

MIAMI UNIVERSITY  
OXFORD, OHIO 45056  
PHYSICAL FACILITIES DIVISION  
FACILITIES CONTRACTING  
STANDARD CONDITIONS OF CONTRACT FOR CONSTRUCTION

PATTERSON PLACE  
RENOVATION 2019

PROJECT MANUAL  
TECHNICAL SPECIFICATIONS

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## SECTION 01 1000

### SUMMARY

#### PART 1 – GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents
  - 2. Type of the Contract
  - 3. Use of premises
  - 4. Owner's occupancy requirements
  - 5. Work restrictions
  - 6. Specification formats and conventions
- B. Related Sections include the following:
  - 1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Miami University facilities.

##### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: **Miami University Patterson Place accessibility and Exterior Improvements Upgrade Project**
  - 1. Project Location: Patterson Place  
Miami University  
325 South Patterson  
Oxford, Ohio 45056
- B. Owner: Miami University
  - 1. Owner's Representative:  
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D. **This project will be governed by a Single Prime General Contractor agreement.**

E. The Work consists of the following:

1. Renovation and accessibility access upgrades to an existing first floor restroom.
2. Addition of a new exterior ADA accessible ramp.
3. Exterior improvements including re-roofing; wood trim and shutter repairs; and repainting,

F. **ALTERNATES: (Not to be included in the Base Bid.)**

**1. ALTERNATE #01**

- a. Restroom floor replacement with ceramic tile flooring and associated subsurface stabilization and waterproofing.

**2. ALTERNATE #02**

- a. Exterior masonry and foundation stone power washing and joint tuckpointing.
- b. Contractor to include the following square feet of tuckpointing within their proposal: **565 Square Feet.**
- c. Refer to Specification SECTION 04 0100 MAINTENANCE OF MASONRY and DRAWING numbers A2.1, A2.2, A2.3 and A2.4 for the area constituting the 565 square feet.

**3. ALTERNATE #03**

- a. All material and labor associated with the installation of a new south exterior ADA accessible ramp, substructure, handrails, balustrades, landscaping and concrete walkway.

**1.4 PROJECT SCHEDULE**

- A. All project schedules should reflect contractual obligation dates.
- B. Coordination with Miami University Project Manager regarding other work that may occur within the same building.

**1.5 TYPE OF CONTRACT**

- A. Project will be constructed under a **single prime contract**. See Division 01 Section "Summary of Contract" for a description of work included in the contract. Contracts for this Project include the following:
  1. General Construction

**1.6 USE OF PREMISES**

- A. General Contractor shall have building access for construction operations within areas of scope of work. **The General Contractor is responsible for protecting all existing exterior landscaping, walkways and drives; existing exterior building elements not included in the scope of improvement work and interior areas used and accessed during construction operations.**
- B. Use of Site: Use of premises should be confined as necessary to areas within the Contract limits indicated, with non-work areas being used for the transportation of materials as needed. Reduce disturbance to portions of the Project site beyond areas in which the Work is indicated.

1. Confine constructions primarily to operations in areas indicated in the Drawings and as required by the project scope.
2. Owner Occupancy: Miami University personnel will require ongoing access to the buildings with public use during limited times as noted below:
3. Driveways and Entrances: Keep driveways, parking lots, loading areas and entrances serving premises clear and available to Miami University, Miami University's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
  - a. Schedule deliveries to minimize use of driveways and entrances.
  - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Use of Existing Building: Repair damage caused by construction operations. Protect building during construction period.
- D. Parking:
  - a. Expense for parking shall be required by contractors and subcontractors following guidelines and regulations set forth by Miami University's Parking Services.
  - b. Contractors and Subcontractors shall be eligible for parking access issued by Parking Services at the Campus Avenue Building. Parking passes must be obtained prior to the start of work and parking must be maintained within allowable areas.
- E. No storage or office trailers are allowed on Miami University's Main Campus unless indicated otherwise by the University's Project Manager. Miami will permit parking of these trailers at a designated offsite location as coordinated with Miami's Project Manager.

#### 1.7 OWNER'S OCCUPANCY REQUIREMENTS

- A. Partial-Owner Occupancy: Miami University will require access to the premises during entire construction period. Cooperate with Miami University during construction operations to minimize conflicts and facilitate Miami University's usage. Perform the Work so as not to interfere with Miami University's operations. Maintain existing exits, unless otherwise indicated.
  1. Maintain access to existing walkways, corridors, and other occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Miami University.
  2. Provide not less than seventy two (72) hours' notice to University's Project Manager of activities that will affect the University's operations.

#### 1.8 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, except otherwise indicated. **To achieve required Project Substantial and Completion Deadlines, work hours can include evening, night and weekend work in coordination with Miami University regarding facility access.**
  1. Weekend Hours: As arranged a minimum seventy two (72) hours beforehand with Miami University Project Manager.
  2. Hours for Utility Shutdowns: As arranged a minimum seventy two (72) hours beforehand with Miami University's Project Manager.
  3. Hours for noisy activity (including but not limited to core drilling and jack hammering): As arranged a minimum seventy two (72) hours beforehand with Miami University's

Project Manager.

- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Miami University's Project Manager not less than seventy two (72) hours in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Miami University's Project Manager's written permission

#### **1.09 SPECIFICATION FORMATS AND CONVENTIONS**

- A. Specification Format: The Specifications are organized into Divisions and Sections according to CSI/CSC's "MasterFormat" numbering system.
  - 1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  - 2. Imperative and streamlined language is generally used in the Specifications. Requirements expressed in the imperative language are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted. The words "shall," "shall be," or "shall comply with," depending on the context, implied where a colon (:) is used within a sentence or phrase.

#### **1.10 SPECIFICATION FORMATS AND CONVENTIONS**

- A. Review and approval by State of Ohio Department of Commerce Department of Industrial Compliance. A CPA number shall apply to project as assigned by State of Ohio Department of Industrial Compliance.
- B. Fees for these permits to be issued by the State of Ohio Department of Industrial Compliance have been paid for by Miami University. All others fees shall be the responsibility of the General Contractor and Subcontractors.
- C. All inspections during construction shall be the responsibility of the General Contractor for their associated work efforts.

**PART 2 – PRODUCTS** (Not Used)

**PART 3 – EXECUTION** (Not Used)

**END OF SECTION**

## SECTION 01 1400

### WORK RESTRICTIONS

#### PART 1 - GENERAL

##### 1.1 WORK RESTRICTIONS

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
- B. The General Contractor shall provide to Miami University's Project Manager's office, home and cellular telephone numbers for project managers, field supervisors and key foreman before the first application for payment is submitted.
- C. Storage of materials, when outside, shall be in orderly piles or storage boxes. No material shall be stored on grass or in areas that are to remain undisturbed. No storage or office trailers are allowed on Miami University's Main Campus area. Miami will permit parking of these trailers at a designated offsite location as coordinated with Miami's Project Manager.
- D. The Contractor and Subcontractors shall execute the work in a manner that will not adversely disrupt the University's operations, this includes, but is not limited to all areas outside of the limits of construction, all buildings all utility services.
- E. All Contractor's personnel including Subcontractors that desire to park on Campus while working on Campus shall only park in designated University areas as defined by required parking pass procurement. Contractor and Subcontractor's personnel vehicles shall display the University's designated parking permit on the dash board at all times while on Campus. The University reserves the right to change the designated Contractor and Subcontractor's personnel parking area and lot by providing forty eight (48) hours written notice to the Contractor. The Contractor is responsible for shuttling their personnel and Subcontractors to and from designated Contractor parking lots. Any Contractor and/or Subcontractor employee who does not adhere to the requirements of this section, or who are parking anywhere else on Campus are subject to ticketing, fines, towing and permanent expulsion from working on the current capital improvement project without any further notice. Each Contractor is solely responsible for communicating the parking requirements to all of their employees and subcontractors while on Campus, and issuing the temporary parking permits provided by the University.
- F. Expense for parking shall be required by Contractor and Subcontractors following guidelines and regulations set forth by Miami University's Parking Services. Contractor and Subcontractors shall be eligible for parking access issued by Parking Services at the Campus Avenue Building. Parking passes must be obtained prior to the start of work and parking must be maintained within allowable areas.
- G. Contractors' and Subcontractors' vehicles including delivery vehicles are not permitted to block or obstruct any active side walk, cross walk or roadway on Campus. The driver of all delivery trucks shall remain with their vehicle at all times. Delivery trucks are not permitted to idle near public areas or in the vicinity of air intakes of the surrounding buildings. Delivery trucks shall only park within the limits of construction.
- H. The only signs that the Contractor is permitted to post are warning, emergency egress and traffic route signs.

