES | NO | N/A | Airborne infection isolation room(s) impacted                                                                     | ICRA       | Coordinate with IC and department    |
|                                                | YES | NO | N/A | Temporary dust-tight construction barriers                                                                        | ICRA       | Coordinate with IC and department    |
|                                                | YES | NO | N/A | Construction waste transport and disposal                                                                         | ICRA       | Walk-off mats, covered carts, etc.   |
|                                                | YES | NO | N/A | Domestic water system be impacted                                                                                 | ICRA       | Reference ANMC procedure #801-07     |
|                                                | YES | NO | N/A | Potential worker exposure to infectious diseases                                                                  | ICRA       | Coordinate with IC and department    |
|                                                | YES | NO | N/A | Immune-compromised patients in area or nearby                                                                     | ICRA       | Coordinate with IC and department    |

| Life Safety Requirements                                                       |     |    |     | Identified Risk or Hazard                                                                                    | Req'd | Additional info.                                                                                          |
|--------------------------------------------------------------------------------|-----|----|-----|--------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------|
| Select YES if any of the risks or hazards apply and proceed with requirements. |     |    |     |                                                                                                              |       |                                                                                                           |
| <b>Evaluation Required – accredited campus</b>                                 | YES | NO | N/A | Completed assessment for Interim Life Safety Measures (ILSM) – <b>ILSM form, signatures required</b>         | ILSM  | Complete ILSM assessment with required signatures.                                                        |
|                                                                                | YES | NO | N/A | Fire alarm or sprinkler system impaired (e.g. out of service, disabled smoke detector(s) or sprinkler(s))    | ILSM  | Evaluate for Fire Watch and complete form as needed                                                       |
|                                                                                | YES | NO | N/A | Alternate egress required - block or obstruct exits (exit signs, >6" corridor projections, evacuation plans) | ILSM  | Review Life Safety Plans, post fire safety response plan for contractor and employees; document education |
|                                                                                | YES | NO | N/A | Temporary smoke-tight construction partitions (e.g. occupied spaces)                                         | ILSM  |                                                                                                           |
|                                                                                | YES | NO | N/A | Fire or smoke barrier penetration (e.g. missing ceiling tiles, doors, walls)                                 | ILSM  | Evaluate for Fire Watch and complete form as needed                                                       |
|                                                                                | YES | NO | N/A | Above ceiling work (i.e. penetrations, cabling, debris, broken tiles)                                        | ILSM  | Evaluate for ILSM                                                                                         |
|                                                                                | YES | NO | N/A | Storage of supplies and waste required (e.g. flammable or combustible materials, debris, dust, waste)        | ILSM  | Evaluate for ILSM                                                                                         |
|                                                                                | YES | NO | N/A | Hot work including fire or spark producing (e.g. welding, grinding metal, soldering)                         | ILSM  | Complete hot work permit, post copy at site where work is taking place                                    |
|                                                                                | YES | NO | N/A | Evaluate for Fire Watch needs for project                                                                    | ILSM  | Evaluate for ILSM                                                                                         |
|                                                                                |     |    |     | Structural fire proofing                                                                                     |       | Evaluate for ILSM                                                                                         |

| Utility Systems Requirements                                                   |     |    |     | Identified Risk or Hazard                          | Req'd         | Additional info.                                                      |
|--------------------------------------------------------------------------------|-----|----|-----|----------------------------------------------------|---------------|-----------------------------------------------------------------------|
| Select YES if any of the risks or hazards apply and proceed with requirements. |     |    |     |                                                    |               |                                                                       |
| <b>Evaluation Required – accredited campus</b>                                 | YES | NO | N/A | Electricity interruptions                          | IUSM          | Evaluate for interim utility measures (IUSM) & required coordination. |
|                                                                                | YES | NO | N/A | Water interruptions                                | IUSM          | Evaluate for IUSM and develop water damage prevention plan.           |
|                                                                                | YES | NO | N/A | Heating Ventilation Air Conditioning interruptions | IUSM          | Evaluate for IUSM & coordination                                      |
|                                                                                | YES | NO | N/A | Medical gas                                        | IUSM          | Evaluate for IUSM & coordination                                      |
|                                                                                | YES | NO | N/A | Pneumatic Tube                                     | IUSM          | Evaluate for IUSM & coordination                                      |
|                                                                                | YES | NO | N/A | Suction                                            | IUSM          | Evaluate for IUSM & coordination                                      |
|                                                                                | YES | NO | N/A | Networking, data systems, or telecommunications    | IUSM          | Evaluate for IUSM & coordination                                      |
|                                                                                | YES | NO | N/A | Cabling – requiring pass through walls or ceilings | IUSM/<br>ILSM | Evaluate for IUSM & <b>ILSM</b>                                       |
|                                                                                | YES | NO | N/A | Other systems – nurse call, overhead paging,       | IUSM          | Evaluate for IUSM & coordination                                      |
|                                                                                |     |    |     | Potential worker exposure to infectious diseases   | IUSM/<br>ICRA | Evaluate for IUSM & <b>ICRA</b>                                       |

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM) Infection Prevention and Control (ICRA) Interim Utility System Measures (IUSM)  
 This form is an evaluation tool and **NOT** intended to replace required project, compliance, or safety documentation.

| Safety Requirements                       | Identified Risk or Hazard                                                      |    |     | Req'd                                                                                                              | Additional info.                                                     |
|-------------------------------------------|--------------------------------------------------------------------------------|----|-----|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
|                                           | Select YES if any of the risks or hazards apply and proceed with requirements. |    |     |                                                                                                                    |                                                                      |
| <b>Evaluation Required – ALL PROJECTS</b> | YES                                                                            | NO | N/A | <b>Communication Plan</b><br>(notification to construction team, impacted areas, and staff)                        | Post required signage and notify impacted staff                      |
|                                           | YES                                                                            | NO | N/A | <b>Noise or vibration in area or nearby</b><br>(special considerations required for NICU/Peds and inpatient areas) | Coordinate with impacted Department(s)                               |
|                                           | YES                                                                            | NO | N/A | <b>Hazardous Materials &amp; Waste</b><br>(considerations for hazards and PPE - odors, fumes, VOC, corrosives)     | Review Safety Data Sheet (SDS) & OSHA requirements, keep SDS on site |
|                                           | YES                                                                            | NO | N/A | <b>Biohazardous Waste</b><br>(considerations for disposal and proper PPE per OSHA 1910.1030)                       | Evaluate for compliance with OSHA 1910.1030 and ANMC Procedures      |
|                                           | YES                                                                            | NO | N/A | <b>Construction Site Safety</b><br>(e.g. falling objects, tripping hazards, fall protection, PPE)                  | Appoint Site Safety Officer                                          |
|                                           | YES                                                                            | NO | N/A | <b>Motorized equipment</b><br>(e.g. forklift, scissors lift, crane)                                                | Evaluate for specific requirements including competency/training     |
|                                           | YES                                                                            | NO | N/A | <b>Relocate occupants</b><br>(e.g. patients, staff, classes, meetings, etc.)                                       | Coordinate with impacted Department(s)                               |
|                                           | YES                                                                            | NO | N/A | <b>Confined Space entry required</b>                                                                               | Evaluate for confined space requirements per OSHA                    |
|                                           | YES                                                                            | NO | N/A | <b>Scaffolding or working on elevated surfaces</b>                                                                 | Evaluate for fall protection requirements per OSHA                   |

| Security Requirements                          | Identified Risk or Hazard                                                      |    |     | Req'd                                                                                                     | Additional info.                                              |
|------------------------------------------------|--------------------------------------------------------------------------------|----|-----|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|                                                | Select YES if any of the risks or hazards apply and proceed with requirements. |    |     |                                                                                                           |                                                               |
| <b>Evaluation Required – accredited campus</b> | YES                                                                            | NO | N/A | <b>Access Control</b><br>(e.g. ID badge access, physical keys, disable security systems)                  |                                                               |
|                                                | YES                                                                            | NO | N/A | <b>High Security Considerations</b><br>(e.g. perimeter, medications, medical records, IT, HR files, etc.) | PM to coordinate with departments, Security, and Control Room |
|                                                | YES                                                                            | NO | N/A | <b>Medication Safety and Security</b><br>(i.e. unsecure doors/walls/ceilings, moving Pyxis, waste)        | PM coordinate with Pharmacy/Dept.                             |
|                                                | YES                                                                            | NO | N/A | <b>Other security measures (explain):</b>                                                                 | PM to coordinate with departments, Security, and Control Room |
|                                                | YES                                                                            | NO | N/A |                                                                                                           |                                                               |

|                                                                                                                                                                                                                                              |                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| <b>Additional Information or Requirements:</b>                                                                                                                                                                                               |                                                    |
| <b>PCRA Signatures</b>                                                                                                                                                                                                                       |                                                    |
| Reviewed and signed by at least the Health Facilities, ANMC Safety, and Infection Control. At a minimum a copy of the signed form should be provided to the Department Director, Security, and affected areas and available at the worksite. |                                                    |
| <b>Facilities/ Projects print name and signature:</b>                                                                                                                                                                                        | <b>Infection Control print name and signature:</b> |
| Date:                                                                                                                                                                                                                                        | Date:                                              |
|                                                                                                                                                                                                                                              | <b>Signature of SCF Safety (as applicable):</b>    |
|                                                                                                                                                                                                                                              | Date:                                              |

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM) Infection Prevention and Control (ICRA) Interim Utility System Measures (IUSM)

*This form is an evaluation tool and NOT intended to replace required project, compliance, or safety documentation.*

| Infection Control Constructions Permit – Project Requirements by Class as designated on the PCRA |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                  | During Project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Upon Completion of Project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Class I                                                                                          | <ul style="list-style-type: none"> <li>Execute work by methods to minimize raising dust from construction operations</li> <li>Immediately replace a ceiling tile displaced for visual inspection</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Clean work area upon completion of task</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Class II                                                                                         | <ul style="list-style-type: none"> <li>Provide active means to prevent airborne dust from dispersing into the atmosphere</li> <li>Water mist work surfaces to control dust while cutting</li> <li>Seal unused doors with duct tape</li> <li>Block off and seal air vents</li> <li>Place dust mat at entrance and exit of work area</li> <li>Remove or isolate HVAC system in areas where work is being performed</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Wipe work surfaces with cleaner/disinfectant</li> <li>Contain construction waste before transport in tightly covered containers</li> <li>Wet mop and/or vacuum with high-efficiency particulate air (HEPA) filtered vacuum before leaving work area</li> <li>Upon completion, restore HVAC system where work was performed</li> </ul>                                                                                                                                                                                                                                                                                                                             |
| Class III                                                                                        | <ul style="list-style-type: none"> <li>Remove or isolate HVAC system in area where work is being done to prevent contamination of duct system</li> <li>Complete all critical barriers, e.g., sheetrock, plywood, plastic to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.</li> <li>Maintain negative air pressure within work site utilizing HEPA-equipped air filtration units</li> <li>Contain construction waste before transport in tightly covered containers</li> <li>Cover transport receptacles or carts. Tape covering unless lid is solid.</li> </ul>                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Do not remove barriers from work area until completed project is inspected by the Infection Control or Safety Officer or representative and they are thoroughly cleaned by EVS staff.</li> <li>Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction.</li> <li>Vacuum work area with HEPA-filtered vacuums.</li> <li>Wet mop area with cleaner/disinfectant.</li> <li>Upon completion, restore HVAC system where work was performed.</li> </ul>                                                                                                                                                                |
| Class IV                                                                                         | <ul style="list-style-type: none"> <li>Isolate HVAC system in area where work is being done to prevent contamination of duct system.</li> <li>Complete all critical barriers, e.g. sheetrock, plywood, plastic to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.</li> <li>Maintain negative air pressure within work site utilizing HEPA-equipped air filtration units</li> <li>Seal holes, pipes, conduits, and punctures.</li> <li>Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or have them wear cloth or paper coveralls that are removed each time they leave work site.</li> <li>All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area.</li> </ul> | <ul style="list-style-type: none"> <li>Do not remove barriers from work area until completed project is inspected by the Infection Control or Safety Officer or representative and they are thoroughly cleaned by EVS staff.</li> <li>Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction.</li> <li>Contain construction waste before transport in tightly covered containers.</li> <li>Cover transport receptacles or carts. Tape covering unless solid.</li> <li>Vacuum work area with HEPA-filtered vacuums.</li> <li>Wet mop area with cleaner/disinfectant.</li> <li>Upon completion, restore HVAC system where work was performed.</li> </ul> |

|                                                                                                                         |                                                       |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>Additional Information or Requirements (additional measures being taken to mitigate infection control measures):</b> |                                                       |
|                                                                                                                         |                                                       |
| <b>Infection Control print name and signature:</b>                                                                      | <b>Facilities/ Projects print name and signature:</b> |
| Date:                                                                                                                   | Date:                                                 |

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM)    Infection Prevention and Control (ICRA)    Interim Utility System Measures (IUSM)  
*This form is an evaluation tool and **NOT** intended to replace required project, compliance, or safety documentation.*

| <b>Instructions:</b> PM to ensure the below answers are provided for each ILSM. For any “YES” answers, indicate the duration of the measure and review the, the “Implemented ILSM” column details the minimum required ILSM. Unless otherwise noted, the PM is responsible to implement all required ILSMs. Blank rows are provided to allow additional ILSMs as required for the safety of patients and staff and the preservation of the facility. <b>Include drawings to show the affected area and where specific ILSMs will be implemented.</b> PM to obtain proper review and approvals prior to beginning work. |                                                                                                                                                                                             |     |    |                                 |                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ILSM Evaluation                                                                                                                                                                             |     |    | Duration of ILSM dates/phase(s) | Implemented ILSM                                                                                                                                                                                                                                                                                                                                                      |
| 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will a fire alarm system be out of service for more than 4 hours in a 24-hour period?                                                                                                       | YES | NO |                                 | Director of Facilities, or designee, will notify the fire department and other emergency response services. PM to initiate Fire Watch and document according to fire watch procedure and forms. To the extent possible the detectors will be disabled and covered during work hours but enabled during non-work hours as fully functional.                            |
| 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will the fire sprinkler system be out of service for more than 10 hours in a 24-hour period?                                                                                                | YES | NO |                                 | Director of Facilities, or designee, will notify the fire department and other emergency response services. PM to initiate Fire Watch and document according to fire watch procedure and forms.                                                                                                                                                                       |
| 3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will exit accesses, exits, or exit discharges be blocked?                                                                                                                                   | YES | NO |                                 | Post signs identifying alternate exits for impacted personnel. Impacted personnel will follow procedures for ILSM evacuation and emergency response. Remaining means of egress shall be maintained at all times and inspected at least daily using the PCRA Inspection Checklist which will be kept in the project folder and at the work site.                       |
| 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will an exit access, exit, or exit discharge be obstructed?                                                                                                                                 | YES | NO |                                 | Remaining means of egress shall be maintained at all times and inspected at least daily using the PCRA Inspection Checklist which will be kept in the onsite project folder. Considerations should include patient and support equipment movement                                                                                                                     |
| 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will fire alarm and detection systems be impaired in an unoccupied room?                                                                                                                    | YES | NO |                                 | Temporary fire alarm/detection systems shall be provided in the affected space and must be approved by the Director of Facilities or designee. Temporary systems will be tested and inspected monthly. Affected/nearby staff will be trained to recognize and respond to an alarm from the temporary fire system. Documentation kept with the onsite project folder.) |
| 6.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will hot work be required?                                                                                                                                                                  | YES | NO |                                 | The Director of Facilities or designee will provide an additional portable fire extinguisher that will be kept in the construction area. Construction personnel will be provided training on the fire extinguishing equipment. Complete hot work permit. Initiate fire watch. Document according to fire watch procedure.                                             |
| 7.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will the work area contain or be used to store excessive flammable material?                                                                                                                | YES | NO |                                 | The Director of Facilities or designee will provide an additional portable fire extinguisher that will be kept in the area. Affected personnel will be provided training on the fire extinguishing equipment.                                                                                                                                                         |
| 8.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Will the existing smoke compartment boundary, corridor construction, or other fire barriers be impaired/ degraded and the duration of the project be less than or equal to 5 calendar days? | YES | NO |                                 | <b>Business</b> Occupancy:                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                             | YES | NO |                                 | <b>Ambulatory</b> Occupancy:                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                             | YES | NO |                                 | <b>Other</b> Occupancy:                                                                                                                                                                                                                                                                                                                                               |

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM)    Infection Prevention and Control (ICRA)    Interim Utility System Measures (IUSM)

*This form is an evaluation tool and **NOT** intended to replace required project, compliance, or safety documentation.*

**Instructions:** PM to ensure the below answers are provided for each ILSM. For any "YES" answers, indicate the duration of the measure and review the, the "Implemented ILSM" column details the minimum required ILSM. Unless otherwise noted, the PM is responsible to implement all required ILSMs. Blank rows are provided to allow additional ILSMs as required for the safety of patients and staff and the preservation of the facility. **Include drawings to show the affected area and where specific ILSMs will be implemented.** PM to obtain proper review and approvals prior to beginning work.

| Measure | ILSM Evaluation                                                                                                                                                                   | YES | NO | Duration of ILSM dates/phase(s) | Implemented ILSM |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---------------------------------|------------------|
| 9.      | Will the existing smoke compartment boundary, corridor construction, or other fire barriers be impaired/degraded and the duration of the project be greater than 5 calendar days? | YES | NO |                                 |                  |
| 10.     | Will the existing ceiling or wall smoke barriers be impaired/degraded?                                                                                                            | YES | NO |                                 |                  |
| 11.     | Will construction activity include excavations, hazardous storage areas, or site conditions that have potential to significantly impact life safety of patients or staff?         | YES | NO |                                 |                  |
| 12.     | Will activity significantly increase the flammable and combustible fire loading in non-hazardous spaces?                                                                          | YES | NO |                                 |                  |
| 13.     | Additional ILSM Considerations (as needed):                                                                                                                                       | YES | NO |                                 |                  |
| 14.     | Additional ILSM Considerations (as needed):                                                                                                                                       | YES | NO |                                 |                  |

|                                                |                                                                      |
|------------------------------------------------|----------------------------------------------------------------------|
| <b>Additional Information or Requirements:</b> |                                                                      |
|                                                |                                                                      |
| <b>Safety print name and signature:</b>        | <b>Facilities/ Projects Representative print name and signature:</b> |
| Date:                                          | Date:                                                                |

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM) Infection Prevention and Control (ICRA) Interim Utility System Measures (IUSM)  
*This form is an evaluation tool and **NOT** intended to replace required project, compliance, or safety documentation.*

**Instructions:** Understanding that fire watch planning and implementation will require multiple steps, SCF Project Managers (PM) will coordinate at least 48 hours in advance when possible. A copy of the signed form(s) will be kept in the project file and made available upon request.

Signed and completed fire watch checklist must be routed to Safety ([scfsafety@scf.cc](mailto:scfsafety@scf.cc)) and the Facilities Project Manager.

### Section 1: Fire Watch Requirements - Completed by SCF Project Manager – all fields required

|                                                                                   |                                                                                                                                                                                                                                                     |                 |                                                       |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------|
| <b>Type of work</b><br>(check all that apply):                                    | <input type="checkbox"/> Hot Work <input type="checkbox"/> Fire Alarm System Impairment <input type="checkbox"/> Sprinkler System Impairment<br><input type="checkbox"/> Smoke or Fire Barrier Impairment <input type="checkbox"/> OTHER (explain): |                 |                                                       |
| <b>Building/ floor/ department/ room:</b>                                         |                                                                                                                                                                                                                                                     |                 |                                                       |
| <b>Describe specific location and expected fire watch coverage:</b>               | -                                                                                                                                                                                                                                                   |                 |                                                       |
| <b>Project Manager Name with phone #, and email:</b>                              | <b>Name:</b>                                                                                                                                                                                                                                        | <b>Phone #:</b> | <b>Email:</b>                                         |
| <b>Expected Dates</b> for planning and scheduling (estimated start and end date): | <b>Date From:</b>                                                                                                                                                                                                                                   | <b>Date To:</b> | <b>Frequency/ interval (30 min, 60 min, 120 min):</b> |

### Section 2: Fire Watch Project Information

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>1.</b> | Project Manager will provide ILSM and fire watch checklist as handoff to SCF Security.                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Direct all questions to Project Manager                                         |
| <b>2.</b> | SCF Security will: <ul style="list-style-type: none"> <li>- Review ILSM, fire watch requirements, and documents.</li> <li>- Complete fire watch duties according to the frequency required and until notified work is complete.</li> <li>- Document fire watch checks on the attached log and submit to SCF Safety.</li> <li>- Know location of nearest fire extinguisher and alarm pull station in the fire watch area.</li> <li>- Activate Code Red emergency procedures immediately if smoke or fire is suspected or confirmed.</li> </ul> | Direct all questions to Supervisor, Project Manager, and/or Facilities Manager. |

Printed Name and Signature of Project Manager (or designee): \_\_\_\_\_

Date: \_\_\_\_\_

**Forward signed copy to: SCF Safety ([scfsafety@scf.cc](mailto:scfsafety@scf.cc))**

*Floorplan and additional information as needed:*

## ATTACHMENT A: PRECONSTRUCTION RISK ASSESSMENT CHECKLIST

Interim Life Safety Measures (ILSM) Infection Prevention and Control (ICRA) Interim Utility System Measures (IUSM)  
*This form is an evaluation tool and **NOT** intended to replace required project, compliance, or safety documentation.*

| <b>Instructions:</b> PM to ensure the below answers are provided for each utility system. For any “YES” answers, indicate the duration of the measure and review the “Implemented IUSM” column details for the minimum requirements. Unless otherwise noted, the PM is responsible to implement all required IUSMs. Blank rows are provided to allow additional IUSMs as required for the safety of patients and staff and the preservation of the facility. PM to obtain proper review and approvals prior to beginning work. |                  |     |    |                                 |                                                                                                                                                                                                                                                |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----|----|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Interim Utility System Measures (IUSM)</b><br>All permits, risk assessments, mitigating measures and procedures shall be in place before work begins.                                                                                                                                                                                                                                                                                                                                                                       |                  |     |    |                                 |                                                                                                                                                                                                                                                |  |
| Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | IUSM Evaluation  |     |    | Duration of IUSM dates/phase(s) | Implemented IUSM                                                                                                                                                                                                                               |  |
| 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Domestic Water   | YES | NO |                                 | Complete <b>ICRA &amp; ILSM</b> . Follow Lock Out Tag Out procedures. Review and prepare emergency response plan specific to the work taking place. Coordinate with impacted department(s).<br>Contact information for person performing work: |  |
| 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Electrical       | YES | NO |                                 | Follow Lock Out Tag Out procedures. Review and prepare emergency response plan specific to the work taking place. Coordinate with impacted department(s).<br>Contact information for person performing work:                                   |  |
| 3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Emergency Power  | YES | NO |                                 | Follow Lock Out Tag Out procedures. Review and prepare emergency response plan specific to the work taking place. Coordinate with impacted department(s).<br>Contact information for person performing work:                                   |  |
| 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Fire Detection   | YES | NO |                                 | Complete <b>ILSM</b> and evaluate for Fire Watch<br>Contact information for person performing work:                                                                                                                                            |  |
| 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Fire Suppression | YES | NO |                                 | Complete <b>ILSM</b> and evaluate for Fire Watch<br>Contact <u>information</u> for person performing work:                                                                                                                                     |  |
| 6.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HVAC             | YES | NO |                                 | Follow Lock Out Tag Out procedures. Review and prepare emergency response plan specific to the work taking place. Coordinate with impacted department(s).<br>Contact information for person performing work:                                   |  |
| 7.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Medical Gas      | YES | NO |                                 | Follow Lock Out Tag Out procedures. Review and prepare emergency response plan specific to the work taking place. Coordinate with impacted department(s).<br>Contact information for person performing work:                                   |  |
| 8.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pneumatic Tube   | YES | NO |                                 | Follow Lock Out Tag Out procedures. Review and prepare emergency response plan specific to the work taking place. Coordinate with impacted department(s).<br>Contact information for person performing work:                                   |  |
| 9.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Suction          | YES | NO |                                 | Follow Lock Out Tag Out procedures. Review and prepare emergency response plan specific to the work taking place. Coordinate with impacted department(s).<br>Contact information for person performing work:                                   |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Other (explain): | YES | NO |                                 | Explain:<br>Contact information for person performing work:                                                                                                                                                                                    |  |
| Completed by:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |     |    |                                 | Date:                                                                                                                                                                                                                                          |  |

Forward IUSM copy to: Safety ([scfsafety@scf.cc](mailto:scfsafety@scf.cc))

## **SECTION 01 41 00 REGULATORY REQUIREMENTS**

### **PART 1 – GENERAL**

#### **1.01 SUMMARY OF REFERENCE STANDARDS**

- A. Regulatory requirements applicable to this project are the following:
- B. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines current edition.
- C. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- D. 29 CFR 1910 - Occupational Safety and Health Standards Current Edition.
- E. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments, Supplements, and codes referenced herein.
- F. NFPA 99 – Health Care Code
- G. FGI Guidelines – 2022 Facility Guidelines Institute for Design and Construction.
- H. IFC – International Fire Code – Current guidelines adopted by the State of Alaska.
- I. ICC (IBC) - International Building Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

#### **1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 005213 – Agreement Form.
- C. Section 014000 - Quality Requirements.

### **PART 2 - PRODUCTS - NOT USED**

### **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 42 00**  
**REFERENCE STANDARDS AND DEFINITIONS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 005213 – Agreement Form.
- C. Construction Drawings, Technical Specifications, Architect’s Supplemental Instructions, Requests for Information, and Addenda.

**1.02 SECTION INCLUDES**

- A. Use of references in Drawings and Specifications, including requirements for copies of reference standards at Project site.
- B. Definitions and terms used in Specifications and Drawings, including abbreviations, acronyms, names, and terms which may be used in Specifications.

**1.03 DEFINITIONS**

- A. “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.
- B. “Directed”: A command or instruction by Architect. Other terms including “requested,” “authorized,” “selected,” “approved,” “required,” and “permitted” have the same meaning as “directed.”
- C. “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.”
- D. “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.
- E. “Furnish”: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- F. “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.

- G. "Provide": Furnish and install, complete and ready for the intended use.
- H. "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.

#### **1.04 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. Comply with standard dates referenced in the International Building Code (IBC).
- C. Copies of Standards: Each entity engaged in construction on Project shall be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.
- D. Abbreviations and Acronyms for 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 specification section.

#### **1.05 USE OF REFERENCES**

- A. References: The Drawings and Specifications contain references to various standards, standard specifications, codes, practices and requirements for products, execution, tests and inspections. These reference standards are published and issued by the agencies, associations, organizations and societies listed in this Section or identified in individual product specification Sections.
  - 1. Wherever term "Agency" occurs in Standard Specifications, it shall be understood to mean the term used for Southcentral Foundation for purposes of the Contract.

2. Wherever term "Engineer" occurs in Standard Specifications, it shall be understood to mean Architect or other responsible design professional for purposes of the Contract.
  3. Where reference is made to Standard Details, such reference shall be to the Standard Details accompanying the Standard Specifications.
- B. Relationship to Drawings and Specifications: Such references are incorporated into and made a part of the Drawings and Specifications to the extent applicable.
- C. Referenced Grades Classes and Types: Where an alternative or optional grade, class or type of product or execution is included in a reference but is not identified on the Drawings or in the Specifications, provide the highest, best, and greatest of the alternatives or options for the intended use and prevailing conditions.
- D. Copies of Reference Standards:
1. Reference standards are not furnished with the Drawings and Specifications because it is presumed that the Contractor, subcontractors, manufacturers, suppliers, trades, and crafts are familiar with these generally recognized standards of the construction industry.
  2. Copies of reference standards may be obtained from publishing sources.
- E. Jobsite Copies:
1. Contractor shall obtain and maintain at the Project site copies of reference standards identified on the Drawings and in the Specifications in order to properly execute the Work.
  2. At a minimum, the following shall be readily available, as applicable to the Work:
    - a. State Building Codes: As referenced in Section 01 41 00 - Regulatory Requirements.
    - b. Safety Codes: Occupational Safety and Health Act (OSHA) regulations and local and state Safety requirements and regulations.
    - c. General Standards:
      - 1) Underwriters Laboratories, Inc. (UL) Building Products Listing.
      - 2) Factory Mutual Research Organization (FM) Approval Guide.
      - 3) American Society for Testing and Materials (ASTM) Standards in Building Codes.
      - 4) American National Standards Institute (ANSI) standards.
    - d. Fire and Life Safety Standards: All referenced standards pertaining to fire rated construction and exiting.
    - e. Common Materials Standards: American Concrete Institute (ACI), American Institute of Steel Construction (AISC), American Welding Society

(AWS), Gypsum Association (GA), National Fire Protection Association (NFPA), and Tile Council of America (TCA) standards to the extent referenced within the Contract Specifications.

- f. Product Listings: Approval documentation, indicating approval of authorities having jurisdiction for use of product within the applicable jurisdiction.

F. Edition Date of References:

1. When an edition or effective date of a reference is not given, it shall be understood to be the current edition enforced by the Authorities Having Jurisdiction as of the date of the Agreement, Contract Drawings and Contract Specifications.
2. All amendments, changes, errata, and supplements as of the effective date shall be included.

G. ASTM and ANSI References: Specifications and Standards of the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI) are identified in the Drawings and Specifications by abbreviation and number only and may not be further identified by title, date, revision, or amendment. It is presumed that the Contractor is familiar with and has access to these nationally- and industry-recognized specifications and standards.

## 1.06 DEFINITIONS OF TERMS

A. Basic Contract Definitions: Words and terms governing the Work are defined in the Contract General and Supplementary Conditions, as referenced in the Agreement.

B. Words and Terms Used on Drawings and in Specifications: Additional words and terms may be used in the Drawings and Specifications and are defined as follows:

1. "Applicable:" As appropriate for the particular condition, circumstance or situation.
2. "Approve(d):" Approval action shall be limited to the duties and responsibilities of the party giving approval, as stated in the Conditions of the Contract. Approvals shall be valid only if obtained in writing and shall not apply to matters regarding the means, methods, techniques, sequences and procedures of construction. Approval shall not relieve the Contractor from responsibility to fulfill Contract requirements.
3. "And/or:" If used, shall mean that either or both of the items so joined are required.
4. "Directed:" Limited to duties and responsibilities of the Southcentral Foundation's Representative or Architect as stated in the Contract General Conditions, meaning "as instructed by SCF's Representative or Architect, in

writing, regarding matters other than the means, methods, techniques, sequences and procedures of construction. Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by SCF's Representative or Architect", "requested by the SCF's Representative or Architect", and similar phrases. No implied meaning shall be interpreted to extend the responsibility of the SCF's Representative, Architect or other responsible design professional into the Contractor's supervision of construction.