##### 1.2 HOURS OF OPERATION

- A. Normal working hours on Campus shall be 7:00 A.M. until 5:00 P.M. Monday through Friday. If any contractor desires to work beyond working the normal working hours, they shall request permission on a daily basis from the Miami's Project Manager. **To achieve required Project Substantial and Completion Deadlines, work hours can include evening, night and weekend work in coordination with Miami University regarding facility access.**



B. Dumpsters must be located in coordination with Miami's Project Manager.

### **1.3 UTILITIES**

- A. Utility outages must be scheduled not less than seventy two (72) working hours in advance of proposed utility interruptions by filing a written request with the University's Project Manager. The information contained within the Contractor's request must be sufficient for the University to process the request. Only the University's personnel are authorized to close and open valves. Contractor's and Subcontractors' personnel are prohibited from operating any valve or breaker on the University's utility systems with the only exception being to save a life or prevent serious injury.
- B. Contractors and Subcontractors are to fully cooperate with the University during all utility outages and shut downs. Recognizing that the utility systems serve other facilities, the Contractors and/or Subcontractors shall plan tying into existing utility services during times when the systems are not functional or in low demand.
- C. The storage of flammable liquids, and other hazardous materials, such-as flammable thinners, gasoline, oil, inside any occupied building or adjacent to mean of egress, or near air intakes for any building is prohibited.
- D. Each Contractor is to maintain their own staging area.
- E. Contractor's and Subcontractors' employees are prohibited from entering into any occupied building on Campus, or riding a University shuttle bus unless specifically escorted by a representative of the University as coordinated through Miami's Project Manager.

## **PART 2 - PRODUCTS**

## **PART 3 EXECUTION (Not Used)**

**END OF-SECTION**

## SECTION 01 2200

### UNIT PRICES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Contractor's listing of unit prices for use in preparing Bids.
- B. Defect assessment.

##### 1.02 DEFINITIONS

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

##### 1.03 PROCEDURES

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

#### PART 2 PRODUCTS (NOT USED)

#### PART 3 EXECUTION

##### 3.01 SCHEDULE OF UNIT PRICES

- A. **Unit Price No. 1** - Replacement of existing deteriorated shiplap wood roofing wood boards on sloped roof areas.

Price per linear foot to remove existing deteriorated shiplap wood roofing wood boards and all associated fasteners and to install new roof wood shiplap wood roofing wood boards:

**ADDITION: \$ \_\_\_\_\_ Per Square Foot**

- B. **Unit Price No. 2** - Replacement of deteriorated existing perimeter roof wood soffit panels.

Price per linear foot to remove existing deteriorated wood soffit panels at perimeter sloped roofs and all associated fasteners and to install new deteriorated wood soffit panels below perimeter of sloped roofs.

**ADDITION: \$ \_\_\_\_\_ Per Square Foot**

- C. **Unit Price No. 3** - Replacement of deteriorated existing wood frieze panels and associated trim, excluding dental molding.

Price per linear foot to remove deteriorated existing wood frieze panels and trim, excluding dental molding and to install new wood frieze panels and associated trim, excluding dental molding.

**ADDITION: \$ \_\_\_\_\_ Per Linear Foot**

**D. Unit Price No. 4 - Replacement of deteriorated existing wood fascia and crown moldings.**

Price per linear foot to remove deteriorated existing wood fascia and crown molding and to install new wood fascia and crown moldings.

**ADDITION: \$ \_\_\_\_\_ Per Linear Foot**

**E. Unit Price No. 2 - Replacement of existing deteriorated wood shutter.**

Price each to remove existing deteriorated wood shutter and all associated hardware and fasteners and to install new shutters to match existing and all mounting hardware and fasteners.

**ADDITION: \$ \_\_\_\_\_ Per First Floor Shutter**

**ADDITION: \$ \_\_\_\_\_ Per Second Floor Shutter**

**F. Unit Price No. 2 - Replacement of existing deteriorated porch wood deck boards.**

Price per linear foot to remove existing deteriorated porch wood deck boards and all associated fasteners and to install new porch wood deck boards

**ADDITION: \$ \_\_\_\_\_ Per Square Foot**

**END OF SECTION**

**SECTION 01 2300  
ALTERNATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Description of Alternates.
- B. Procedures for pricing Alternates.
- C. Documentation of changes to Contract Price and Contract Time.

**1.02 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.

**1.03 SCHEDULE OF ALTERNATES**

**A. Alternate No. 01:**

- 1. Base Bid Item: Specification Section 09 6516 SHEET VINYL FLOORING and DRAWING number A1.1.
- 2. Alternate Item: Specification Section 09 3013 CERAMIC TILE FLOORING and DRAWING number A1.1.
  - a. Preparation, installation and final cleaning of ceramic tile flooring.

**B. Alternate No. 02:**

- 1. Base Bid Item: No exterior masonry cleaning, repair or tuckpointing scope of Work.
- 2. Alternate Item: Specification SECTION 04 0100 MAINTENANCE OF MASONRY and DRAWING numbers A2.1, A2.2, A2.3 and A2.4 constituting 565 square feet.

**C. Alternate No. 03:**

- 1. Base Bid Item: No exterior work associated with a south exterior ADA accessible ramp, substructure, handrails, balustrades, landscaping and concrete walkway.
- 2. Alternate Item:
  - a. All material and labor associated with the installation of a new south exterior ADA accessible ramp, substructure, handrails, balustrades, landscaping and concrete walkway.
  - b. Work as supported by Specification 03 3000 Cast-in-Place Concrete, 05 7000 Decorative Metal, 06 1000 Rough Carpentry, 06 1500 Wood Decking, 06 2000 Finish Carpentry, 09 9000 Painting and Coatings, 31 2316 Excavation, and 32 9200 Grasses. Work as defined on DRAWING numbers A1.1, A1.2, A2.1, A2.2, A2.3, A2.4 and C1.1

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

## SECTION 01 3100

### PROJECT MANAGEMENT AND COORDINATION

#### PART 1 - GENERAL

##### 1.1 COORDINATION

- A. The General Contractor and each Subcontractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary" for a description of the division of Work and responsibility for coordination activities not in this Section.
  - 2. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
  - 3. Division 01 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 4. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

##### 1.2 COORDINATION

- A. Coordination: The General Contractor shall coordinate all construction operations and those of the Subcontractors and entities to ensure efficient and orderly installation of each part of the Work. Each Subcontractor shall coordinate its operations with operations, included in different Sections, which depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain 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 with other Subcontractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components.
- B. Coordination with other Miami University Projects: The General Contractor shall coordinate through Miami University's Project Manager the scope of work included with this project with other projects occurring within the projects work areas **if applicable**.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Miami University and separate Subcontractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of Subcontractors 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. Project closeout activities.
  7. Startup and adjustment of systems.
  8. Project closeout activities and documentation.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
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 Miami University's property.

### **1.3 PROJECT SCHEDULE**

- A. As indicated in Section 01 1000 Summary
- B. All project schedules should reflect the above noted contractual obligation dates.

### **1.4 SUBMITTALS**

- A. Key Personnel Names: Within five (5) days of starting construction operations, submit to both the Design Associate and Miami's Project Manager 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, email addresses, and telephone numbers, including home and office telephone numbers. 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 temporary field office, and by each temporary telephone. Keep list current at all times.

### **1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL**

- A. General: In addition to Project Superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
  1. Include special personnel required for coordination of operations with other contractors.