5. "Equal" or "Equivalent:" As determined by Architect or other responsible design professional as being equivalent, considering such attributes as durability, finish, function, suitability, quality, utility, performance, and aesthetic features.
6. "Furnish:" Means "supply and deliver, to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
7. "Indicated:" The term indicated refers to graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as "shown", "noted", "scheduled", and "specified" are used to help the reader locate the reference. There is no limitation on location.
8. "Install:" Describes operations at the Project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
9. "Installer:"
  - a. "Installer" refers to the Contractor or an entity engaged by the Contractor, such as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - b. "Experienced Installer:" The term "experienced," when used with "installer" means having a minimum of 5 previous Projects similar in size to this Project, knowing the precautions necessary to perform the Work, and being familiar with requirements of authorities having jurisdiction over the Work.
10. "Jobsite:" Same as site, Area of Work, or other similar term referencing the physical property where the work is to be carried out upon.
11. "Necessary:" With due considerations of the conditions of the Project and as determined in the professional judgment of the Architect or other responsible design professional as being necessary for performance of the Work in conformance with the requirements of the Contract Documents, but excluding matters regarding the means, methods, techniques, sequences, and procedures of construction.

12. "Noted:" Same as "Indicated."
13. "Per:" Same as "in accordance with," "according to" or "in compliance with."
14. "Products:" Material, system or equipment.
15. "Project Site:" Same as "Site." See definition of "Jobsite" above.
16. "Proper:" As determined by the Architect or other responsible design professional as being proper for the Work, excluding matters regarding the means, methods, techniques, sequences, and procedures of construction, which are solely the Contractor's responsibility to determine.
17. "Provide:" Means "furnish and install, complete and ready for the intended use."
18. "Regulation:" Includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, as well as and rules, conventions and agreements within the construction industry that control performance of the Work.
19. "Required:" Necessary for performance of the Work in conformance with the requirements of the Contract Documents, excluding matters regarding the means, methods, techniques, sequences and procedures of construction, such as:
  - a. Regulatory requirements of authorities having jurisdiction.
  - b. Requirements of referenced standards.
  - c. Requirements generally recognized as accepted construction practices of the locale.
  - d. Notes, schedules and graphic representations on the Drawings.
  - e. Requirements specified or referenced in the Specifications.
  - f. Duties and responsibilities stated in the Bidding and Contract Requirements.
20. "Scheduled:" Same as "Indicated."
21. "Selected:" As selected by SCF's Representative, Architect or other responsible design professional from the full selection of the manufacturer's products, unless specifically limited in the Contract Documents to a particular quality, color, texture or price range.
22. "Shown:" Same as "Indicated."
23. "Site:" Same as "Site of the Work" or "Project Site;" the area or areas or spaces occupied by the Project and including adjacent areas and other related areas occupied or used by the Contractor for construction activities, either exclusively

or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.

- 24. "Supply:" See "Furnish."
- 25. "Testing Laboratory" or "Testing Laboratories:" An independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests. Refer to Section 014000 – Quality Requirements.
- 26. "Testing and Inspection Agency:" Same as "Testing Laboratory."

### **1.07 ABBREVIATIONS, ACRONYMS, NAMES AND TERMS, GENERAL**

- A. Abbreviations, Acronyms, Names and Terms: Where acronyms, abbreviations, names, and terms are used in the Drawings, Specifications, or other Contract Documents, they shall mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable.
- B. Abbreviations, General: The following are commonly used abbreviations which may be found on the Drawings or in the Specifications. Refer to the Drawings for additional abbreviations or acronyms. This is a partial list. If there is any discrepancy or confusion, notify the University in writing by RFI:

|            |                                                                 |
|------------|-----------------------------------------------------------------|
| AC or ac   | Alternating current (or air conditioning, depending on context) |
| AMP or amp | Ampere                                                          |
| C          | Celcius                                                         |
| CFM or cfm | Cubic feet per minute                                           |
| CM or cm   | Centimeter                                                      |
| CY or cy   | Cubic Yard                                                      |
| DC or dc   | Direct Current                                                  |
| DEG or deg | Degrees                                                         |
| F          | Fahrenheit                                                      |
| FPM or fpm | Feet per minute                                                 |
| FPS or fps | Feet per second                                                 |
| FT or ft   | Foot or feet                                                    |
| Gal or gal | Gallons                                                         |
| GPM or gmp | Gallons per minute                                              |
| IN or in   | Inches                                                          |
| Kip or kip | Thousand Pounds                                                 |
| KSI or ksi | Thousand pounds per square inch                                 |
| KSF or ksf | Thousand pounds per square foot                                 |
| KV or kv   | Kilovolt                                                        |

|            |                        |
|------------|------------------------|
| KVA or kva | Kilovolt amperes       |
| KWH or kwh | Kilowatt hour          |
| LBF or lbf | Pounds force           |
| LF or lf   | Lineal foot            |
| M or m     | Meter                  |
| MPH or mph | Miles per hour         |
| MM or mm   | Millimeter             |
| PCF or pcf | Pounds per cubic foot  |
| PSF or psf | Pounds per square foot |
| PSI or psi | Pounds per square inch |
| PSY or psy | Pounds per square yard |
| SF or sf   | Square foot            |
| Sy or sy   | Square yard            |
| V or v     | Volts                  |

- C. Abbreviations and Acronyms for 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 Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- D. Undefined Abbreviations, Acronyms, Names and Terms: Words and terms not otherwise specifically defined in this Section, in the Instructions to Bidders, in the Contract General Conditions, on the Drawings or elsewhere in the Specifications, shall be as customarily defined by trade or industry practice, by reference standard and by specialty dictionaries such as the following:
1. Dictionary of Architecture and Construction, Fourth Edition (Cyril M. Harris, McGraw-Hill Book Company, 2005).
  2. Encyclopedia of Associations, published by Gale Research Co., commonly available in public libraries.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 50 00**  
**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 01 Specifications apply to this section.
- B. Document 00 52 13 – Agreement Form.

**1.02 SUBMITTALS**

- A. Submit schedule of proposed connection and termination dates 15 days before implementation.
- B. Submit site plan showing temporary facilities, utility connections, and construction personnel parking areas.

**1.03 QUALITY ASSURANCE**

- A. Arrange and pay for Authorities Having Jurisdiction to approve each temporary utility before use. Obtain necessary certifications and permits.

**1.04 PROJECT CONDITIONS**

- A. Assume responsibility for operation, maintenance, and protection.

**PART 2 - PRODUCTS**

**2.01 FIRE EXTINGUISHERS**

- A. Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

**2.02 TEMPORARY ELECTRICITY**

- A. If required, Contractor shall provide and shall pay for power service required from utility source.
- B. Provide power outlets for construction operations, with branch wiring and distribution boxes. Provide flexible power cords as required.
- C. Provide main service disconnect and overcurrent protection at convenient location.

## **2.03 TEMPORARY LIGHTING**

- A. Provide and maintain lighting for constructions operations.
- B. Permanent building lighting may be utilized during construction only with written pre-approval from Owner.

## **2.04 TEMPORARY HEAT**

- A. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operations. Use equipment that will not have harmful effect on completed installation.
  - 1. Use permanent heating system, or provide vented, self-contained, liquid-gas, propane-gas, or fuel-oil heaters with individual space thermostatic control.
  - 2. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 3. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - 4. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated, and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.
- B. Maintain minimum ambient temperature of 50 degrees F. in areas where construction is in progress, unless indicated otherwise in Specifications.

## **2.05 HUMIDITY CONTROL**

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

## **2.06 TELEPHONE SERVICE**

- A. Provide, maintain, and pay for mobile telephone service to field supervisor(s) at time of project mobilization through project completion.

## **2.07 COMPUTER AND COPY SERVICE**

- A. Provide, maintain, and pay for computer service to field office at time of project mobilization.
- B. Provide, maintain, and pay for 8-1/2 x 11-inch copy machine in field

office.

## **2.08 TEMPORARY WATER SERVICE**

- A. Existing water service may be used. Owner will pay cost of water used. Exercise measures to conserve water.
- B. If Owner provided water is not available or adequate, provide, maintain, and pay for suitable quality water required for construction.
  - 1. Extend branch piping with outlets located so water is available by hoses with threaded connections.
  - 2. Sterilize temporary water piping prior to use.

## **2.09 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain self-contained facilities and enclosures including toilets, wash facilities and drinking water, for use of construction persons.

## **2.10 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect adjacent properties from damage from construction operations. Coordinate all requirements for infection control with the Owner.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

## **2.11 FIELD OFFICES AND SHEDS**

- A. Office: Suitable for Contractor field management and tool storage, weather-tight, with lighting, electrical outlets, heating equipment and equipped with sturdy furniture, drawing rack, and drawing display table.
- B. Provide space for project meetings, with table and chairs necessary to accommodate all attendees.
- C. Locate offices and sheds a minimum distance of 20 feet from existing structures unless Owner approves in writing.
- D. Provide fire resistant rated walls where closer than 30 feet to other permanent buildings or interior property lines. Not required at public right of way.

## **PART 3 - EXECUTION**

### **3.01 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.

### **3.02 WEATHER CONTROL**

- A. Provide temporary insulated weather-tight closure of exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual Specifications Sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

### **3.03 PROTECTION OF INSTALLED WORK**

- A. Protect installed Work and provide special protection where specified in individual Specifications Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to minimize damage.
- C. Provide protection covering at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

### **3.04 SECURITY**

- A. Provide security and facilities to protect Work from unauthorized entry, vandalism, or theft.
- B. Coordinate with Owner's security program.

### **3.05 PARKING**

- A. Coordinate with Owner to arrange for parking areas to accommodate

construction personnel.

- B. When site space is not adequate, provide additional off-site parking.
- C. Designate one parking space onsite for the Owner.

### **3.06 PROGRESS CLEANING**

- A. Maintain work and storage area free of waste materials, debris, and rubbish. Maintain site in a clean and orderly conditions to maintain site passage and exits, and to avoid fire hazard.
- B. Provide waste-collection containers in sizes adequate to handle construction waste.
- C. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the spaces.
- D. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- E. Remove waste materials, debris, and rubbish from site periodically at least once weekly and dispose off-site.
- F. Open free-fall chutes not permitted. Terminate closed chutes into appropriate containers with lids.

### **3.07 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion Inspection.
- B. Remove underground installations to a minimum depth of two feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition.

**END OF SECTION**

**SECTION 01 60 00  
PRODUCT REQUIREMENTS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 00 52 13 – Agreement Form
- C. Section 01 40 00 - Quality Requirements
- D. Section 01 70 00 – Execution and Closeout Requirements

**1.02 DEFINITIONS**

- A. Products: New material, machinery, components, equipment, fixtures, and systems forming the Work. Products do not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.
- B. Products may also include existing materials or components required for reuse where specified.
  - 1. Provide interchangeable components of the same manufacturer, for similar use products.
- C. Substitutions: Changes in products from those required by the Contract documents, proposed by the Contractor.
  - 1. Substitutions will not be accepted during Bidding.

**1.04 PRODUCT SUBMITTALS**

- A. Product List: Submit a list, showing proposed products. Include manufacturer's name and proprietary product names for each product.
  - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  - 2. Form: Tabulate information for each product under the following column heading:
    - a. Specification Section number and title.
    - b. Generic name used in the Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.

- f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
    - h. Identification of items that require early submittal approval for scheduled delivery date.
  - 3. Initial Submittal: Within 30 days after notice to proceed, submit initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
    - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
  - 4. Completed List: Within 60 calendar days after notice to proceed to construction, submit product list. Include a written explanation for any omissions of data and for variations from Contract requirements.
  - 5. Architect's Action: Architect will respond in writing to Contractor within 7 calendar days, excluding SCF recognized holidays, of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- B. Substitution Requests: Submit one request for each proposed substitution. Include Specification Section number and title and Drawing numbers and titles.
- 1. Documentation: Show compliance with requirements for substitutions.
  - 2. Show history of product in Alaska.
- C. Comparable Product Requests: Submit for 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.
- D. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt.

## **1.05 QUALITY ASSURANCE**

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

## **1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle products using means and methods that will

prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

**B. Delivery and Handling:**

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure 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. Store cementitious products and materials on elevated platforms.
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 freezing.

## **1.07 PRODUCT WARRANTIES**

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract.

## **PART 2 – PRODUCTS**

### **1.01 PRODUCT SELECTION PROCEDURES**

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that 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. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
3. Where products are accompanied by the term “as selected,” Architect will make selection.
4. Where products are accompanied by the term “match,” sample to be matched is Architect’s or existing construction.
5. Descriptive, performance, and reference standard requirements in the Specifications establish “salient characteristics” of products.
6. Or Equal: Where products are specified by name and accompanied by the term “or equal” or “or approved,” comply with product specification.

B. Product Selection Procedures:

1. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements.
2. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or with an unnamed manufacturer, that complies with requirements.
3. Visual Selection Specification: Where Specifications include the phrase “as selected from manufacturer’s colors, patterns, textures” or a similar phrase, select a product that complies with specified requirements.
  - a. Standard Range: Where Specifications include the phrase “standard range of colors, patterns, textures” or similar phrase, Architect will select color pattern, density, or texture from manufacturer’s product line that does not include premium items.
  - b. Full Range: Where Specifications include the phrase “full range of colors, patterns, textures” or similar phrase, Architect will select color, pattern, density, or texture from manufacturer’s product line that includes both standard and premium items.

## 1.02 PRODUCT SUBSTITUTIONS

- A. See Specification Section 01 25 00 – Substitution Procedures.

## PART 3 - EXECUTION - NOT USED

**END OF SECTION**

**SECTION 01 70 00  
EXECUTION AND CLOSEOUT REQUIREMENTS**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Cutting and patching.
- C. Surveying for laying out the work.
- D. Cleaning and protection.
- E. Starting of systems and equipment.
- F. Demonstration and instruction of Owner personnel.
- G. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- H. General requirements for maintenance service.
- I. Project record documents.
- J. Operation and maintenance data.
- K. Warranties and bonds.

**1.02 RELATED REQUIREMENTS**

- A. Drawings and General Provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 005213 – Agreement Form
- C. Section 011000 – Summary of Work: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- D. Section 012000 – Price and Payment Procedures.
- E. Section 013000 - Administrative Requirements: Submittals procedures.
- F. Section 014000 - Quality Requirements: Testing and inspection procedures.
- G. Section 015000 - Temporary Facilities and Controls: Temporary exterior enclosures.
- H. Section 015000 - Temporary Facilities and Controls: Temporary interior partitions.
- I. Section 017419 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.
- J. Section 017610 - Temporary Protective Coverings: Materials for protection of installed work.

- K. Section 017900 - Demonstration and Training: Demonstration of products and systems to be commissioned where indicated in specific specification sections.
- L. Section 018100 – Commissioning.
- M. Section 078400 - Firestopping.
- N. Individual Product Sections: Specific requirements for operation and maintenance data.
- O. Individual Product Sections: Warranties required for specific products or Work.