### **1.6 PROJECT MEETINGS**

- A. General: General Contractor to manage scheduled meetings at Project site, unless otherwise indicated as noted below.
  1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Miami's Project Manager and Design Associate of scheduled meeting dates and times.
  2. Agenda: General Contractor to prepare and present meeting agenda with specific efforts delineated including those of the Subcontractors.
  3. Minutes: Record significant discussions and agreements achieved. General Contractor will electronically distribute the meeting minutes to everyone concerned.
- B. PRE-CONSTRUCTION MEETING: General Contractor to prepare and lead a Pre-construction Meeting before starting construction, at a time scheduled in coordination with Miami's Project Manager and Design Associate, but no later than five (5) days

after execution of the Agreement. The meeting will be held at the Project site or another convenient location as approved by Miami University's Manager. The meeting will be conducted to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Miami University and Design Associate; Contractor and its Superintendent, General Contractor and Subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
  - a. Construction schedule
  - b. Critical work sequencing and long-lead items
  - c. Designation of key personnel, duties, and contact verifications
  - d. Procedures for processing field decisions and Change Orders (COs)
  - e. Procedures for requests for interpretations (RFIs) and Construction Change Directives (CCDs).
  - f. Procedures for inspecting
  - g. Procedures for processing Applications for Payment.
  - h. Submittal procedures
  - i. Preparation of Record Documents
  - j. Use of the premises and existing building
  - k. Work restrictions
  - l. Responsibility for temporary facilities and controls
  - m. Construction waste management and recycling
  - n. Parking availability
  - o. Office, work, and storage areas
  - p. Equipment deliveries and priorities
  - q. First aid
  - r. Security
  - s. Progress cleaning
  - t. Working hours
3. Minutes: Record and distribute meeting minutes.

C. **PROGRESS AND COORDINATION MEETINGS:** The General Contractor will conduct progress meetings at weekly intervals or at intervals approved by Miami's Project Manager. Dates of meetings will be coordinated with preparation of payment requests.

1. Attendees: In addition to representatives of Miami University and Design Associate, 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 conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. 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:
    1. Review progress since the last meeting
    2. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule.
    3. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so.

4. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
  5. Review schedule for next period.
- b. Review present and future needs of each entity present, including the following:
1. Sequence of operations
  2. Status of submittals
  3. Deliveries
  4. Off-site fabrication
  5. Access
  6. Site utilization
  7. Temporary facilities and controls
  8. Work hours
  9. Hazards and risks
  10. Progress cleaning
  11. Quality and work standards
  12. Status of correction of deficient items
  13. Requests for interpretations (RFIs) and Construction Change Directives (CCDs).
  14. Status of proposal requests
- c. Pending changes
1. Status of Change Orders
  2. Pending claims and disputes
  3. Documentation of information for payment requests
3. Minutes will be recorded and distributed to all attendees.
  4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
    - a. Schedule Updating: Contractor's Construction Schedules will be revised after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**



## SECTION 01 3200

### CONSTRUCTION PROGRESS DOCUMENTATION

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule
  - 2. Contractor's Construction Schedule
  - 3. Field condition reports
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary " for preparing a combined Contractor's Construction Schedule
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes
  - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports
  - 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections

##### 1.3. DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

Event: The starting or ending point of an activity.

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

- 1. Float time is not for the exclusive use or benefit of either Miami University or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
- 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
- 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

- C. Major Area: A story of construction, a separate building, or a similar significant construction element.
- D. Milestone: A key or critical point in time for reference or measurement.

#### **1.4 PROJECT SCHEDULE**

- A. As noted in Section 01 1000 Summary.
- B. All project schedules should reflect the above noted contractual obligation dates.

#### **1.5 SUBMITTALS**

- A. Submittals shall be submitted to the Design Associate with copies to be retained to be later submitted as part of project closeout submittal manual.
- B. Preliminary Construction Schedule: Submit one (1) electronic copy to both Miami University's Project Manager and the Associate.
- C. Contractor's Construction Schedule: Submit one (1) electronic copy to both Miami University's Project Manager and the Design Associate.
- D. Field Condition Reports: Submit one (1) electronic copy to both Miami University's Project Manager and the Design Associate.

#### **1.6 QUALITY ASSURANCE**

- A. Construction Schedule: Conduct schedule review at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the Contractor's Construction Schedule, including, but not limited to, the following:
  - 1. Discuss constraints, including work stages, area separations, interim milestones, and work by others within building.
  - 2. Review time required for review of submittals and re-submittals.
  - 3. Review requirements for inspections.
  - 4. Review time required for completion and startup procedures.
  - 5. Review and finalize list of construction activities to be included in schedule.
  - 6. Review submittal requirements and procedures.
  - 7. Review procedures for updating schedule.

#### **1.7 COORDINATION**

- A. The General Contractor shall coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of all Subcontractors.
- B. The General Contractor shall coordinate the Construction Schedule with the Schedule of Values, Submittals Schedule, progress reports, payment requests, and other required schedules and reports:
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## **PART 2- PRODUCTS**

### **2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE - GENERAL**

- A. Time Frame: Extend schedule from date established for the Notice-to-Proceed to date of construction Final Completion and to date of close out documents Final Completion.
- B. Activities
  - 1. Activity Duration: Define activities so no activity is longer than twenty (20) days, unless specifically allowed by Miami University.
  - 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than thirty (30) days, as separate activities in schedule. Procurement cycle activities include, but are not limited to submittals, approvals, purchasing, fabrication, and delivery.
  - 3. Submittal Review Time: Include review and re-submittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
  - 4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Associate's administrative procedures necessary for certification of Substantial Completion.
  - 5. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
  - 6. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  - 7. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Use of premises restrictions.
  - 8. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    - a. Submittals
    - b. Installation
    - c. Inspections
    - d. Adjusting
    - e. Startup and placement into final use and operation
  - 9. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, Miami University Occupancy Requirements and Final Completion.

### **2.2 REPORTS**

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
  - 1. List of employees at Project site
  - 2. Material deliveries

3. Accidents
  4. Meetings and significant decisions
  5. Unusual events (refer to special reports)
  6. Stoppages, delays, shortages, and losses
  7. Emergency procedures
  8. Orders and requests of authorities having jurisdiction
  9. Change Orders received and implemented
  10. Construction Change Directives received and implemented
  11. Services connected and disconnected
  12. Partial Completions and occupancies
  13. Substantial Completions authorized
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

### **PART 3 - EXECUTION**

#### **3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE**

- A. Contractor's Construction Schedule Updating: At weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule three (3) days before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Design Associate, Miami's Project Manager, Subcontractors, and other parties with a need-to-know schedule responsibility.
1. Post copies in temporary field office.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION**

## SECTION 01 3300

### SUBMITTAL PROCEDURES

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
  - 1. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
  - 2. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
  - 3. Division 01 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
  - 4. Division 01 Section "Closeout Procedures" for submitting warranties.
  - 5. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 6. Divisions 02 through 26 Sections for specific requirements for submittals in those Sections.

##### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Associate's responsive action.
- B. Informational Submittals: Written information that does not require Associate's responsive action. Submittals may be rejected for not complying with requirements.

##### 1.4 SUBMITTAL PROCEDURES

- A. General: Upon request electronic copies of CAD Drawings of the Contract Drawings will be provided by Design Associate for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Design Associate reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Design Associate's receipt of submittal. No

extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

1. Initial Review: Allow five (5) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Associate will advise Contractor when a submittal being processed must be delayed for coordination:
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Re-submittal Review: Allow two (2) days for review of each re-submittal.
  4. Concurrent Consultant Review: When transmitted simultaneously to Design Associate and to Associate's consultants, allow five (5) days for review of each submittal. Submittal will be returned to Design Associate before being returned to the General Contractor.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 4 inches by 4 inches (200 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Associate.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name
    - b. Date
    - c. Name and address of Associate
    - d. Name and address of Contractor
    - e. Name and address of Subcontractor
    - f. Name and address of Supplier
    - g. Name of manufacturer
    - h. Submittal number or other unique identifier, including revision identifier.
      1. Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
    - i. Number and title of appropriate Specification Section
    - j. Drawing number and detail references, as appropriate
    - k. Location(s) where product is to be installed, as appropriate
    - l. Other necessary identification
    - m. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Associate observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one (1) paper and electronic copy of submittal to concurrent reviewer in addition to specified copy to Design Associate.
  2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for-transmittal and handling.

Transmit each submittal using a transmittal form. Design Associate will return submittals, without review, received from sources other than the General Contractor.

1. Transmittal Form: Provide locations on form for the following information:
  - a. Project name
  - b. Date
  - c. Destination (To:)
  - d. Source (From:)
  - e. Names of subcontractor, manufacturer, and supplier
  - f. Category and type of submittal
  - g. Submittal purpose and description
  - h. Specification Section number and title
  - i. Drawing number and detail references, as appropriate
  - j. Transmittal number
  - k. Submittal and transmittal distribution record
  - l. Remarks
  - m. Signature of transmitter
2. On an attached separate sheet, prepared on the General Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Design Associate on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

H. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "NO EXCEPTION" or "REVIEWED AND NOTED"

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

Use for Construction: Use only final submittals with mark indicating "NO EXCEPTION" or "REVIEWED AND NOTED" taken by Associate.