### **1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
  - 1. On request, submit documentation verifying accuracy of survey work.
  - 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
  - 3. Submit surveys and survey logs for the project record.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of Owner or separate Contractor.
  - 6. Include in request:
    - a. Identification of Project.
    - b. Location and description of affected work.
    - c. Necessity for cutting or alteration.
    - d. Description of proposed work and products to be used.
    - e. Effect on work of Owner or separate Contractor.
    - f. Written permission of affected separate Contractor.
    - g. Date and time work will be executed.
- D. Project Record Documents: Submit electronic documents to Architect with claim for final Application for Payment.
- E. Operation and Maintenance Data:
  - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed electronic documents within 10 calendar days, excluding SCF recognized holidays, after acceptance.
  - 2. Submit one electronic copy of completed documents 15 calendar days, excluding SCF recognized holidays, prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect

comments. Revise content of all document sets as required prior to final submission.

3. Submit 1 hard copy and 1 electronic set of revised final documents in final form within 10 calendar days, excluding SCF recognized holidays, after final inspection.

F. Warranties and Bonds:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit electronic documents within 10 calendar days, excluding SCF recognized holidays, after acceptance.
2. Make other submittals within 10 calendar days, excluding SCF recognized holidays, after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 calendar days, excluding SCF recognized holidays, after acceptance, listing the date of acceptance as the beginning of the warranty period.
4. Submit 1 final hard copy and 1 electronic copy of all warranties and bonds for entire project, prior to final Application for Payment.

#### **1.04 QUALIFICATIONS**

- A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect and Owner. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities.

#### **1.05 PROJECT CONDITIONS**

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- D. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

## **1.06 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

## **1.07 CLOSEOUT PROCEDURES**

- A. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion and including the following:
  - 1. Certificate of Substantial Completion: AIA Form G704-2017 or similar shall be used.
  - 2. Contractors Affidavit of Payment of Debts and Claims: AIA Form G706-1994 or similar shall be used.
  - 3. Contractors Affidavit or Release of Liens: AIA Form G706A-1994 or similar shall be used.
  - 4. Consent of Surety Company to Final Payment: AIA Form G707-1994 shall be used, sample follows.
- B. OWNER may occupy portions of the project for its use, under provisions to be stated in Certificate of Substantial Completion.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

## 1.08 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  2. Advise Owner of pending insurance changeover requirements.
  3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, boiler operating certificates, and similar releases.
  5. Prepare and submit Project Record Documents, operation and maintenance manuals, property surveys, and similar final record information.
  6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  7. Make final changeover of permanent locks to Owner. Advise Owner's personnel of changeover.
  8. Complete startup testing of systems.
  9. Submit test/adjust/balance records.
  10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  11. Advise Owner of changeover in heat and other utilities.
  12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- B. Inspection: Submit a written request for inspection for Substantial Completion to Architect or Owner's Representative. On receipt of request, Architect or Owner's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect or Owner's Representative 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 and/or Owner's Representative, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Final Completion.

## **1.09 FINAL COMPLETION**

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
  - 1. Submit a final Application for Payment according to Section 01 20 00 – Price and Payment Procedures.
  - 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or otherwise resolved for acceptance.
  - 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  - 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
  
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or notify Contractor of construction that must be completed or corrected before certificate will be issued.
  - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

## **1.10 LIST OF INCOMPLETE ITEMS (PUNCH LISTS)**

- A. Preparation and Submit 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.

## **1.11 WARRANTIES**

- A. Submittal Time: Submit electronic and 1 hard copy of warranties on request of Architect or Owner's Representative for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
  
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
  
- C. Organize hard copy of warranty documents into an orderly sequence

based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 ½ by-11-inch paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "Warranties," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.
- E. In addition to the hard copy, also provide one PDF electronic copy of warranty manual. Electronic copy shall be tabbed using digital bookmarks.

#### **1.12 REINSPECTION FEES**

- A. Should status of completion of Work require reinspection by Contracting Officer due to failure of Work to comply with Contractor's claims on initial inspection, Owner will deduct the amount of costs for reinspection services from final payment to the Contractor.

#### **1.13 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

#### **1.14 PROJECT RECORD DOCUMENTS**

- A. Maintain on site, one set of the following Record Documents; record actual revisions to the Work differing from Contract Drawings. Documents shall be electronic and shall be accessible at all times to Architect, Owner, and Owner's Representative:
1. Contract Drawings
  2. Specifications.
  3. Addenda.
  4. Change Orders and other modifications to the Contract.
  5. Reviewed shop drawings, product data, and samples.
  6. Manufacturer's instructions for assembly, installation, and adjusting.

- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Record Specifications: Clearly identify and record at each product section description of actual products installed, particularly concealed products, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and Modifications.
- E. Contract Drawings and Shop Drawings: Clearly mark each item to record actual construction graphically to scale including:
  - 1. Measured depths of foundations in relation to finish first floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract Drawings.
- F. Final Documentation after completion of work.
  - 1. Final drawing annotations shall be noted on a clean electronic copy of the drawings titled Contract As-Built Drawings.
  - 2. Record document annotations to electronic copies of Contract As-Built Specifications.
  - 3. Annotations shall be typewritten with minimum 10-point font lettering of quality equal to original documents.
- G. Before final Application for Payment, submit contractor record annotations on Contract Documents to Architect with dated transmittal letter containing project title, list of documents and signature of Contractor certifying that all concealed changes have been recorded before final Application for Payment.

## **1.15 SPARE PARTS AND MAINTENANCE MATERIALS**

- A. Provide products, spare parts, maintenance, and extra materials in quantities specified in individual Specification Sections.
- B. Deliver to project site and place in location as directed, obtain receipt prior to final payment.

## **PART 2 – PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000 - Product Requirements.

### **2.02 CLEANING MATERIALS**

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

## **PART 3 – EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-fabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 LAYING OUT THE WORK**

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines, and levels. Locate and lay out by instrumentation and similar appropriate means:
- H. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
- I. Grid or axis for structures.
- J. Building foundation, column locations, and ground floor elevations.
- K. Periodically verify layouts by same means.
- L. Maintain a complete and accurate log of control and survey work as it progresses.

### **3.04 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.05 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:

1. Complete the work.
  2. Fit products together to integrate with other work.
  3. Provide openings for penetration of mechanical, electrical, and other services.
  4. Match work that has been cut to adjacent work.
  5. Repair areas adjacent to cuts to required condition.
  6. Repair new work damaged by subsequent work.
  7. Remove samples of installed work for testing when requested.
  8. Remove and replace defective and non-complying work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 078400, to full thickness of the penetrated element.
- I. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  2. Match color, texture, and appearance.
  3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.06 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.

- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

### **3.08 SYSTEM STARTUP**

- A. Coordinate with requirements of Section 018100 - Commissioning.
- B. Coordinate schedule for start-up of various equipment and systems.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

### **3.09 DEMONSTRATION AND INSTRUCTION**

- A. See Section 017900 - Demonstration and Training.

### **3.10 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### 3.11 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.
- C. Use cleaning materials that are nonhazardous.
- D. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- E. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment or other surfaces and equipment.
- F. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- G. Clean filters of operating equipment.
- H. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, drainage systems, etc.
- I. Clean site: sweep paved areas, remove petrochemical spills, rake clean landscaped surfaces, remove all nails and screws using a magnetic sweeper.
- J. Remove waste, surplus materials, trash/rubbish, and construction facilities, materials, and equipment from the site; dispose of in legal manner; do not burn or bury.
- K. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
- L. 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.
- M. 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.
- N. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- O. Sweep concrete floors broom clean in unoccupied spaces.
- P. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
- Q. Touch up and otherwise repair and restore exposed finishes and surfaces damaged by this work. Replace finishes and surfaces that cannot be

satisfactorily repaired or restored or that already show evidence of repair or restoration.

- R. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- S. Replace parts subjected to construction operating conditions.
- T. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- U. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- V. Clean ducts, blowers, and coils if units were operated without filters during construction.
- W. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
- X. Leave Project clean and ready for occupancy.

### **3.12 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
- B. Provide electronic copies to Architect and Owner, unless otherwise specified.
- C. Accompany Architect, Owner, or Owner's Representative on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- D. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- E. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- F. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
- G. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- H. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
- I. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

### **3.13 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one electronic set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Clearly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- F. Record Drawings: Clearly mark each item to record actual construction including:
  - 1. Measured depths of foundations in relation to finish first floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract drawings.

### **3.14 OPERATION AND MAINTENANCE DATA**

- A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- B. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

### **3.15 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES**

- A. For Each Product, Applied Material, and Finish:
  - 1. Product data, with catalog number, size, composition, and color and texture designations.
  - 2. Information for re-ordering custom manufactured products.

- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Additional information as specified in individual product specification sections.
- D. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

### **3.16 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS**

- A. For Each Item of Equipment and Each System:
  1. Description of unit or system, and component parts.
  2. Identify function, normal operating characteristics, and limiting conditions.
  3. Include performance curves, with engineering data and tests.
  4. Complete nomenclature and model number of replaceable parts.
- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.
- D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- E. Provide servicing and lubrication schedule, and list of lubricants required.
- F. Include manufacturer's printed operation and maintenance instructions.
- G. Include sequence of operation by controls manufacturer.
- H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- I. Provide control diagrams by controls manufacturer as installed.
- J. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- K. Additional Requirements: As specified in individual product specification sections.

### **3.17 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS**

- A. Assemble operation and maintenance data into a single set of durable manuals for Owner's personnel use (1 copy), with data arranged in the same sequence as, and identified by, the specification sections. An identical electronic copy, electronically bookmarked, shall also be submitted.

- B. Where systems involve more than one specification section, provide separate tabbed divider for each system (separate bookmark for each system in electronic copy).
- C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor, and subcontractors, with names of responsible parties.
- F. Tables of Contents: List every item separated by a divider (or electronic bookmarks), using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
- G. Dividers: Provide tabbed dividers for each separate product and system (and bookmarks in electronic copy); identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- H. Text: Manufacturer's printed data, or typewritten data on 20-pound paper.
- I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- J. Arrangement of Contents: Organize each volume in parts as follows:
  - 1. Project Directory.
  - 2. Table of Contents, of all volumes, and of this volume.  
Operation and Maintenance Data: Arranged by system, then by product category, Source data, Operation and maintenance data, Field quality control data, and Photocopies of warranties and bonds.

### **3.18 WARRANTIES AND BONDS**

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 calendar days, excluding SCF recognized holidays, after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

- E. Include originals of each in operation and maintenance hard copy manuals, indexed separately on Table of Contents. Include electronic copies of each, electronically tabbed, in the electronic copy of operation and maintenance manual.
- F. Include 1 separate hard copy manual and 1 electronic manual of all warranties and bonds (submitted separately from operation and maintenance manual).

### **3.19 MAINTENANCE**

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

**END OF SECTION**

**SECTION 01 74 19**  
**CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

**PART 1 - GENERAL**

**1.01 WASTE MANAGEMENT REQUIREMENTS**

- A. Owner requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Methods of trash/waste disposal that are not acceptable are:
  - 1. Burning on the project site.
  - 2. Burying on the project site.
  - 3. Dumping or burying on other property, public or private.
  - 4. Other illegal dumping or burying.
- E. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

**1.02 DEFINITIONS**

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered

form. Recycling does not include burning, incinerating, or thermally destroying waste.

- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

## **PART 2 - PRODUCTS – NOT USED**

## **PART 3 – EXECUTION**

### **3.01 WASTE MANAGEMENT PROCEDURES**

- A. See Section 013000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- B. See Section 015000 for additional requirements related to trash/waste collection and removal facilities and services.
- C. See Section 016000 for waste prevention requirements related to delivery, storage, and handling.
- D. See Section 017000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

### **3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION**

- A. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

**END OF SECTION**

**SECTION 01 76 10**  
**TEMPORARY PROTECTIVE COVERINGS**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary protective coverings for installed floors, walls, and other surfaces.

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 005213 – Agreement Form.
- C. Section 017000 - Execution and Closeout Requirements: Coordination of requirements for materials specified in this section.

**1.03 REFERENCE STANDARDS**

- A. ANSI A135.4 - Basic Hardboard 2012 (Reaffirmed 2020).

**PART 2 – PRODUCTS**

**2.01 GENERAL**

- A. Provide materials that are easily removed without damage to the surfaces covered and with the following characteristics:
  - 1. Impact resistant.
  - 2. Slip resistant.
  - 3. Flame retardant.

**PART 3 – EXECUTION**

**3.01 PREPARATION**

- A. Remove dirt and debris from surfaces to be protected.

**3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Trim or overlap sheet materials to fit area to be covered.
- C. Roll out and cut rolled materials to fit area to be covered.

- D. Tape seams. Avoid taping directly to finished surfaces.
- E. Stretch self-adhering film materials to completely cover surface.
- F. Install door jamb protection to full height of opening.

### **3.03 REMOVAL**

- A. Remove protective coverings prior to Date of Substantial Completion. Reuse or recycle materials if possible.

**END OF SECTION**

**SECTION 01 79 00  
DEMONSTRATION AND TRAINING**

**PART 1 – GENERAL**

**1.01 SUMMARY**

- A. Demonstration of products and systems to be commissioned and where indicated in specific specification sections.
- B. Training of Owner personnel in operation and maintenance is required for:
  - 1. All software-operated systems.
  - 2. HVAC systems and equipment.
  - 3. Plumbing equipment.
  - 4. Electrical systems and equipment.
  - 5. Items specified in individual product Sections.
  - 6. Conveying systems.
- C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
  - 1. Items specified in individual product Sections.

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
- B. Section 017000 - Closeout Submittals: Operation and maintenance manuals.
- C. Section 018100 - Commissioning: Additional requirements applicable to demonstration and training.
- D. Other Specification Sections: Additional requirements for demonstration and training.

**1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures; except:
  - 1. Make all submittals specified in this section, and indicated elsewhere for commissioning purposes, directly to the Commissioning Authority.
  - 2. Submit one copy to the Commissioning Authority, not to be returned.
  - 3. Make commissioning submittals on time schedule specified by Commissioning Authority.
  - 4. Submittals indicated as "Draft" are intended for the use of the Commissioning Authority in preparation of overall Training Plan; submit in editable electronic format, Microsoft Word 2003 preferred.

- B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
  - 1. Submit to Commissioning Authority for review and inclusion in overall training plan.
  - 2. Submit not less than four weeks prior to start of training.
  - 3. Revise and resubmit until acceptable.
  - 4. Provide an overall schedule showing all training sessions.
  - 5. Include at least the following for each training session:
    - a. Identification, date, time, and duration.
    - b. Description of products and/or systems to be covered.
    - c. Name of firm and person conducting training; include qualifications.
    - d. Intended audience, such as job description.
    - e. Objectives of training and suggested methods of ensuring adequate training.
    - f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
    - g. Media to be used, such as slides, hand-outs, etc.
    - h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.
- C. Training Manuals: Provide 1 hard copy training manual for each attendee; allow for minimum of two attendees per training session. Provide an electronic copy of training manuals 48 hours in advance of training.
  - 1. Include applicable portion of O&M manuals.
  - 2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
  - 3. Provide one extra copy of each training manual to be included with operation and maintenance data (hard copy/physical manual and electronic manual).
- D. Training Reports:
  - 1. Identification of each training session, date, time, and duration.
  - 2. Sign-in sheet showing names and job titles of attendees.
  - 3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.
  - 4. Include Commissioning Authority's formal acceptance of training session.
- E. Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.
  - 1. Format: MP4
  - 2. Label each video with session identification and date.

#### **1.04 QUALITY ASSURANCE**

- A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.

1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 – EXECUTION**

### **3.01 DEMONSTRATION - GENERAL**

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.
- B. Demonstrations conducted during Functional Testing need not be repeated unless Owner personnel training is specified.
- C. Demonstration may be combined with Owner personnel training if applicable.
- D. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
  1. Perform demonstrations not less than two weeks prior to Substantial Completion.
  2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- E. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
  1. Perform demonstrations not less than two weeks prior to Substantial Completion.

### **3.02 TRAINING - GENERAL**

- A. Commissioning Authority will prepare the Training Plan based on draft plans submitted.
- B. Conduct training on-site unless otherwise indicated.
- C. Owner will provide classroom and seating at no cost to Contractor.
- D. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the Commissioning Authority.
- E. Provide training in minimum two-hour segments.
- F. The Commissioning Authority is responsible for determining that the training was satisfactorily completed and will provide approval forms.
- G. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule

has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

- H. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
  - 1. The location of the O&M manuals and procedures for use and preservation; backup copies.
  - 2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
  - 3. Typical uses of the O&M manuals.
- I. Product- and System-Specific Training:
  - 1. Review the applicable O&M manuals.
  - 2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
  - 3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
  - 4. Provide hands-on training on all operational modes possible and preventive maintenance.
  - 5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
  - 6. Discuss common troubleshooting problems and solutions.
  - 7. Discuss any peculiarities of equipment installation or operation.
  - 8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
  - 9. Review recommended tools and spare parts inventory suggestions of manufacturers.
  - 10. Review spare parts and tools required to be furnished by Contractor.
  - 11. Review spare parts suppliers and sources and procurement procedures.
- J. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

**END OF SECTION**

## **SECTION 01 81 00 COMMISSIONING**

### **PART 1 – GENERAL**

#### **1.01 SUMMARY**

- A. Section Includes:
  - 1. Commissioning Description.
  - 2. Submittals.
  - 3. Commissioning Services.
  - 4. Commissioning Responsibilities.
  - 5. Commissioning Meetings.
  - 6. Commissioning Reports.
  - 7. Test Equipment.
  - 8. Pre-Functional Verification Check and Startup Procedures.
  - 9. Functional Performance Test Procedures.
  - 10. Function Performance Test Methods.
  - 11. Deficiencies and Test Approvals.
- B. Related Sections:
  - 1. Section 00 52 13 – Agreement Form
  - 2. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 00 & 01 Specifications apply to this section.
  - 3. **Section 23 08 00 - Commissioning of HVAC.**
  - 4. **Section 26 08 00 - Electrical Systems Commissioning.**

#### **1.02 REFERENCES**

- A. Associated Air Balance Council:
  - 1. AABC - AABC Commissioning Guideline.
- B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
  - 1. ASHRAE Guideline 1.1 - The HVAC Commissioning Process.
- C. National Environmental Balancing Bureau:
  - 1. NEBB - Procedural Standards for Building Systems Commissioning.

#### **1.03 COMMISSIONING DESCRIPTION**

- A. Commissioning: Systematic process of ensuring systems perform interactively according to design intent and Contracting Officer's operational needs. Commissioning process encompasses and coordinates system documentation, equipment startup, control system calibration, testing and balancing, performance testing and verification of actual performance.
- B. Commissioning Intent:

1. Verify equipment and systems are installed in accordance with manufacturer's instructions, industry accepted minimum standards, and Contract Documents.
  2. Verify equipment and systems receive adequate operational checkout by Contractor.
  3. Verify and document proper performance of equipment and systems.
  4. Verify complete operation and maintenance documentation is delivered to Contracting Officer.
- C. Equipment and Systems to be Commissioned:
1. Refer to Section 23 08 00 for Mechanical Equipment and Systems.
  2. Refer to Section 26 08 00 for Electrical Equipment and Systems.
- D. Commissioning does not relieve Contractor of responsibility to provide finished and fully functioning Project.
- E. Commissioning Process Overview and General Order of Commissioning Tasks:
1. Commissioning begins with initial commissioning meeting.
  2. Equipment documentation is submitted to Commissioning Authority during normal submittals along with detailed start-up procedures.
  3. The Contractor, equipment and system installers work together to develop the startup plan and the pre-functional verification checklists that are to be completed by the Contractor and installers, during the pre-functional verification check and startup process.
  4. Equipment and system installers execute and document pre-functional verification checklists and startup. The Contractor documents that the pre-functional checklists and startup were completed according to approved plans.
  5. In general, checkout and performance verification proceeds from simple to complex; from component level to equipment to systems and intersystem levels with pre-functional verification checklists being completed before functional testing.
  6. Commissioning Authority develops the specific equipment and system functional test procedures. The Contractor and equipment and system installers review procedures.
  7. The equipment and system installers execute functional performance testing procedures under direction of and documented by Commissioning Authority.
  8. Items of non-compliance in material, installation or setup are corrected at Contractor's expense and system retested.
  9. Commissioning Authority reviews operation and maintenance documentation for adherence to the contract documents.
  10. Commissioning is completed before Final Completion.

#### **1.04 COMMISSIONING SUBMITTALS**

- A. Furnish one copy of the Contractor developed pre-functional verification checklists and startup plan to Commissioning Authority for review and approval within 6 months of contract award. Include the following as minimum:
  - 1. Manufacturer's standard startup procedures copied from installation manuals.
  - 2. Manufacturer's standard field checkout sheets.
  - 3. Supplemental procedures and checklists prepared by equipment and system installers to accommodate Project conditions.
  - 4. Include boxes or lines for recording and documenting checking and inspections of each procedure and summary statement with signature block.
- B. Commissioning Authority will review submittals for conformance to the Contract Documents as related to commissioning process for the primary purpose of aiding development of functional testing procedures.

#### **1.05 CLOSEOUT SUBMITTALS**

- A. Section 01 77 00 - Closeout Procedures: Requirements for submittals.
- B. Furnish one copy of the Contractor developed pre-functional verification checklists and startup plan to Commissioning Authority for review and approval prior to commissioning. Include the following as minimum:
  - 1. Manufacturer's standard startup procedures copied from installation manuals.
  - 2. Manufacturer's standard field checkout sheets.
  - 3. Supplemental procedures and checklists prepared by equipment and system installers to accommodate Project conditions.
  - 4. Include boxes or lines for recording and documenting checking and inspections of each procedure and summary statement with signature block.
- C. Commissioning Authority will review submittals for conformance to the Contract Documents as related to commissioning process for the primary purpose of aiding development of functional testing procedures.

#### **1.06 QUALITY ASSURANCE**

- A. Perform Work in accordance with ASHRAE Guideline 1.1.

#### **1.07 COMMISSIONING RESPONSIBILITIES**

- A. Responsibilities indicated for Contracting Officer, Architect/Engineer, and Commissioning Authority are provided only to clarify commissioning process.
- B. Architect/Engineer Responsibilities:
  - 1. Perform site observation of each system before system startup.
  - 2. Review the contractor developed commissioning schedule.

3. Clarify operation and control of commissioned equipment when specifications, control drawings, or equipment documentation are not sufficient for writing detailed functional performance testing procedures.
  4. Coordinate resolution of design issues affecting system performance identified during commissioning.
  5. Review and approve operation and maintenance manuals.
  6. Review the Contractor developed pre-functional checklists for equipment or systems to be commissioned.
  7. Review the Commissioning Authority developed functional test procedures for equipment or systems to be commissioned.
- C. Commissioning Authority Responsibilities:
1. Basic Responsibilities:
    - a. Coordinate, direct, and approve commissioning work.
    - b. Develop and coordinate execution of commissioning plan. Revise commissioning plan to suit Project conditions.
    - c. Coordinate commissioning work with Contractor for inclusion in Project schedule.
    - d. Plan and conduct commissioning meetings.
    - e. Request and review commissioning submittals required to perform commissioning tasks.
    - f. Review the Contractor developed start-up plan.
    - g. Review the Contractor developed pre-functional checklists.
    - h. Develop the functional performance test procedures.
    - i. Review test and balance execution plan.
    - j. Document equipment and systems are installed and perform in accordance with design intent and Contract Documents.
    - k. Notify the Architect/Engineer of deficiencies.
    - l. Coordinate resolution of deficiency corrections with the contractor.
    - m. Review operation and maintenance manuals.
    - n. Compile commissioning record and testing data manual.
    - o. Provide final commissioning report.
  2. Commissioning Authority may not:
    - a. Release, revoke, alter, or enlarge on requirements of Contract Documents.
    - b. Approve or accept any portion of the Work.
    - c. Assume duties of Contractor or Architect/Engineer.
    - d. Stop the Work.
- D. Contracting Officer Responsibilities:
1. Arrange for Contracting Officer's personnel to attend commissioning activities and training sessions according to commissioning plan.
  2. Approve commissioning work completion.
- E. Contractor Responsibilities:

1. Include requirements for commissioning submittal data, operation and maintenance data, commissioning tasks for equipment and systems indicated to be commissioned.
2. Facilitate coordination of commissioning work by Commissioning Authority.
3. Schedule and attend commissioning meetings.
4. Develop a commissioning schedule for completion of the commissioning work, coordinate schedule with commissioning authorities commissioning plan.
5. Develop equipment start-up and initial start-up plan.
6. Develop pre-functional verification checklists for each piece of equipment and system to be commissioned.
7. Review the Commissioning Authority developed functional performance test procedures.
8. Require equipment and system installers to review and provide comments on functional test procedures.
9. Cooperate with Commissioning Authority and provide access to the work.
10. Furnish qualified personnel to assist in completing commissioning.
11. Require manufacturers to review commissioning test procedures for equipment installed by manufacturer.
12. Furnish proprietary test equipment required by manufacturers to complete equipment and system tests.
13. Furnish manufacturer's qualified field representatives as specified in Section 014000 - Quality Requirements and individual specification sections to assist in completing commissioning.
14. Ensure equipment and system installers execute commissioning responsibilities according to Contract Documents and schedule.
15. Prepare operation and maintenance manuals specified in Section 017000 - Execution Requirements. Update original sequences of operation reflecting actual installation.

## **1.08 COMMISSIONING MEETINGS**

- A. Section 013100 – Project Management and Coordination.
- B. Commissioning Authority will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Initial Commissioning Meeting:
  1. Contractor will schedule meeting within 90 days after Notice of Award.
  2. Attendance Required: Commissioning Authority, Architect/Engineer, Contractor, subcontractors, test, adjust and balance agency. Require attendance by installers of the following equipment and systems indicated to be commissioned including:
    - a. Mechanical equipment and systems.
    - b. Electrical equipment and systems.
    - c. Temperature controls equipment and systems.
  3. Agenda:

- a. Designation of personnel representing parties for commissioning activities.
  - b. Review commissioning process and responsibilities.
  - c. Review commissioning plan development procedures.
  - d. Review required commissioning submittals.
  - e. Review initial commissioning schedule.
- D. Progress Commissioning Meetings:
- 1. Progress commissioning meetings will be scheduled as required by the commissioning team.
- E. Contractor will record meeting minutes and distribute copies to participants and those affected by decisions made.

### **1.09 COMMISSIONING REPORTS**

- A. Commissioning Authority Reports:
- 1. Observation reports of specific commissioning activities.
  - 2. Testing progress and approvals.
  - 3. Deficiency and deficiency resolution reports.
- B. Functional Performance Test Procedures Forms: Develop functional test procedure forms containing the following information:
- 1. Project information.
  - 2. Participating parties.
  - 3. Unique test identification number, and reference to unique verification checklist and startup documentation identification numbers for piece of equipment.
  - 4. Equipment identification number.
  - 5. System and or equipment name.
  - 6. Copy of specific sequence of operations or other specified parameters being verified.
  - 7. Required pre-test field measurements.
  - 8. Special cautions, alarm limits, and safety concerns.
  - 9. Specific step-by-step procedures to execute test, in clear, sequential, and repeatable format.
  - 10. Acceptance criteria of proper performance with Yes / No check box to allow for marking whether or not proper performance of each part of test was achieved.
  - 11. Section for comments.
  - 12. Signatures and date block for Commissioning Authority.

### **1.10 SEQUENCING**

- A. Section 01 10 00 – Summary of Work: Requirements for sequencing.
- B. Phase 1A and Phase 1B: Sequence work to complete pre-functional testing and test and balance of all new system installed in Phase 1A and Phase 1B prior to Phase 1A and Phase 1B substantial completion. Provide preliminary

O&M's for review prior to commissioning Phase 1A and Phase 1B. O&M's to include test and balance report for Phase 1A and Phase 1B.

- C. Phase 2: Sequence work to complete pre-functional testing and test and balance of all systems prior to substantial completion of Phase 2. Complete tests of any equipment not completed at the end of Phase 1A and Phase 1B. Provide complete test and balance report for the entire facility, including all Phase 2, Phase 1A and Phase 1B systems.
- D. Sequence work to achieve Functional Completion before Final Completion. Complete the following for each piece of equipment and system indicated to be commissioned to achieve Functional Completion:
  - 1. Complete and sign the pre-functional verification checklists.
  - 2. Submit final approved test and balance report.
  - 3. Complete functional performance testing.
  - 4. Correct identified deficiencies or obtain approval by Contracting Officer to exclude deficiencies from Functional Completion.
  - 5. Submit approved operation and maintenance data manuals.

### **1.11 SCHEDULING**

- A. Schedule work to allow adequate time for commissioning activities.
- B. Identify commissioning milestones, activities, and durations on Project schedule.
  - 1. Identify the following on the schedule:
    - a. Pre-functional verification check and startup.
    - b. Functional performance testing.
    - c. Operation and maintenance manual submittal.
    - d. Functional testing.
    - e. Commissioning completion.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 – EXECUTION**

### **3.01 EXAMINATION**

- C. Verify equipment and systems are installed in accordance with individual specification sections.
- D. Verify utility and power connections are complete and services operational.

### **3.02 PRE-FUNCTIONAL VERIFICATION CHECK AND STARTUP PROCEDURES**

- E. Verification Check and Startup:
  - 1. Perform pre-functional verification checklists in accordance with the contractor's startup plan.

2. Record completion of each procedure. Indicate results of procedure where required.
  3. Identify items not completed successfully.
  4. Sign and date completed pre-functional verification checklists.
  5. Submit complete pre-functional verification checklist to Commissioning Authority.
  6. Submit completed start-up plan to Commissioning Authority.
- F. Deficiencies and Approvals:
1. Commissioning Authority will review the pre-functional verification checklist and issue deficiency report.
  2. The Contractor shall correct deficiencies and resubmit the updated pre-functional verification checklist including a statement indicating corrections made.
  3. Repeat process until all pre-functional verification checklists are complete.
  4. Costs for incomplete verification check and startup items that later cause deficiencies or delays during functional tests may be charged to party responsible for incomplete item.

### **3.03 FUNCTIONAL PERFORMANCE TEST PROCEDURES**

- G. Complete the following before performing functional tests:
1. Pre-Functional verification check and startup.
  2. Air and hydronic system balancing report.
- H. Notify Commissioning Authority of completion of pre-functional verification check and startup activities.
- I. Commissioning Authority will direct, witness, and document results of functional performance tests.
- J. Conduct functional performance tests as specified in Section 23 08 00 and 26 80 00.
- K. Demonstrate each piece of equipment and system is operating according to documented design intent and Contract Documents.
1. Conduct testing proceeding from components to subsystems, to systems.
  2. Bring equipment and systems to condition capable full dynamic operation.
  3. Verify performance of individual components and systems.
  4. Verify performance of interactions between systems.
  5. Identify and correct areas of deficient performance.
- L. Operate each piece of equipment and system through each specified mode of operation including seasonal, occupied, unoccupied, warm up, cool down, partial load and full load conditions.
1. Verify each sequence in sequences of operation.
  2. Test for proper responses to power failure, freezing, overheating, low oil pressure, no flow, equipment failure, and other abnormal conditions.