## **1.5 CONTRACTOR'S USE OF ASSOCIATE'S CAD FILES**

- A. General: At the General Contractor's request, copies of Design Associate's CAD files will be provided to the General Contractor for their use in connection with Project, subject to the following conditions:
  1. Acceptance and signing of the Design Associate's CAD Disclaimer prior to the release of any electronic files.

## **PART 2- PRODUCTS**

### **2.1 ACTION SUBMITTALS**

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable:
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations
    - b. Manufacturer's product specifications
    - c. Manufacturer's installation instructions.
    - d. Standard color charts
    - e. Compliance with specified referenced standards
    - f. Testing by recognized testing agency. Application of testing agency labels and seals. Notation of coordination requirements.
  4. Submit Product Data before or concurrent with Samples.
  5. Number of Copies: Submit one (1) electronic copy of Product Data, unless otherwise indicated. Mark up and retain one (1) returned copy for the Design Associate as a Project Record Document.
  6. Electronic submittals may be submitted to Design Associate with receipt documentation required from associate confirming delivery of information.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions
    - b. Identification of products
    - c. Fabrication and installation drawings
    - d. Roughing-in and setting diagrams
    - e. Shopwork manufacturing instructions
    - f. Templates and patterns
    - g. Schedules
    - h. Design calculations
    - i. Compliance with specified standards
    - j. Notation of coordination requirements
    - l. Notation of dimensions established by field measurement
    - m. Relationship to adjoining construction clearly indicated
  2. Number of Copies: Submit one (1) electronic copy of each submittal, unless copies are required for operation and maintenance manuals..
  3. Coordinate with Design Associate regarding electronic submissions.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.



1. Transmit Samples - that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample
    - b. Product name and name of manufacturer
    - c. Sample source
    - d. Number and title of appropriate Specification Section
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit three (3) full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Associate will return submittal with options selected.
  5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three (3) sets of Samples. Associate will retain one (1) sample set; remainder will be returned.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- F. Schedule of Values: Comply with requirements specified in Miami University's Contract requirements. Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information In tabular form:
1. Name, address, email addresses, and telephone number of entity performing subcontract or supplying products.
  2. Number of Copies: Submit one (1) electronic copy of subcontractor list to Miami's Project Manager and one (1) electronic copy to the Associate, unless otherwise indicated.

- a. Mark up and retain one returned copy as a Project Record Document.

## **2.2 INFORMATIONAL SUBMITTALS**

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
  1. Number of Copies: Submit one (1) electronic copy of each submittal, unless otherwise indicated. Associate will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified Division 01 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- K. Schedule of Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."
- L. Maintenance Data: Prepare written instructions and procedures for normal maintenance of products.
- M. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page-numbers.
- N. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of

manufacturer. Include the following, as applicable:

1. Preparation of substrates
  2. Required substrate tolerances
  3. Sequence of installation or erection
  4. Required installation tolerances
  5. Required adjustments
  6. Recommendations for cleaning and protection
- O. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles; if any, and term of the coverage. Coordinate with Miami's Project Manager and contracting service regarding these submittals.
- P. Material Safety Data Sheets (MSDSs): Submit information directly to Miami's Project Manager; do not submit to Design Associate.
1. Design Associate will not review submittals that include MSDSs and will return them for re-submittal.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL CONTRACTOR'S REVIEW**

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Design Associate.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of the General Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### **3.2 ASSOCIATE'S ACTION**

- A. General: Associate will not review submittals that do not bear the General Contractor's approval stamp and will return them without action
- B. Action Submittals: Design Associate will review each submittal, make marks to indicate corrections or modifications required, and return it. Associate will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. NO EXCEPTION
  2. REVIEWED AND NOTED
  3. REVISE AND RESUBMIT
  4. REJECTED
- C. Informational Submittals: Design Associate will review each submittal and will not return it, or will return it if it does not comply with requirements. Design Associate will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

**END OF SECTION**

## SECTION 01 4000

### QUALITY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Related Sections include the following:
  - 1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required inspections.
  - 2. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by inspecting activities.
  - 3. Applicable Divisions 02 through 26 Sections for specific inspection requirements.

##### 1.3 DEFINITIONS

- A. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality Control Services: Inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Design Associate.
- C. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- E. Installer/Applicator/Erector: General Contractor or another entity engaged by the General Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
- F. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five (5) previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

##### 1.4 CONFLICTING REQUIREMENTS

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

maximum, as appropriate, for the context of requirements refer uncertainties to Design Associate for a decision before proceeding

## **1.5 SUBMITTALS**

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection by a recognized authority
- B. Reports: Prepare and submit certified written reports that include the following:
  - 1. Date of issue
  - 2. Project title and number
  - 3. Dates and locations of inspections
  - 4. Names of individuals making inspections
  - 5. Description of the Work and inspection method
  - 6. Identification of product and Specification Section
  - 7. Complete inspection data
  - 8. Comments or professional opinion on whether inspected Work complies with the Contract Document requirements
  - 9. Name and signature of inspector
  - 10. Recommendations on retesting and re-inspecting
- C. Permits, Licenses, and Certificates: For Miami University's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## **1.6 QUALITY ASSURANCE**

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation- of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

## **1.7 QUALITY CONTROL**

- A. Inspections not explicitly assigned to Miami University are the General Contractor's responsibility. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of

the General Contractor by authorities having jurisdiction, whether specified or not.

1. Inspection requested by the General Contractor and not required by the Contract Documents are Contractor's responsibility.
- B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- C. Re-inspecting: Regardless of whether original inspections were the General Contractor's responsibility, provide quality-control services, including re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Associated Services: Cooperate with agencies performing inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
  1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate inspections.
- E. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
  1. Schedule times for tests, inspections, and similar activities.

## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 - EXECUTION**

### **3.1 INSPECTION LOG**

- A. Prepare a record of inspections. Include the following:
  1. Date inspection was conducted.
  2. Description of the Work inspected.
  3. Date inspection results were transmitted to Design Associate.
  4. Identification of special inspector conducting inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Design Associate's reference during normal working hours.

### **3.2 REPAIR AND PROTECTION**

- A. General: On completion of inspecting and similar services, repair damaged construction and restore substrates and finishes.
  1. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are the General Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION**

## SECTION 01 5000

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
  - 2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
  - 3. Division 01 Section "Execution Requirements" for progress cleaning requirements.
  - 4. Divisions 02 through 26 Sections for ventilation, and humidity requirements for products in those Sections.

##### 1.3 USE CHARGES

- A. General: Cost or use charges for temporary Contractor facilities shall be included In the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to Miami University, Design Associate, and authorities having jurisdiction.
- B. Water and Sewer Service: Water and Sewer from Miami University's existing water and sewer system is available for use without metering and without payment of use charges.
- C. Electric Power Service: Electric power from Miami University's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

##### 1.4 SUBMITTALS

- A. Site Plan: Show staging areas and parking areas for construction personnel. Coordinate with Miami's Project Manager regarding acceptable parking, storage and staging areas.

##### 1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

##### 1.6 PROJECT CONDITIONS

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



## **PART 2 PRODUCTS**

### **2.1 TEMPORARY FACILITIES**

- A. Storage: Provide storage area to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.

### **2.2 EQUIPMENT**

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

## **PART 3 EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

### **3.2 TEMPORARY UTILITY INSTALLATION**

- A. General: Connect to existing service:
  - 1. Arrange with Miami's Project Manager for time when service can be interrupted, if necessary, to make connections for services.
- B. Water Service: Use of Miami's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Miami University. At Substantial Completion, restore these facilities to condition existing before initial use.
  - 1. Toilets: Use of existing toilet facilities will be permitted on the **first floor only**, as long as facilities are cleaned and maintained in a condition acceptable to Miami University. At Substantial Completion, restore these facilities to condition existing before initial use.
- C. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- D. Electric Power Service & Lighting: Use of Miami University's existing electric power service and lighting will be permitted, as long as equipment is maintained in a condition acceptable to Miami University.
- E. The General Contractor shall be responsible for temporary project lighting during the period of time after the existing fixtures have been removed and prior to the installation and use of the new light fixtures.