### **3.04 FUNCTIONAL PERFORMANCE TEST METHODS**

- M. Perform testing and verification by using manual testing or by monitoring performance and analyzing results using control system trend log capabilities or by stand-alone data loggers as specified for each piece of equipment or system.
  - 1. Commissioning Authority may require alternate or additional method, other than specified method.
  - 2. Commissioning Authority will determine test method when method is not specified.
- N. Simulated Conditions: Simulating conditions, not by overwritten values, is permitted. Timing tests to use real conditions is encouraged wherever practical.
- O. Overwritten Values: Overwriting sensor values to simulate conditions may be used with caution and avoided when possible.
- P. Simulated Signals: Using signal generator to create simulated signals to test and calibrate transducers automatic temperature controls is generally recommended over using sensors as signal generators with simulated conditions or overwritten values.
- Q. Altering Setpoints: Rather than overwriting sensor values, and when simulating conditions is difficult, altering setpoints to test specific sequence is acceptable. Reset setpoint after completing test.
- R. Indirect Indicators: Using indirect indicators for responses or performance is permitted only after visually and directly verifying and documenting indirect readings through control system representing actual conditions and responses over tested parameter range.
- S. Perform each function and test under conditions simulating actual conditions as close as is practically possible.
  - 1. Provide materials, system modifications, and other things necessary to produce flows, pressures, temperatures, and other responses to execute test according to specified conditions.
  - 2. At completion of test, return modified equipment and systems to pretest condition.

### **3.05 DEFICIENCIES AND TEST APPROVALS**

- T. Deficiencies:
  - 1. Commissioning Authority will record and report deficiencies.
  - 2. Minor deficiencies may be corrected during tests at Commissioning Authority's discretion. Deficiency and resolution will be documented.
  - 3. When deficiency is identified, Commissioning Authority will discuss issue with party executing test.
    - a. When party executing test accepts responsibility to correct deficiency:
      - 1) Commissioning Authority documents deficiency and executing party's response.

- 2) Party executing test corrects deficiency, signs statement of correction on deficiency form certifying equipment is ready retesting and submits form to Commissioning Authority.
  - 3) Commissioning Authority reschedules test and test is repeated until satisfactory performance is achieved.
- b. When party executing test disputes deficiency or responsibility for deficiency:
- 1) Commissioning Authority documents deficiency and executing party's response.
  - 2) Commissioning Authority submits deficiency report to Contractor, and party executing test and party believed to be responsible for deficiency.
  - 3) Commissioning Authority negotiates resolution with parties involved and refers continuing disputes to Architect/Engineer for resolution in accordance with Contract Documents.
  - 4) Commissioning Authority documents resolution process.
  - 5) When resolution is decided, appropriate party corrects deficiency, signs statement of correction on deficiency form certifying equipment is ready for retesting and submits form to Commissioning Authority.
  - 6) Commissioning Authority reschedules test and test is repeated until satisfactory performance is achieved.

U. Retesting Costs:

1. When verification check and startup or functional performance test deficiency is discovered requiring rescheduling or retesting:
  - a. Contracting Officer will compensate Commissioning Authority for attending and directing additional testing.
  - b. Contracting Officer will deduct additional testing compensation from final payment due to Contractor.

V. Provide written report to Commissioning Authority before each scheduled commissioning meeting concerning status of each deficiency. Include explanations of disagreements with resolution proposals for each discrepancy.

1. Commissioning Authority will retain original deficiency forms until end of Project.

W. Manufacturing Defects: When 10 percent, but not less than 3 identical pieces of equipment or equipment with only small size or capacity differences fail to perform to Contract Document requirements due to manufacturing defect, all identical units may be considered defective by Contracting Officer.

1. Within one week of notice from Contracting Officer, examine all other identical units and record findings. Submit findings to Contracting Officer within two weeks of original notice.
2. Within two weeks of original notification, provide signed and dated, written explanation of problem, cause of defect, and proposed solutions meeting Contract Document requirements. Include equipment submittals supporting solution.

3. Contracting Officer will determine whether replacement or repair of all identical units is required.
  4. Install two examples of proposed solution. Contracting Officer will test installations for up to one week, before deciding solution is acceptable.
  5. Upon acceptance, replace or repair all identical items, at Contractor's expense. Extend warranty accordingly when original equipment warranty had begun.
  6. Complete repairs or replacements with reasonable speed beginning within one week from when parts can be obtained.
- X. Test Approval: Commissioning Authority notes each satisfactorily demonstrated function on functional performance test form.
1. Commissioning Authority recommends acceptance of each test to Contracting Officer using standard form.
  2. Contracting Officer gives final approval for each test using same form, providing signed copy to Commissioning Authority and Contractor.

**END OF SECTION**

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

- 1. Demolition and removal of selected portions of building.
- 2. Salvage of existing items to be reused.

B. Related Requirements:

- 1. Section 01 10 00 "Summary" for restrictions on use of the premises, Owner-occupancy requirements and phasing requirements.
- 2. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
- 3. Section 01 70 00 "Execution and Closeout Requirements" for cutting and alteration requirements.

1.3 DEFINITIONS

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

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, and for dust control. Indicate proposed locations and construction of barriers.

## 1.6 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Contracting Officer's Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials:
  - 1. It is not expected that hazardous materials will be encountered in the Work.
    - a. 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.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

## 1.7 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

## 2.2 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
  - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
  - 2. Contractor to turn off and on breakers.

### 3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Section 01 70 00 "Execution and Closeout Procedures" for protection of building elements from damage.
6. Provide temporary enclosures, dust control, heating, and cooling systems and controls as required by Section 01 40 10 "Clean Construction Procedures".

B. Remove temporary barricades and protections where hazards no longer exist.

### 3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least four hours after flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
8. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing so that building interior remains watertight and weathertight. See Section 07 53 23 “Ethylene-Propylene-Diene-Monomer (EPDM) Roofing” for new roofing requirements.
  - 1. Remove existing roof membrane, flashings, copings, and roof accessories.
  - 2. Remove existing roofing system down to roof deck.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
  - 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. Burning: Do not burn demolished materials.

### 3.7 CLEANING

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

END OF SECTION 02 41 19

SECTION 06 10 53

MISCELLANEOUS 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. Section Includes:
  - 1. Framing with dimension lumber.
  - 2. Wood blocking and nailers.
  - 3. Metal framing anchors.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater size but less than 5 inches nominal size in least dimension.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.5 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:
  - 1. Preservative-treated wood.
  - 2. Metal framing anchors.

1.6 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 25 percent.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- C. Application: Treat all miscellaneous carpentry above the roof deck elevation.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
- B. Dimension Lumber Items: Standard, Stud, or No. 3 grade lumber of any of the following species:
  - 1. Hem-fir (north); NLGA.
  - 2. Spruce-pine-fir; NLGA.
  - 3. Hem-fir; WCLIB or WWPA.

4. Western woods; WCLIB or WWPA.
  5. Northern species; NLGA.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
  - D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
  - E. Top of Parapet Shims: Western red cedar; NLGA, WCLIB, or WWPA Grade B bevel siding, S1S2E.

## 2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  1. Where carpentry is pressure-preservative treated, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- B. Nails, Brads, and Staples: ASTM F1667.
- C. Screws for Fastening to Metal Framing: ASTM C1002, length as recommended by screw manufacturer for material being fastened.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 as appropriate for the substrate.
  1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.

## 2.5 METAL FRAMING ANCHORS

- A. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- D. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  - 1. Use copper naphthenate for items not continuously protected from liquid water.
- F. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- G. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
  - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
  - 3. ICC-ES evaluation report for fastener.
- H. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

### 3.2 INSTALLATION OF WOOD BLOCKING AND NAILER

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

END OF SECTION 06 10 53

SECTION 07 21 00

THERMAL INSULATION

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. Glass-fiber blanket insulation.
- 2. Mineral-wool blanket insulation.

B. Related Requirements:

- 1. Section 07 53 23 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for insulation specified as part of roofing construction.
- 2. Section 07 92 00 "Joint Sealants" for spray applied sealant.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

- 1. Glass-fiber blanket insulation.
- 2. Mineral-wool blanket insulation.

1.4 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.

## PART 2 - PRODUCTS

### 2.1 GLASS-FIBER BLANKET INSULATION

- A. Glass-Fiber Blanket Insulation, Unfaced: ASTM C665, Type I; passing ASTM E136 for combustion characteristics.
  - 1. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
  - 2. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
  - 3. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.

### 2.2 MINERAL-WOOL BLANKET INSULATION

- A. Mineral-Wool Blanket Insulation, Unfaced: ASTM C665, Type I (blankets without membrane facing); consisting of fibers; complying with ASTM E136 for combustion characteristics.
  - 1. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
  - 2. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.

### 2.3 ACCESSORIES

- A. Insulation for Miscellaneous Voids:
  - 1. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

### 3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- 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. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.
- E. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.
- F. Fill all joints greater than 1/4-inch with same material.
- G. Do not compress insulation.
- H. Fit insulation tightly on cavities and tightly to exterior side of mechanical and electrical services within plane of insulation.

### 3.3 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
  - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
  - 1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..
  - 2. 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.
- B. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 21 00

SECTION 07 26 00

VAPOR RETARDERS

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. Polyethylene vapor retarders.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 POLYETHYLENE VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 6-mil-thick sheet, with maximum permeance rating of 0.1 perm.

2.2 ACCESSORIES

- A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
- B. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to vapor retarders, including removing projections capable of puncturing vapor retarders.

3.2 INSTALLATION OF VAPOR RETARDERS ON FRAMING

- A. Place vapor retarders on warm side of construction indicated on Drawings.
- B. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives, vapor retarder fasteners, or other anchorage system as recommended by manufacturer. Extend vapor retarders to cover miscellaneous voids in insulated substrates.
- C. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs and sealing with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Locate all joints over framing members or other solid substrates.
- D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.
- E. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.3 PROTECTION

- A. Protect vapor retarders from damage until concealed by permanent construction.

END OF SECTION 07 26 00

SECTION 07 53 23

ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

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. Adhered ethylene-propylene-diene-terpolymer (EPDM) roofing system.
2. Substrate board.
3. Vapor retarder.
4. Roof insulation.
5. Cover board.
6. Walkways.

B. Related Requirements:

1. Section 06 10 53 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
2. Section 07 62 00 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
3. Section 07 72 00 "Roofing Accessories" for roof curbs, access hatches, and fall protection devices.
4. Section 22 19 00 "Plumbing Specialties" for roof drains.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For insulation and roof system component fasteners, include copy of FM Approvals' RoofNav listing.

- B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:
  - 1. Layout and thickness of insulation.
  - 2. Base flashings and membrane terminations.
  - 3. Flashing details at penetrations.
  - 4. Tapered insulation, thickness, and slopes.
  - 5. Roof plan showing orientation of orientation of roof membrane and fastening spacings and patterns for mechanically fastened roofing system.
  - 6. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
  - 7. Tie-in with air barrier.
- C. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system and system is eligible to receive the standard roofing manufacturer's warranty.
- B. Manufacturer Certificates:
  - 1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
    - a. Submit evidence of complying with performance requirements.
  - 2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.
- C. Evaluation Reports: For components of roofing system, from ICC-ES.
  - 1. Fastener-pullout test results and manufacturer's revised requirements for fastener patterns.
- D. Submit copy of manufacturer's affidavit of intent to warrant.
- E. FM Approval Letter: Provide letter from FM Global accepting roof assembly or list of non-complying items accepted by Project Manager.
- F. Sample Warranties: For manufacturer's special warranties.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is listed in FM Approvals' RoofNav for roofing system identical to that used for this Project or as approved by the Project Manager. Deviations in the assembly are subject to approval by Project Manager.
- B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
- C. Perform work in accordance with NRCA Roofing Manual.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Do not apply roofing membrane during unsuitable weather.
- C. Do not apply roofing membrane when ambient temperature is below 40 degrees F.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose material vulnerable to water or sun damage in quantities greater than can be weather-proofed in one day.

## 1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks and blow off to 120 MPH winds specified in this Section. Conform to ICC and IBC as adopted by the Municipality of Anchorage for roof assembly fire hazards and wind uplift resistance requirements. Design for 150 mph wind, 3-second gust, exposure B.
  - 1. Special no-dollar limit warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, substrate board, sheet metal flashings, and other components of roofing system.
  - 2. Warranty Period: 20 years from Date of Substantial Completion.
  
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
  - 1. Warranty Period: Two years from Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing system and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and flashings shall remain watertight.
  - 1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
  - 2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272, or the Resistance to Foot Traffic Test in FM Approvals 4470.
  
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.
  
- C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897: Resist wind loads indicated on Drawings.
  
- D. Conform to ICC and IBC as adopted by the Municipality of Anchorage for roof assembly fire hazards and wind uplift resistance requirements. Design for 150 mph wind, 3-second gust, exposure B.

- E. FM Approvals' RoofNav Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.
  - 1. Fire/Windstorm Classification: Class 1A-90.
- F. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- G. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

## 2.2 SYSTEM DESIGN

- A. Fully adhered EPDM roof membrane over rigid insulation over wood and steel decks.
  - 1. Carlisle SynTec: Sure-Seal Design A.
  - 2. Elevate: Rubberguard Roofing System.
  - 3. No substitutions.

## 2.3 ETHYLENE-PROPYLENE-DIENE-TERPOLYMER (EPDM) ROOFING

- A. EPDM Sheet: ASTM D4637/D4637M, Type I, nonreinforced, EPDM sheet with factory-applied seam tape.
  - 1. Thickness: 60 mils, nominal.
  - 2. Exposed Face Color: Black.
  - 3. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

## 2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
  - 1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer, color black.
- D. Bonding Adhesive: Manufacturer's standard.
- E. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 3-inch-wide minimum, butyl splice tape with release film Factory-applied seam tape, width as recommended by manufacturer.

- F. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match membrane roofing.
- G. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- H. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- I. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.
- J. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.
- K. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories. Color black

## 2.5 SUBSTRATE BOARDS

- A. Substrate Board: ASTM C1177/C1177M, glass-mat, water-resistant gypsum board or ASTM C1278/C1278M, fiber-reinforced gypsum board.
  - 1. Thickness: 1/2 inch and 5/8 inch as indicated on Drawings.
  - 2. Surface Finish: Factory primed.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening substrate panel to roof deck.

## 2.6 VAPOR RETARDER

- A. Self-Adhering-Sheet Vapor Retarder: ASTM D1970/D1970M, polyethylene or foil film laminated to layer of rubberized asphalt adhesive, minimum 40-mil-total thickness; maximum permeance rating of 0.1 perm; cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor retarder manufacturer.

## 2.7 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by EPDM roof membrane manufacturer, approved for use in FM Approvals' RoofNav-listed roof assemblies.
- B. Molded (Expanded) Polystyrene Board Insulation: ASTM C578, Type II, 1.50-lb/cu. ft. minimum density, 15-psi minimum compressive strength, square edge.
  - 1. Thermal Resistance: R-value of 4.76 per inch at 25 Deg. F.

2. Size: 48 by 96 inches for mechanically fastened insulation, 48 by 48 inches for adhered insulation.
3. Thickness:
  - a. Base Layer: 3 inches.
  - b. Upper Layer: as indicated to achieve thickness.