### **3.3 SUPPORT FACILITIES INSTALLATION**

- A. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  - 1. Protect existing site including curbs, pavement, and utilities.
  - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- B. Parking: Use designated areas of Miami University's existing parking areas for construction personnel.
  - 1. Project Identification and Temporary Signs: Provide Project identification and other signs. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted: Provide temporary, directional signs for construction personnel and visitors.

2. Maintain and touchup signs so they are legible at all times.
- C. Waste Disposal Facilities: Each Contractor is responsible for waste removal of waste related to their own work. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution Requirements" for progress cleaning requirements.

### **3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Environmental Protection: Provide protection and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air or water contamination or pollution or other undesirable effects.
  1. Comply with work restrictions specified in Division 01 Section "Summary."
- B. Site Control: Maintain security by limiting number of access cards, keys and/or key cards and restricting distribution to authorized personnel.
- C. Security: Install safety barriers at ongoing areas of construction. Prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

### **3.5 OPERATION, TERMINATION, AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a twenty four (24) hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility.
- E. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are property of Contractor.
  2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01, Section "Closeout Procedures."

**END OF SECTION**

## SECTION 01 6000

### PRODUCT REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
  - 2. Divisions 02 through 26 Sections for specific requirements for warranties on products and installations specified to be warranted.

##### 1.3 DEFINITIONS

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

##### 1.4 SUBMITTALS

- A. Substitution Requests: Submit one (1) electronic copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution requests should be submitted to Design Associate for review and approval.

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
  - a. Statement indicating why specified material or product cannot be provided.
  - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Miami University and separate contractors that will be necessary to accommodate proposed substitution.
  - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. If list of similar installations for completed projects with, project names and addresses and names and addresses of architects and owners.
  - g. Written material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
  - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - j. Cost information, including a proposal of change, if any, in the Contract Sum,
  - k. General Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - l. The General Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results:
3. Design Associate's Action: If necessary, Design Associate will request additional information or documentation for evaluation within two (2) calendar days of receipt of a request for substitution. Design Associate will notify Contractor of acceptance or rejection of proposed substitution within two (2) calendar days of receipt of request, or two (2) calendar days of receipt of additional information or documentation, whichever is later.
  - a. Use product specified if Design Associate cannot make a decision on use of a proposed substitution within time allocated.
- B. Comparable Product Requests: Submit one (1) electronic copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  1. Design Associate's Action: If necessary, Design Associate will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Design Associate will notify General Contractor of approval or rejection of proposed comparable product request within two (2)

calendar days of receipt of request, or two (2) calendar days of receipt of additional information or documentation, whichever is later.

- a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
  - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

### **1.5 QUALITY ASSURANCE**

- A. Compatibility of Options: if the General 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. General Contractor and Subcontractors are responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Associate will determine which products shall be used.

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

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. 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: Store materials in a manner that will not endanger Project structure.
  2. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
  3. Protect stored products from damage and liquids from freezing.
  4. Provide a secure location and enclosure at Project site for storage of materials and equipment by Miami University's construction forces. Coordinate location with Miami University's Project Manager.

### **1.7 PRODUCT WARRANTIES**

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

manufacturer for a particular product and specifically endorsed by manufacturer to Miami University.

2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Miami University.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
  3. Refer to applicable Divisions 02 through 26 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

## **PART 2 – PRODUCTS**

### **2.1 PRODUCT SELECTION PROCEDURES**

- A. General Product Requirements: Provide products that comply with the Contract Documents 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.
  3. Miami University reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Associate will make selection.
  5. Where products are accompanied by the term "match sample," sample to be matched is Associate's.
  6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
  3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
  4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a

product by one of the manufacturers listed that complies with requirements.

5. 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. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics, that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample or "built-in" existing item, select a product that complies with requirements and matches existing conditions Associate's sample. Associate's decision will be final on whether a proposed product matches.
  - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, and textures" or a similar phrase; select a product that complies with other specified requirements.
  - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Design Associate 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, Design Associate will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## **2.2 PRODUCT SUBSTITUTIONS**

- A. Timing: Design Associate will consider requests for substitution if received within two (2) calendar days after the Notice-to-Proceed. Requests received after that time may be considered or rejected at discretion of Design Associate.
- B. Conditions: Design Associate will consider the General Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Design Associate will return requests without action, except to record noncompliance with these requirements:
  1. Requested substitution offers Miami University a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Miami University must assume. Miami University's additional responsibilities may include compensation to Associate for redesign and evaluation services, increased

cost of other construction by Miami University, and similar considerations.

2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect the General Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

### **2.3 COMPARABLE PRODUCTS**

- A. Conditions: Design Associate will consider the General Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Design Associate will return requests without action, except to record noncompliance with these requirements:
  1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

### **PART 3 – EXECUTION (Not Used)**

**END OF SECTION**



## SECTION 01 7000

### EXECUTION REQUIREMENTS

#### PART 1 – GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following: General installation of products, progress cleaning, starting and adjusting, protection of installed construction, correction of the Work.
- B. Related Sections include the following: Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities: Division 01 Section "Submittal Procedures" for submitting surveys and Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
- C. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Miami University accepted deviations from indicated lines and levels, and final cleaning.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Examine roughing-in for electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 3. Examine walls for suitable conditions where products and systems are to be installed.
  - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

##### 3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Associate. Include a detailed description of problem encountered, together with recommendations for changing Documents.

### **3.3 INSTALLATION**

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Design Associate.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including inserts, anchor bolts, and items with integral anchors, that are to be embedded in masonry or other materials. Deliver such items to Project site in time for installation.
- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### **3.4 PROGRESS CLEANING**

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Containerize unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean internal and external building areas and pathways where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
  3. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- D. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
  - E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
  - F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
  - G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
  - H. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### **3.5 STARTING AND ADJUSTING**

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

### **3.6 PROTECTION OF INSTALLED CONSTRUCTION**

- A. Provide final protection and maintain conditions that ensure Installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### **3.7 CORRECTION OF THE WORK**

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching"
  1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

**END OF SECTION**

## SECTION 01 7310

### CUTTING AND PATCHING

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
  - 1. Division 01 Section "Selective Demolition" for demolition of selected portions of the building.
  - 2. Divisions applicable within 02 through 26 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

##### 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to match existing visual and subsurface conditions.

##### 1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio. Particular attention to be given to new window cut-ins.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or those results in increased maintenance or decreased operational life or safety. Operating elements include the following:
  - 1. Primary operational systems and equipment;
  - 2. Piping
  - 3. Control systems;
  - 4. Communication systems;
  - 5. Electrical wiring systems;
  - 6. Fire alarm systems and equipment.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or results in increased maintenance or decreased operational life or safety. Miscellaneous elements include, but are not limited to the following:
  - 1. Equipment supports;
  - 2. Piping and equipment;
  - 3. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction

exposed on the exterior or in occupied spaces in a manner that would, in Design Associate's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

## **1.5 WARRANTY**

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

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials upon pre-approval of selected product and finish characteristics by Design Associate.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and suitability .of substrates, including compatibility with in-place finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.
  - 3. Prime contractors to coordinate extend of removals prior to starting work.

### **3.2 PREPARATION**

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

### **3.3 PERFORMANCE**

- A. General: Employ skilled workers to perform cutting and patching: Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore

surfaces to their original condition.

- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Masonry: Drill using a non-impact machine.
  4. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch finish surface construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Provide materials and comply with installation requirements specified in other Sections.
1. Inspection: Where feasible inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  3. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

**END OF SECTION**

## SECTION 01 7320

### SELECTIVE DEMOLITION

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary" for use of premises and Owner-occupancy requirements.
  - 2. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental protection measures for selective demolition operations.
  - 3. Division 01 Section "Cutting and Patching" for cutting and patching procedures.
  - 4. Division 03 0130 Resurfacing Concrete
  - 5. Division 08 7100 Section Door Hardware
  - 6. Division 09 5100 Acoustical Ceilings

##### 1.3 DEFINITIONS

- A. Remove: Detach and/or designated items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Miami University.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

##### 1.4 MATERIALS OWNERSHIP

- A. Items of interest or value to Miami University that may be encountered during selective demolition will remain Miami University's property and are indicated on the construction documents. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Miami University.
  - 1. Coordinate with Miami University's Project Manager, who will establish special procedures for removal and salvage.

##### 1.5 PROCESSES COORDINATION

- A. Detail sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Miami University's on-site operations are uninterrupted.
- B. Interruption of utility services: indicate how long utility services will be interrupted.
- C. Coordinate shutoff, capping, and continuation of utility services.

- D. Locate proposed dust and noise control temporary partitions and means of egress, including for other occupants affected by selective demolition operations.
- E. Coordinate Miami's continuing occupancy of portions of existing building.
- F. Coordinate Miami University's partial occupancy of completed Work.
- G. Provide means of protection for items to remain and items in path of waste removal from building.

#### **1.6 QUALITY ASSURANCE**

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.
- C. Pre-construction Meeting: Conduct a pre-construction meeting at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods, procedures, and coordination related to selective demolition including, but not limited to, the following:
  - 1. Inspect and discuss condition of construction to be selectively demolished and extent of the construction.
  - 2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.

#### **1.7 PROJECT CONDITIONS**

- A. Miami University will occupy portions of the building immediately adjacent to selective demolition areas. Conduct selective demolition so Miami University's operations will not be disrupted.
  - 1. Comply with requirements specified in Division 01 Section "Summary."
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Miami University as far as practical.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Miami University's Project Manager. Miami University will remove hazardous materials under a separate contract if applicable.
- D. Storage or sale of removed items or materials on-site is not permitted. Storage on-site is permitted for removed and relocated materials.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

#### **1.8 WARRANTY**

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.



## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped where required by construction activities.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Contact Miami University's Project Manager for clarifications.
- E. Survey of Existing Conditions:
  - 1. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
  - 2. Confirm exact window locations for new work prior to any masonry or interior finish removals.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### **3.2 UTILITY SERVICES**

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
  - 1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."
- B. Service/System Requirements: Locate, identify, disconnect, and seal off indicated utility services serving areas to be selectively demolished.
  - 1. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 2. Where entire wall areas are to be removed, existing services may be removed with partial removal of the wall.

### **3.3 PREPARATION**

- A. 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.
  - 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent facilities to remain where required.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
3. Cover and protect equipment that has not been removed.
4. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."

#### **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. Proceed with selective demolition systematically, from higher to lower levels or in coordination with Miami University's Project Manager
  2. 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, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  5. Dispose of demolished items and materials promptly.

#### **3.5 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Miami's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

**END OF SECTION**

## SECTION 01 7700

### CLOSEOUT PROCEDURES

#### PART 1-GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to the following:
  - 1. Inspection procedures
  - 2. Warranties
  - 3. Final cleaning
  - 4. Project Closeout
- B. Related Sections include the following:
  - 1. Division 01 Section "Execution Requirements" for progress cleaning of Project site.
  - 2. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 3. Divisions within applicable 02 through 26 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

##### 1.3 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. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 3. Obtain and submit releases permitting Miami University unrestricted use of the Work and access to services and utilities. Include occupancy permits, and similar releases.
  - 4. Prepare and submit Project Record Documents, operation and maintenance manuals.
  - 5. Deliver tools, spare parts, extra materials, and similar items to location designated by Miami University. Label with manufacturer's name and model number where applicable.
  - 6. Coordinate with Miami University Key Shop to confirm cores have been keyed and installed by MU.
  - 7. Terminate and remove temporary facilities from Project site, construction tools, and similar elements.
  - 8. Submit changeover information related to Miami University's use, operation, and maintenance.
  - 9. Complete final cleaning requirements, including touchup painting.
  - 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual

defects.

- B. Inspection: Submit a request for inspection for Substantial Completion. On receipt of request, Design Associate will either proceed with inspection or notify Contractor of unfulfilled requirements. Design Associate will prepare the Certificate of Substantial Completion after inspection and will notify Contractor of items, either on Contractor's list or additional items identified by Design Associate, that must be completed or corrected before final certificate will be issued.
  - 1. Re-inspection: Request re-inspection 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 and subsequent submission of the Certificate of Contract Completion.

#### **1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)**

- A. Preparation: Submit one (1) electronic copy of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by the General Contractor that are outside the limits of construction.
  - 1. Organize list of spaces in sequential order.
  - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  - 3. Include the following information at the top of each page:
    - a. Project name
    - b. Date
    - c. Name of Design Associate
    - d. Name of General Contractor
    - e. Page number

#### **1.5 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 Miami University payment procedure.
  - 2. Submit certified copy of Design Associate's Substantial Completion inspection list of items to be completed or corrected (Punch List), endorsed and dated by Design Associate. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  - 3. Submit evidence of final, continuing insurance coverage complying with Insurance requirements.
  - 4. Instruct Miami University'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, Design Associate will either proceed with inspection or notify Contractor of unfulfilled requirements. Design Associate will prepare a final Certificate for Payment after inspection or will notify the General Contractor of construction that must be completed or corrected before certificate will be issued.
  - 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
- C. Finalized Certificate of Warranty Commencement Certificate of Contract Completion and the Payment Release Affidavit.

## **1.6 WARRANTIES**

- A. Submittal Time: Submit written warranties on request of Design Associate for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize 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 8-1/2" by 11" inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor and subcontractors.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **PART 2-PRODUCTS**

### **2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by 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**

### **3.1 FINAL CLEANING**

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site in interior and exterior areas disturbed by construction activities, including rubbish, waste material, litter, and other foreign substances.
    - b. Remove spills, stains, and other foreign deposits.
    - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - d. Remove floor protection materials.
    - e. Clean exposed interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition.
    - f. Remove debris and surface dust from limited access spaces, including plenums and

similar spaces.

- g. Sweep floors clean in unoccupied spaces.
  - h. Clean transparent materials, including mirrors.
  - i. Remove labels that are not permanent.
  - j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
  - k. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - l. Replace parts subject to unusual operating conditions.
  - m. Leave Project-clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Miami's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

**END OF SECTION**

## SECTION 01 7810

### PROJECT RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary" for coordinating Project Record Documents covering the Work of multiple contracts.
  - 2. Division 01 Section "Closeout Procedures" for general closeout procedures.
  - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 4. Divisions 02 through 26 Sections for specific requirements for Project Record Documents of the Work in those Sections.

##### 1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Record Drawings: Provide one (1) printed copy of drawings on bond paper and provide on CD, thumb drive, or other data storage device, one (1) set of electronic as-built drawings in PDF format.
- B. Record Specifications: Comply with the following:
  - 1. Record specifications: Provide one (1) printed copy of specifications on bond paper and provide on CD, thumb drive, or other data storage device with modifications noted in red throughout the specification documents.
- C. Record Product Data: Submit one (1) copy of each Product Data submittal.
  - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.
- D. Record Management Data: Submit one (1) copy of the following:
  - 1. Safety Meeting Minutes
  - 2. Site Field Conditions Record
  - 3. RFIs
  - 4. Construction Change Directives (CCD)
  - 5. Change Orders (CO)
  - 6. Addenda

## **PART 2 – PRODUCTS**

### **2.1 RECORD DRAWINGS**

- A. Maintain one (1) set of drawings of the Contract Drawings and Shop Drawings.
  - 1. Preparation: Mark Record Drawings to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  - 2. Mark record sets with colors to distinguish between changes for different categories of the Work at same location.
  - 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
  - 4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record CAD Drawings:
  - 1. Format: DWG format CAD program documents.
  - 2. Incorporate changes and additional information previously marked on Record Prints.
  - 3. Delete, redraw, and add details and notations where applicable.
  - 4. Refer instances of uncertainty to the Associate for resolution.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Design Associate determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
  - 1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
  - 2. Consult Design Associate for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
  - 1. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
  - 2. Identification: As follows:
    - a. Project name
    - b. Date
    - c. Designation "PROJECT RECORD DRAWINGS"
    - d. Name of Design Associate
    - e. Name of Contractor



## **2.2 RECORD SPECIFICATIONS**

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
  - 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

## **2.3 RECORD PRODUCT DATA**

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 1. Give particular attention to information on concealed products and Installations that cannot be readily identified and recorded later.
  - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- B. Miscellaneous Record Submittals
  - 1. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

## **PART 3 – EXECUTION**

### **3.1 RECORDING AND MAINTENANCE**

- A. Recording: Maintain one (1) copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Associate's reference during normal working hours.
  - 1. Maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Maintenance manuals for the care and maintenance of products, materials, finishes, systems, and equipment.
- C. Related Sections include the following:

1. Division 01 Section "Summary of the Contract" for coordinating operation and maintenance manuals covering the. Work of multiple contracts.
2. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
3. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
4. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
5. Divisions 02 through 26 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

### **3.2 DEFINITIONS**

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

### **3.3 SUBMITTALS**

- A. Final Submittal: Submit one (1) copy of manual in final Project Manual form.
  1. Correct or modify Project Manual to comply with Design Associate's comments. Submit three (3) copies of corrected Project Manual prior to submission of final Contractor of Payment Request and issuance of Certificate of Project Completion.