C. Tapered Insulation: Provide factory-tapered insulation boards.

1. Material: ASTM C578, Type II, 1.50-lb/cu. ft. minimum density, 15-psi minimum compressive strength, square edge.
2. Minimum Thickness: 1/4 inch.
3. Slope:
  - a. Roof Field: As indicated on Drawings, 1/4 inch per foot minimum net positive slope.
  - b. Saddles and Crickets: Twice roof slope indicated on Drawings, net to match roofing slope.

## 2.8 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
  1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive approved by insulation manufacturer and FM Approved.
- D. Cover Board: ASTM C1289 Type II, Class 4, Grade 1, 1/2-inch-thick polyisocyanurate, with a minimum compressive strength of 80 psi.
- E. Cover Board (When Required by Roofing Manufacturer to Achieve Fire Rating): ASTM C1177/C1177M, glass-mat, water-resistant gypsum substrate, or ASTM C1278/C1278M, fiber-reinforced gypsum board.
  1. Thickness: 1/2 inch.
  2. Surface Finish: Primed or Unprimed.

## 2.9 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 0.188-inch thick and acceptable to roofing system manufacturer.
1. Size: Approximately 30 by 30 inches
  2. Color: Black.

## 2.10 SIGNAGE

- A. Provide a typewritten laser-etched 0.032 inch thick aluminum card. Card shall be 8 by 10 inches minimum. Information card shall identify facility name; contract number; approximate roof area; detailed roof system description, including deck type, membrane, thickness, method of application, manufacturer, insulation and cover board system and thickness; presence of tapered insulation for primary drainage, presence of vapor retarder; date of completion; installing Contractor identification and contact information; membrane manufacturer warranty expiration, warranty reference number, and contact information. Install card at each roof access point location as directed by Owner's Representative.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
  2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  3. Verify that surface plane flatness. Notify Project Manager if deformations or deflection is noted.
- B. Verify that surface plane flatness. Notify Project Manager if deformations or deflection is noted. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

- C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.
  - 1. Submit test result within 24 hours of performing tests.
    - a. Include manufacturer's requirements for revisions to previously submitted fastener patterns required to achieve specified wind uplift requirements.

### 3.3 INSTALLATION OF ROOFING, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions, FM Approvals' RoofNav assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

### 3.4 INSTALLATION OF SUBSTRATE BOARD

- A. Install substrate board with long joints in continuous straight lines, with end joints staggered not less than 24 inches in adjacent rows.
  - 1. Tightly butt substrate boards together.
  - 2. Cut substrate board to fit tight around penetrations and projections, and to fit tight to intersecting sloping roof decks.
  - 3. Fasten substrate board to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instructions.
  - 4. Survey below deck for conduit locations. Contractor to repair damaged conduits and conductors at no additional expense to Owner.

### 3.5 INSTALLATION OF VAPOR RETARDER

- A. Self-Adhering-Sheet Vapor Retarder: Prime substrate if required by manufacturer. Install self-adhering-sheet vapor retarder over area to receive vapor retarder, side and end lapping each sheet a minimum of 3-1/2 and 6 inches, respectively.
  - 1. Extend vertically up parapet walls and projections to a minimum height equal to height of insulation and cover board.
  - 2. Seal laps by rolling.
- B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

- C. Turn vapor barrier up at perimeter and penetrations through insulation to envelope insulation. Terminate vapor retarder to wall flashings. Height of vapor retarder to include all insulation and cover board.

### 3.6 INSTALLATION OF INSULATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Installation Over Decking:
  - 1. Install base layer of insulation with end joints staggered not less than 12 inches in adjacent rows and with long joints continuous at right angle to flutes of decking.
    - a. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
    - b. Make joints between adjacent insulation boards not more than 1/4 inch in width.
    - c. Fill gaps exceeding 1/4 inch with insulation.
    - d. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
    - e. Loosely lay base layer of insulation units over substrate.
  - 2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.
    - a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
    - b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
    - c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
    - d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
    - e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
    - f. Trim insulation so that water flow is unrestricted.
    - g. Fill gaps exceeding 1/4 inch with insulation.
    - h. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
    - i. Mechanically fasten insulation to roof deck according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29.
    - j. Where insulation exceeds screw lengths, adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
      - 1) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

### 3.7 INSTALLATION OF COVER BOARDS

- A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.
  - 1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
  - 2. At internal roof drains, conform to slope of drain sump.
    - a. Trim cover board so that water flow is unrestricted.
  - 3. Cut and fit cover board tight to nailers, projections, and penetrations.
  - 4. Adhere cover board to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - a. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

### 3.8 INSTALLATION OF ADHERED ROOF MEMBRANE

- A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.
- B. Unroll membrane roof membrane and allow to relax before installing.
- C. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- D. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- E. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer, and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.
- F. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeters.
- G. Apply roof membrane with side laps shingled with slope of roof deck where possible.
- H. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape.
  - 1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
  - 2. Apply lap sealant and seal exposed edges of roofing terminations.

- I. Factory-Applied Seam Tape Installation: Clean and prime surface to receive tape.
  - 1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
  - 2. Apply lap sealant and seal exposed edges of roofing terminations.
- J. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.
- K. Spread sealant or mastic bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.
- L. Adhere protection sheet over roof membrane at locations indicated.

### 3.9 INSTALLATION OF BASE FLASHING

- A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Turn membrane over top of curbs and over outer face of parapet minimum 2-inches. Secure flashing to exterior face of curb at 8-inches on center.
- F. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars. Set termination bars at top of flashing at a straight and level plane. Provide sealant at top of termination bars at full depth and sloped to shed water.
- G. Seal pipe and conduit penetrations with pipe flashing boots. Set neck of boot in sealant bed and clamp with stainless steel drawband. Flash to roof membrane. Provide continuous sealant at toe of flashing membrane.

### 3.10 INSTALLATION OF WALKWAYS

- A. Flexible Walkways: Install walkway products according to manufacturer's written instructions.
  - 1. Install flexible walkways at the following locations:
    - a. Top and bottom of each roof access ladder.
    - b. Locations indicated on Drawings.
    - c. As required by roof membrane manufacturer's warranty requirements.

2. Provide 6-inch clearance between adjoining pads.
3. Adhere walkway products to substrate with compatible tape according to roofing system manufacturer's written instructions.

### 3.11 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

### 3.12 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS \_\_\_\_\_ of \_\_\_\_\_, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  1. Owner: Southcentral Foundation.
  2. Address: 4320 Diplomacy Drive, Anchorage, Alaska 99508.
  3. Building Name/Type: Valley Native Primary Care Center.
  4. Address: 1001 Sout Knik Goose Bay Road, Wasilla, Alaska 99654.
  5. Area of Work: <Insert information>.
  6. Acceptance Date: \_\_\_\_\_.
  7. Warranty Period: 2-years.
  8. Expiration Date: \_\_\_\_\_.
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
  - a. lightning;
  - b. peak gust wind speed exceeding 120 mph;
  - c. fire;
  - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
  - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
  - f. vapor condensation on bottom of roofing; and
  - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

1. Authorized Signature: \_\_\_\_\_.
2. Name: \_\_\_\_\_.
3. Title: \_\_\_\_\_.

END OF SECTION 07 53 23

SECTION 07 62 00

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 low-slope roof sheet metal fabrications.

B. Related Requirements:

- 1. Section 06 10 53 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
- 2. Section 07 72 00 "Roof Accessories" for set-on-type curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.

1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 ACTION SUBMITTALS

A. Shop Drawings: For sheet metal flashing and trim.

- 1. Include sections and attachment details.
- 2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
- 3. Include identification of material, thickness, weight, and finish for each item and location in Project.
- 4. Include details for forming, including profiles, shapes, seams, and dimensions.
- 5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
- 6. Include details of termination points and assemblies.

7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
8. Include details of roof-penetration flashing.
9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
10. Include details of special conditions.
11. Include details of connections to adjoining work.
12. Detail formed flashing and trim at scale of not less than 3 inches per 12 inches.

B. Samples for Verification: For each type of exposed finish.

1. For each type of sheet metal and accessory indicated with factory-applied finishes.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of coping and roof edge flashing that is ANSI/SPRI/FM 4435/ES-1 tested or FM Approvals approved.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- C. Evaluation Reports: For copings and roof edge flashing, from an agency acceptable to authority having jurisdiction or ICC-ES showing compliance with ANSI/SPRI/FM 4435/ES-1.
- D. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Special warranty.

1.7 QUALITY ASSURANCE

- A. Fabricator Qualifications: 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.
  1. For copings and roof edge flashings that are ANSI/SPRI/FM 4435/ES-1 tested, shop shall be listed as able to fabricate required details as tested and approved.
- B. Installer Qualifications: Engage an experienced installer who has completed sheet metal flashing and trim work similar in material, design and extent to that indicated for this project and with successful in-service performance.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.
  - 1. Protect stored sheet metal flashing and trim from contact with water.
- D. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

## 1.9 WARRANTY

- A. Coordinate warranty requirements with Section 07 53 23 "Ethylene-Propylene-Diene-polymer (EPDM) Roofing" for water-tight warranty.
- B. Special Warranty on Finishes: 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 Delta E units when tested in accordance with ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
    - 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 PERFORMANCE REQUIREMENTS

- A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, 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.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

- C. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:
  - 1. Design Pressure: As indicated on Drawings.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2 SHEET METALS

- A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Metallic-Coated Steel Sheet: Provide aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, Class AZ50 coating designation, Grade 40; prepainted by coil-coating process to comply with ASTM A755/A755M.
  - 1. Surface: Smooth, flat.
  - 2. Exposed Coil-Coated Finish:
    - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  - 3. Color: Manufacturer's standard white.
  - 4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.4 mil.
- C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 coating designation.
  - 1. Surface: Smooth, flat
  - 2. Finish: Mill.

## 2.3 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal 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. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    - b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
  - 2. Fasteners for Zinc-Coated (Galvanized) and Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.
- C. Solder:
  - 1. For Zinc-Coated (Galvanized) Steel: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.
- D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant: See Section 07 92 00 "Joint Sealants".

## 2.4 FABRICATION, GENERAL

- A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.
  - 1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
  - 2. 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.
  - 3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
  - 4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
  - 5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances:
  - 1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.
- C. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed 1/2 inch to form drip. Miter and seam corners.
- D. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Provide 6-inch wide concealed back plates at copings.
  1. Lapped or bayonet-type joints are permitted in opening flashings and counterflashings not visible from the ground.
- E. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.
- F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal, but not less than one gage heavier thickness of metal being secured.
- G. Fabricate cleats, concealed back plates, and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet 1-49 for application, but not less than thickness one gage heavier of metal being secured.
- H. Do not use graphite pencils to mark metal surfaces.

## 2.5 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Roof Edge Flashing: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long sections. Furnish with 6-inch-wide, joint cover plates. Shop fabricate interior and exterior corners.
  1. Joint Style: Butted with expansion space and 6-inch-wide, concealed backup plate.
  2. Fabricate from the following materials:
    - a. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.
- B. Copings: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and interior leg. Miter corners, fasten and seal watertight. Shop fabricate interior and exterior corners.
  1. Coping Profile: Fig. 3-4A in accordance with SMACNA's "Architectural Sheet Metal Manual."
  2. Joint Style: Butted with expansion space and 6-inch-wide, concealed backup plate.
  3. Fabricate from the following materials:
    - a. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.

- C. Roof-to-Roof Edge-Flashing and Fascia-Cap Transition Expansion-Joint Cover: Shop fabricate interior and exterior corners. Fabricate from the following materials:
  - 1. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.
- D. Counterflashing: Fabricate from the following materials:
  - 1. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.
- E. Roof-Penetration Flashing: Fabricate from one of the following materials:
  - 1. Galvanized Steel: 0.024 inch thick.
  - 2. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, 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.
  - 3. Verify that water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Verify roofing terminations and base flashings are in place, sealed, and secured.
- C. Verify all membrane cuts for protection railings have been repaired.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION, GENERAL

- A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.
  - 1. Field cutting of metal panels by torch, reciprocating saw, or abrasive type cutting wheel is not permitted.
  - 2. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 3. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder or sealant.
  - 4. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.

5. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
  6. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
  7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
  8. Do not field cut sheet metal flashing and trim by torch, reciprocating saw, or abrasive grinder.
  9. Do not use graphite pencils to mark metal surfaces.
- B. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.
1. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection. At copings and exposed metal flashings, provide 6 inch wide concealed back plates centered on flashing joints. Hold flashings 1/8 inch apart. Set flashings in two rows of sealant, each side of joint. At concealed flashings, provide joints lapped 6-inches with two rows of sealant in the joint.
- C. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
- D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- E. Seal joints as required for watertight construction.
1. Use sealant-filled joints unless otherwise indicated.
    - a. Form joints to completely conceal sealant.
    - b. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
    - c. Adjust setting proportionately for installation at higher ambient temperatures.
      - 1) Do not install sealant-type joints at temperatures below 40 deg F.
  2. Prepare joints and apply sealants to comply with requirements in Section 07 92 00 "Joint Sealants."
- F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.
1. Pretin edges of sheets with solder to width of 1-1/2 inches; however, reduce pretinning where pretinned surface would show in completed Work.
  2. Do not use torches for soldering.
  3. Heat surfaces to receive solder, and flow solder into joint.
    - a. Fill joint completely.
    - b. Completely remove flux and spatter from exposed surfaces.

### 3.3 INSTALLATION OF ROOF FLASHINGS

- A. Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard.
  - 1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
  - 2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Roof Edge Flashing:
  - 1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
  - 2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch centers.
  - 3. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for FM Approvals' listing for required windstorm classification.
- C. Copings:
  - 1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
  - 2. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for specified FM Approvals' listing for required windstorm classification.
- D. Flue Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.
  - 1. Insert counterflashing under existing flashings and fit tightly to base flashing.
  - 2. Extend counterflashing 4 inches over base flashing.
  - 3. Lap counterflashing joints minimum of 4 inches.
  - 4. Secure in waterproof manner by means of anchor and washer spaced at 12 inches o.c. along perimeter and 6 inches o.c. at corners areas unless otherwise indicated.
- F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

### 3.4 INSTALLATION OF WALL FLASHINGS

- A. Install sheet metal wall flashing to intercept and exclude penetrating moisture in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

- B. Opening Flashings in Frame Construction: Install continuous head, sill, and similar flashings to extend 4 inches beyond wall openings.

### 3.5 INSTALLATION TOLERANCES

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

### 3.6 CLEANING

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.

### 3.7 PROTECTION

- A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.
- C. Maintain sheet metal flashing and trim in 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, as determined by Architect.

END OF SECTION 07 62 00

SECTION 07 72 00

ROOF ACCESSORIES

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. Roof curbs.
- 2. Roof hatches.
- 3. Fall protection devices.

B. Related Requirements:

- 1. Section 05 50 00 "Metal Fabrications" for metal vertical ladders for access to roof hatches.
- 2. Section 07 62 00 "Sheet Metal Flashing and Trim" for shop- and field-formed metal flashing, roof-drainage systems, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.

1.3 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of roof accessory.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For roof accessories.

1. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fall protection devices to include in operation and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Standards: Comply with the following:

1. SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.
2. NRCA's "Roofing Manual" details for installing units.
3. OSHA 29 CFR 1926.502 "Fall Protection Systems Criteria and Practices".

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Wind-Restraint Performance: As indicated on Drawings.