### **3.4 COORDINATION**

- A. Where maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

### **3.5 MAINTENANCE DOCUMENTATION DIRECTORY**

- A. Organization: Include a section in the directory for each of the following:
  1. List of documents
  2. List of systems
  3. List of equipment
  4. Table of contents
- B. Tables of Contents: Include a table of contents for each emergency and maintenance manual.

### **3.6 PROJECT MANUAL - GENERAL**

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  1. Title page
  2. Table of contents
  3. Manual contents
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  1. Subject matter included in manual
  2. Name and address of Project
  3. Name and address of Owner
  4. Date of submittal

5. Name, address, and telephone number of the General Contractor
  6. Names, addresses, and telephone numbers of the Subcontractors
  7. Name and address of Associate
  8. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8 ½ by 11 inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. Identify binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents.
  2. Dividers: Heavy paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Supplementary Text: Prepared on 8 ½ by 11-inch (215-by-280-mm) white bond paper.
  5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

### **3.7 PROJECT MANUAL - OPERATIONS**

- A. Descriptions: Include the following:
1. Product name and model number
  2. Manufacturer's name
  3. Equipment identification with serial number of each component
  4. Limiting conditions
  5. Complete nomenclature and number of replacement parts

### **3.8 PRODUCT MANUAL - MAINTENANCE**

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:

1. Product name and model number;
  2. Manufacturer's name;
  3. Color, pattern, and texture;
  4. Material and chemical composition;
  5. Reordering information for specially manufactured products;
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Types of cleaning agents to be used and methods of cleaning
  2. List of cleaning agents and methods of cleaning detrimental to product
  3. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

### **3.9 PROJECT MANUAL PREPARATION**

- A. Maintenance: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work and indicating maintenance of each system, subsystem, and piece of equipment not part of a system.
- B. Manufacturers' Data: Include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- C. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
1. Do not use original Project Record Documents as part of operation and maintenance manuals.
  2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

**END OF SECTION**

**SECTION 03 3000**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete formwork.
- B. Slabs on grade.
- C. Miscellaneous concrete elements, including accessible ramp sonitube bases.
- D. Concrete curing.

**1.02 REFERENCE STANDARDS**

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).
- C. ACI 301 - Specifications for Structural Concrete; 2016.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- E. ACI 305R - Guide to Hot Weather Concreting; 2010.
- F. ACI 306R - Guide to Cold Weather Concreting; 2016.
- G. ACI 308R - Guide to External Curing of Concrete; 2016.
- H. ACI 347R - Guide to Formwork for Concrete; 2014.
- I. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2017.
- J. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2016, with Editorial Revision (2016).
- K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2017a.
- L. ASTM C150/C150M - Standard Specification for Portland Cement; 2018.
- M. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2016.
- N. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.
- O. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- P. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.
- Q. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete; 2017a.
- R. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; 2011.
- S. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2011 (Reapproved 2017).
- T. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017.

**1.03 SUBMITTALS**

- A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.
- B. Mix Design: Submit proposed concrete mix design.
  1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
  2. Indicate proposed mix design conforms to fiber reinforcing manufacturer's written recommendations.

#### **1.04 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

### **PART 2 PRODUCTS**

#### **2.01 FORMWORK**

- A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
  1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
  2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces.
  3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.

#### **2.02 REINFORCEMENT MATERIALS**

- A. Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.

#### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
  1. Acquire cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C33/C33M.
- C. Lightweight Aggregate: ASTM C330/C330M.
- D. Water: Clean and not detrimental to concrete.

#### **2.04 ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. Waterproofing Admixture: Admixture formulated to reduce permeability to liquid water, with no adverse effect on concrete properties.

#### **2.05 CURING MATERIALS**

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
- B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
  1. Product dissipates within 4 to 6 weeks.
  2. Provide product containing fugitive red dye.
- C. Moisture-Retaining Sheet: ASTM C171.
- D. Polyethylene Film: ASTM D2103, 6 mil, clear.

- E. Water: Potable, not detrimental to concrete.

## **2.06 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
  - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. Structural Lightweight Concrete:
  - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
  - 2. Water-Cement Ratio: Maximum 40 percent by weight.
  - 3. Total Air Content: 3 percent, determined in accordance with ASTM C173/C173M.
  - 4. Maximum Slump: 3 inches.
  - 5. Maximum Aggregate Size: 5/8 inch.
  - 6. Maximum dry unit weight: 150 pound per cubic foot.

## **2.07 MIXING**

- A. Transit Mixers: Comply with ASTM C94/C94M.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

### **3.02 PREPARATION**

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

### **3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS**

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
- C. Verify that anchors, seats, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

### **3.04 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete slabs in accordance with ACI 302.1R.
- C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- D. Ensure reinforcement and inserts will not be disturbed during concrete placement.
- E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

- F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

### **3.05 SLAB JOINTING**

- A. Equally locate slab saw control joints between eight (8) and ten (10) apart.
- B. Saw or Struck Cut Contraction Joints: Saw cut or strike joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.
- C. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant.

### **3.06 CONCRETE FINISHING**

- A. Repair surface defects immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height.
- D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  - 1. Exposed Surfaces: Trowel as described in ACI 302.1R; use steel-reinforced plastic trowel blades instead of steel blades to avoid black-burnish marks. Sidewalks to have brushed finish with struck edges and joints.
  - 2. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

### **3.08 CURING AND PROTECTION**

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
- D. Surfaces Not in Contact with Forms:
  - 2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three (3) days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
    - a. Spraying: Spray water over floor slab areas and maintain wet.
  - 3. Final Curing: Begin after initial curing but before surface is dry.

### **3.09 FIELD QUALITY CONTROL**

- A. Provide free access to concrete operations at project site and cooperate with appointed firm.
- B. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cubic yards or less of each class of concrete placed.
- C. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

### **3.10 DEFECTIVE CONCRETE**

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

### **3.11 PROTECTION**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**



**SECTION 04 0100  
MAINTENANCE OF MASONRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Masonry and joint façade cleaning and repointing.
- B. WORK defined as **add Alternate #02**.

**1.02 REFERENCE STANDARDS**

- A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; 2013.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Scheduling:
  - 1. Perform cleaning and washing of masonry between the hours of 7 am to 11 pm only.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate setting details of stone. Detail shoring.
- C. Product Data: Provide data on cleaning compounds.
- E. Manufacturer's Instructions: For cleaning materials, indicate special procedures, and conditions requiring special attention.

**1.05 QUALITY ASSURANCE**

- A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.

**1.06 MOCK-UP**

- A. Repoint an existing masonry wall area located in coordination with Miami University Project Manager and the Design Associate.
- B. Power wash area before starting joint raking and repointing.
- C. Include in mock-up area representation of masonry, mortar, non-struck mortar joint to match adjacent conditions.
- D. Acceptable panel and procedures employed will become the standard for work of this section.
- E. Mock-up may remain as part of the Work.

**1.07 FIELD CONDITIONS**

- A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.
- B. Cleaning shall not be performed if temperatures are, or are anticipated to be below 40 degrees F (4 degrees C).

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Restoration and Cleaning Chemicals:
  - 1. Diedrich Technologies, Inc; [www.diedrichtechnologies.com/#sle](http://www.diedrichtechnologies.com/#sle).
  - 2. HMK Stone Care System; [www.hmkstonecare.com/#sle](http://www.hmkstonecare.com/#sle).
  - 3. PROSOCO; [www.prosoco.com/#sle](http://www.prosoco.com/#sle).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 CLEANING MATERIALS**

- A. Cleaning Agent: Detergent type.

- B. Cleaning Agent: 0.5 lb of sodium hydrosulphite mixture to one (1) gallon of water.

## **2.03 MORTAR MATERIALS**

- A. Comply with requirements of Section 04 0511.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces to be cleaned are ready for work of this section.