2.2 ROOF CURBS

- A. Roof Curbs: Internally reinforced roof-curb units capable of supporting superimposed live and dead loads, including equipment loads and other construction indicated on Drawings, bearing continuously on roof structure, and capable of meeting performance requirements; with welded or mechanically fastened and sealed corner joints, straight sides, and integrally formed deck-mounting flange at perimeter bottom.
- B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.
- C. Supported Load Capacity: Coordinate load capacity with information on Shop Drawings of equipment to be supported.

- D. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.048 inch thick.
  - 1. Finish: Mill phosphatized.
- E. Construction:
  - 1. Curb Profile: Manufacturer's standard compatible with roofing system.
  - 2. Fabricate curbs to minimum height of 12 inches above roofing surface unless otherwise indicated.
  - 3. Top Surface: Level top of curb, with roof slope accommodated by sloping deck-mounting flange.
  - 4. Sloping Roofs: Where roof slope exceeds 1:48, fabricate curb with perimeter curb height tapered to accommodate roof slope so that top surface of perimeter curb is level. Equip unit with water diverter or cricket on side that obstructs water flow.
  - 5. Insulation: Factory insulated with 1-1/2-inch-thick glass-fiber board insulation.
  - 6. Liner: Same material as curb, of manufacturer's standard thickness and finish.
  - 7. Nailer: Factory-installed wood nailer under top flange on side of curb, continuous around curb perimeter.
  - 8. Metal Counterflashing: Manufacturer's standard, removable, fabricated of same metal and finish as curb.

### 2.3 ROOF HATCHES

- A. Roof Hatches: Metal roof-hatch units with lids and insulated double-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, straight sides, and integrally formed deck-mounting flange at perimeter bottom.
- B. Type and Size: Single-leaf lid, 30 by 54 inches.
- C. Loads: Minimum 40-lbf/sq. ft. external live load and 20-lbf/sq. ft. internal uplift load.
- D. Hatch Material: Aluminum sheet.
  - 1. Thickness: 0.12 inch.
  - 2. Finish: Mill.
- E. Construction:
  - 1. Insulation: 3-inch-thick, polyisocyanurate board.
    - a. R-Value: 20 according to ASTM C1363.
  - 2. Nailer: Factory-installed wood nailer continuous around hatch perimeter.
  - 3. Hatch Lid: Opaque, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
  - 4. Curb Liner: Manufacturer's standard, of same material and finish as metal curb.
  - 5. Fabricate curbs to minimum height of 12 inches above roofing surface unless otherwise indicated.

- F. Hardware: Spring operators, hold-open arm, stainless steel spring latch with turn handles, stainless steel butt- or pintle-type hinge system, and padlock hasps inside and outside.
1. Heavy-Duty Barrel Bolt: Zinc plated steel, 5-inch minimum, bolt diameter 0.50 minimum, National Hardware N11-118 V832 or approved substitution.
- G. Safety Railing System: Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with 29 CFR 1910.23 requirements and authorities having jurisdiction.
1. Height: 42 inches above finished roof deck.
  2. Posts and Rails: Galvanized-steel pipe, 1-1/4 inches in diameter or galvanized-steel tube, 1-5/8 inches in diameter.
  3. Flat Bar: Galvanized steel, 2 inches high by 3/8 inch thick.
  4. Maximum Opening Size: System constructed to prevent passage of a sphere 21 inches in diameter.
  5. Self-Latching Gate: Fabricated of same materials and rail spacing as safety railing system. Provide manufacturer's standard hinges and self-latching mechanism.
  6. Post and Rail Tops and Ends: Weather resistant, closed or plugged with prefabricated end fittings.
  7. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members.
  8. Fabricate joints exposed to weather to be watertight.
  9. Fasteners: Manufacturer's standard, finished to match railing system.
  10. Finish: Manufacturer's standard powder coating.
- H. Ladder-Assist Post: Roof-hatch manufacturer's standard device for attachment to roof-access ladder.
1. Operation: Post locks in place on full extension; release mechanism returns post to closed position.
  2. Height: 42 inches above finished roof deck.
  3. Material: Steel tube.
  4. Post: 1-5/8-inch-diameter pipe.
  5. Finish: Manufacturer's standard baked enamel or powder coat.

## 2.4 FALL PROTECTION HORIZONTAL LIFELINES

- A. General: Provide fall restraint lifeline system complete including posts, wire rope, and accessories, not including harnesses or tethers. Conform to ANSI Z359.1, ANSI A10.32, OSHA 1926 Subpart M, OSHA 1910.
- B. Anchor Posts: 5,000 lb minimum breaking strength, galvanized steel construction with base plate.
1. Posts: Basis-of-Design: Subject to compliance with requirements, provide Guardian CB18 Anchor Point Model 00657, or approved substitution.
  2. Provide spacer material to provide minimum 12-inches of post above roofing membrane.

- C. Stainless Steel Wire Rope: Wire rope manufactured from stainless steel wire complying with ASTM A492, Type 316, 5/16-inch diameter, 7x19, 2,000 lb. breaking strength minimum.
  - 1. Wire Rope Fittings: Stainless steel connectors, Type 316 with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used. Provide turnbuckles, thimbles, fist clamps, and other accessories for a complete system.
  - 2. Assume four person within 20 feet of line with maximum of four persons per line.
- D. Safety Flags: 4 by 5-inch PVC orange flag on 21-inch steel wire.
  - 1. Basis-of-Design: Subject to compliance with requirements, provide Presco, ACE Supply, or approved substitution.

## 2.5 METAL MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation.
  - 1. Mill-Phosphatized Finish: Manufacturer's standard for field painting.
  - 2. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
- B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, AZ50 coated.
- C. Aluminum Sheet: ASTM B209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.
  - 1. Mill Finish: As manufactured.
- D. Steel Pipe: ASTM A53/A53M, galvanized.

## 2.6 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Polyisocyanurate Board Insulation: ASTM C1289, thickness and thermal resistivity as indicated.
- C. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, and complying with AWPA C2; not less than 1-1/2 inches thick.

- D. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:
  - 1. Fasteners for Zinc-Coated or Aluminum-Zinc Alloy-Coated Steel: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A153/A153M or ASTM F2329.
  - 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
- E. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.

## 2.7 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 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.
- B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install roof accessories according to manufacturer's written instructions.
  - 1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
  - 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
  - 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Roof Curb Installation: Install each roof curb so top surface is level.

- C. Roof-Hatch Installation:
  - 1. Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
  - 2. Attach safety railing system to roof-hatch curb.
  - 3. Attach ladder-assist post according to manufacturer's written instructions.
  
- D. Fall Protection Installation: Install anchor points as recommended by anchor manufacturer and approved shop drawings.
  - 1. Locate fall protection post anchors 15 feet off outside face of parapet or roof edge.
  - 2. Provide spacers to achieve minimum 12-inch from top of post to top of membrane.
  - 3. Flash fixed heights anchors with roof pipe boot flashing per Section 07 53 23 – “Ethylene-Propylene-Diene-Monomer (EPDM) Roofing”.
  - 4. Thread cables through post anchors. Tension cable to manufacturer recommendations.
  - 5. Provide one safety flag at each fall protection lifeline post anchor. Secure wire post to anchor with two stainless steel draw bands above flashing boot. Secure on side opposite roof edge.
  
- E. Seal joints with elastomeric sealant as required by roof accessory manufacturer.

### 3.3 REPAIR AND CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780/A780M.
- B. Clean exposed surfaces according to manufacturer's written instructions.
- C. Clean off excess sealants.
- D. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 07 72 00

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:
  - 1. Silicone joint sealants.
  - 2. Urethane joint sealants.
  - 3. Butyl joint sealants.
  - 4. Spray-applied latex sealant

1.3 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.4 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Installation Instructions: Indicate special procedures, surface preparations, and perimeter conditions requiring special attention.
- B. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE

- A. Product Testing: Test joint sealants using a qualified testing agency.
  - 1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.8 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period indicated below:
  - 1. Warranty Period: Two years from date of Substantial Completion for silicone sealants.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: 20 years from date of Substantial Completion for silicone sealants.
  - 2. Warranty Period: Five years from date of Substantial Completion for urethane sealants.
  - 3. Warranty Period: One year from date of Substantial Completion for butyl sealants
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
  - 1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
  - 2. Disintegration of joint substrates from causes exceeding design specifications.
  - 3. Mechanical damage caused by individuals, tools, or other outside agents.
  - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## PART 2 - PRODUCTS

### 2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

### 2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
  - a. Dow Corning; 791,
  - b. Pecora Corp.; 895
  - c. Tremco, Inc.; Spectrem 2.
- 2. Applications: Applications as follows:
  - a. Exposed metal to metal joints.
  - b. Metal pipe to concrete joints.
  - c. Top of termination bar joints.

### 2.3 URETHANE JOINT SEALANTS

- A. Urethane, S, NS, 25, T, NT: Single-component, nonsag, plus 25 percent and minus 25 percent minimum movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 35, Uses T and NT.
  - a. Dow Corning; 791,
  - b. Pecora Corp.; Dynaflex
  - c. Bostik; 1K PU
  - d. Sika; Sikaflex 1A
  - e. Tremco, Inc.; Dymonic 100.
- 2. Applications: Applications as follows:
  - a. EIFS joints.
  - b. EIFS to metal joints.
  - c. Top of termination bar joints.

## 2.4 BUTYL JOINT SEALANTS

- A. Butyl-Rubber-Based Joint Sealants: ASTM C 1311.
  - a. Bostik, Inc.; Chem-Calk 300
  - b. Pecora Corp.; BC-158
  - c. Tremco Incorporated; Tremco Butyl Sealant
- 2. Applications: Wall applications as follows:
  - a. Concealed metal to metal joints.
- B. Spray Applied Latex Sealant Joints: Manufacturer's standard acrylic latex acoustical sealant complying with ASTM C 834.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Hilti, Inc.; CP 572.
    - b. Pecora Corporation; AIS-919.
    - c. Tremco; TREMstop.
  - 2. Applications: Applications as follows:
    - a. Seal insulation in parapet walls.

## 2.5 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

## 2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    - a. Concrete.
  - 3. Remove laitance and form-release agents from concrete.
  - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Do not use solvent curing sealants in enclosed, occupied spaces.
- C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- D. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Oversize backing 30 to 50 percent of joint width.
  - 2. Do not leave gaps between ends of sealant backings.
  - 3. Do not stretch, twist, puncture, or tear sealant backings.
  - 4. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. Install spray applied sealant as indicated on drawings. Lap to substrates and studs to create a vapor and air-resistant membrane.
- H. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
- B. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00

## NON-STRUCTURAL METAL FRAMING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Non-load-bearing steel framing systems for interior partitions, roof parapets, and curbs.

#### 1.3 DESIGN REQUIREMENTS

- A. Design in accordance with American Iron and Steel Institute Publication “Specification for the Design of Cold-Formed Steel Structural Members”, except as otherwise shown or specified.

#### 1.4 QUALITY ASSURANCE

- A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, or the Steel Stud Manufacturers Association.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Notify manufacturer of damaged materials received prior to installing.
- B. Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.
- C. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required in AISI’s “Code of Standard Practice”.

## PART 2 - PRODUCTS

### 2.1 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C645 requirements for steel.
  - 2. Protective Coating: ASTM A653/A653M, G60, hot-dip galvanized.
- B. Studs and Tracks: ASTM C645.
  - 1. Steel Studs and Tracks:
    - a. Minimum Base-Steel Thickness: 0.0359 inch.
    - b. Depth: As indicated on Drawings.
- C. Flat Strap and Backing Plate: Steel sheet for blocking.
  - 1. Minimum Base-Steel Thickness: 0.063 inch.

### 2.2 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

3.3 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior concrete walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 09 22 16

SECTION 09 90 00

PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and field painting of interior gypsum board.

1.3 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
  - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
  - 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
  - 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Sustainability Submittals:
  - 1. Product Data: For interior paints and coatings, including printed statement of VOC content.
  - 2. Laboratory Test Reports: For interior paints and coatings, documentation indicating that they meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
  - 1. Submit four Samples on 8-by-10 inch cardstock for Architect's review of color and texture only:
  - 2. Step coats on Samples to show each coat required for system.

3. Label each coat of each Sample.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system. Use same designations indicated.
2. VOC content.

## 1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain primers for each coating system from the same manufacturer as the finish coats.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.
- B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. PPG Industries, Inc. (Pittsburgh Paints).
  2. Rhodda Paint Co.
  3. Sherwin-Williams Co. (Sherwin-Williams).
- B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in other Part 2 articles for the paint category indicated.

## 2.2 PAINT MATERIALS, GENERAL

### A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

### B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

### C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.

### D. Low-Emitting Materials: Interior 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."

### E. Colors: Match existing color and sheen.

## 2.3 INTERIOR PRIMERS

### A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.

1. Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil.
2. Rodda; 50701 Roseal Gypsum Primer: Applied at a dry film thickness of not less than 1.5 mils
3. Sherwin-Williams; ProMar 200 Zero VOC Interior Latex Primer B28W02600 Series: Applied at a dry film thickness of not less than 1.0 mils.

## 2.4 INTERIOR FINISH COATS

- A. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.
  - 1. Pittsburgh Paints; 6-70 Line SpeedHide Interior Wall Flat-Latex Paint: Applied at a dry film thickness of not less than 1.0 mil.
  - 2. Rodda; 513101 Master Painter Int. Latex Flat Wall Paint: Applied at a dry film thickness of not less than 1.5 mils
  - 3. Sherwin-Williams; ProMar 200 Interior Latex Flat Wall Paint B30W200 Series: Applied at a dry film thickness of not less than 1.4 mils.
  
- B. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.
  - 1. Pittsburgh Paints; 6-411 Series SpeedHide Eggshell Acrylic Latex Enamel: Applied at a dry film thickness of not less than 1.25 mils.
  - 2. Rodda; 533001 Lasyn Eggshell Finish Wall Paint: Applied at a dry film thickness of not less than 1.5 mils
  - 3. Sherwin-Williams; ProMar 200 Interior Latex Egg-Shell Enamel B20W200 Series: Applied at a dry film thickness of not less than 1.6 mils.
  
- C. Interior Semigloss Acrylic Enamel: Factory-formulated semigloss acrylic-latex enamel for interior application.
  - 1. Pittsburgh Paints; 6-714 Series SpeedHide Interior Dry-Fog Spray Paint Semi-Gloss Latex: Applied at a dry film thickness of not less than 2.6 mil.
  - 2. Rodda; 05135 Professional Latex Dryfall Semi-Gloss White Base: Applied at a dry film thickness of not less than 1.5 mils.
  - 3. Sherwin-Williams; Pro Industrial Waterborne Acrylic Dryfall Semi-Gloss, B42 Series: Applied at a dry film thickness of not less than 2.3 mils.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
  
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Gypsum Board: 12 percent.
  
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
  
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. General: Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  - 1. Provide barrier coats over incompatible primers or remove and reprime.

### 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- D. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- E. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

- F. Completed Work: Match adjacent surfaces for color, texture, sheen, and coverage. Remove, refinish, or repaint work not complying with requirements.

### 3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.5 INTERIOR PAINT SCHEDULE

- A. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
  - 1. Flat Acrylic Finish: Two finish coats over a primer.
    - a. Primer: Interior gypsum board primer.
    - b. Finish Coats: Interior flat acrylic paint.
  - 2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
    - a. Primer: Interior gypsum board primer.
    - b. Finish Coats: Interior low-luster acrylic enamel.
  - 3. Sheens vary. Field verify sheen and match existing.

END OF SECTION 09 90 00