### **3.02 PREPARATION**

- A. Protect surrounding elements from damage due to restoration procedures.
- B. Carefully remove and store removable items located in areas to be restored, including fixtures, fittings, finish hardware, and accessories; reinstall upon completion.
- C. Cover existing landscaping with tarpaulins or similar covers.
- D. Mask immediately adjacent surfaces with material that will withstand cleaning and restoration procedures.
- G. Protect roof membrane and flashings from damage with 1/2 inch plywood laid on roof surfaces over full extent of work area and traffic route.
- H. When using cleaning methods that involve water or other liquids, install drainage devices to prevent runoff over adjacent surfaces unless those surfaces are impervious to damage from runoff.
- I. Do not allow cleaning runoff to drain into sanitary or storm sewers.

### **3.04 REPOINTING**

- A. Perform repointing prior to cleaning masonry surfaces.
- B. Cut out loose or disintegrated mortar in joints to minimum 1/2 inch depth or until sound mortar is reached.
- C. Use power tools only after test cuts determine no damage to masonry units will result.
- D. Do not damage masonry units.
- E. When cutting is complete, remove dust and loose material by brushing.
- F. Pre-moisten joint and apply mortar. Pack tightly in maximum 1/4 inch layers. Form a smooth, compact concave joint to match existing.
- G. Moist cure for seventy two (72) hours.

### **3.05 CLEANING EXISTING MASONRY**

- A. Chemical and High Pressure Steam Cleaning: \_\_\_\_ psi pressure, \_\_\_\_ percent \_\_\_\_\_ chemical solution for brick masonry surfaces at all locations to remove existing paint coating and leave surface with uniform, natural color and texture.
- B. Following high pressure chemical cleaning thoroughly rinse with clear water.

### **3.06 CLEANING**

- A. Immediately remove stains, efflorescence, or other excess resulting from the work of this section.
- B. Remove excess mortar, smears, and droppings as work proceeds and upon completion.
- C. Clean surrounding surfaces.

**END OF SECTION**

**SECTION 05 7000**  
**DECORATIVE METAL**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Railing and guardrail assemblies.
- B. Wall-mounted handrails.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Wood handrail.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- E. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2016a.
- F. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.
- G. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- H. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.
- I. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- J. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2009 (Reapproved 2015).
- K. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2016.
- L. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.
- M. ASTM B138/B138M - Standard Specification for Manganese Bronze Rod, Bar, and Shapes; 2011.
- N. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2013.
- O. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).
- P. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions; 2015a.
- Q. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- R. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- S. AWS C3.4M/C3.4 - Specification for Torch Brazing; 2007.
- T. AWS C3.5M/C3.5 - Specification for Induction Brazing; 2007.

- U. AWS C3.9M/C3.9 - Specification for Resistance Brazing; 2009.
- V. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015 (Errata 2016).
- W. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).
- X. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Pre-Installation Meeting: Schedule and conduct a pre-installation meeting one (1) week before starting work of this section. Attendees shall include, but not be limited to:
  - 1. Contractor.
  - 2. Design Associate.
  - 3. Owner's Representative.
  - 4. Other subcontractors of adjacent work.

#### **1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit product data including description of materials, components, finishes, fabrication details, anchors, and accessories.
- C. Shop Drawings: Indicate railing system elevations and sections, details of profile, dimensions, sizes, connection attachments, anchorage, size and type of fasteners, and accessories. Indicate anchor and joint locations, brazed connections, transitions, and terminations.
- D. Samples: Submit one (1) of each item below for each type and condition shown.
  - 1. Railing: 12 inch long section of handrail illustrating color, finish and connection detail.
- E. Maintenance Data: Manufacturer's instructions for care and cleaning.

#### **1.06 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in installing decorative stairs and railing systems and acceptable to manufacturer.
- B. Templates: Supply installation templates, reinforcing and required anchorage devices.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Protect materials against damage during transit, delivery, storage, and installation at site.
- B. Inspect materials upon delivery for damage. Repair damage to be indistinguishable from undamaged areas; if damage cannot be repaired to be indistinguishable from undamaged parts and finishes, replace damaged items.

### **PART 2 PRODUCTS**

#### **2.01 RAILING SYSTEMS**

- A. Railing Systems - General: Factory or shop-fabricated to design indicated, to suit specific project conditions, and for proper connection to building structure, and in largest practical sizes for delivery to site.
  - 1. Performance Requirements: Design and fabricate railings and anchorages to resist the following loads without failure, damage, or permanent set; loads do not need to be applied simultaneously.
    - a. Lateral Force: 75 lb minimum, at any point, when tested in accordance with ASTM E935.
    - b. Distributed Load: 50 lb/ft minimum, applied in any direction at the top of the handrail, when tested in accordance with ASTM E935.
    - c. Concentrated Loads on Intermediate Rails: 50 psf, minimum.
    - d. Concentrated Load: 200 lbs minimum, applied in any direction at any point along the handrail system, when tested in accordance with ASTM E935.

- e. Handrails: Comply with applicable accessibility requirements of ADA Standards.
- 2. Assembly: Join lengths, seal open ends, and conceal exposed mounting bolts and nuts using slip-on non-weld mechanical fittings, flanges, escutcheons, and wall brackets.
- 3. Joints: Tightly fitted and secured, machined smooth with hairline seams.
- 4. Field Connections: Provide sleeves to accommodate site assembly and installation.
- 5. Welded and Brazed Joints: Make exposed joints butt tight, flush, and hairline; use methods that avoid discoloration and damage of finish; grind smooth, polish, and restore to required finish.
  - a. Ease exposed edges to small uniform radius.
  - b. Welded Joints:
    - 1) Carbon Steel: Perform welding in accordance with AWS D1.1/D1.1M.
- B. Metal Tube/Bar Railing: Engineered, post supported railing system with metal infill.
  - 1. Configuration: Design of top rail to match Julius Blum traditional rail model #4428 as indicated on the drawings.
  - 2. Wall Mounted Components: Components necessary to support railing with 1-1/2 inch clearance from wall, and as follows:
    - a. Underslung support brackets: Supports at 60 inches, maximum.
    - b. Wall return without support: Terminates 1/4 inch from side wall.
  - 3. Handrail Brackets: Same metal as railing.
  - 4. Infill at Picket Railings: Vertical pickets as shown on the drawings.
    - a. Horizontal Spacing: Maximum 4 inches on center.
    - b. Material: Black powder-coated solid or tubular steel with 0.049 minimum wall thickness
    - c. Size: 1/2 inch square.
    - d. Top Mounting: Welded to underside of top rail.
    - e. Bottom Mounting: Welded to top surface of bottom rail.
  - 5. End and Intermediate Posts: Supports as shown on the drawings.
    - a. Horizontal Spacing: As indicated on drawings.
    - b. Mounting: Welded.
    - c. Material: Black powder-coated tubular steel with 0.1 minimum wall thickness
    - d. Size: 1-1/2 inch square.

## 2.02 MATERIALS

- A. Steel Components:
  - 1. Sections, Shapes, Plate and Bar: ASTM A36/A36M.
  - 2. Tubing: ASTM A501/A501M structural tubing, shapes as indicated, black powder-coated finish.
  - 4. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

## 2.03 ACCESSORIES

- A. Welding Fittings: Factory or shop-welded from matching pipe or tube; joints and seams ground smooth.
- B. Anchors and Fasteners: Provide anchors and other materials as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
  - 1. For anchorage to masonry, provide brackets to be embedded in masonry for bolting anchors.
  - 2. As noted on the drawings for post base plate attachments.
- C. Carbon Steel Bolts and Nuts: ASTM A307.
- D. Hydraulic Expansion Cement: ASTM C1107/C1107M.
- E. Sealant: Silicone; black.

- F. Finish Touch-Up Materials: As recommended by manufacturer for field application.
- G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate and site conditions are acceptable and ready to receive work.
- B. Verify field dimensions of locations and areas to receive work.
- C. Notify Design Associate immediately of conditions that would prevent satisfactory installation.
- D. Do not proceed with work until detrimental conditions have been corrected.
- E. Furnish components to be installed in other work to installer of that other work, including but not limited to blocking, sleeves, inserts, anchor bolts, lag bolts, embedded plates and supports for attachment of anchors.

### **3.02 PREPARATION**

- A. Protect existing work.
- B. Review installation drawings before beginning installation. Coordinate diagrams, templates, instructions and directions for installation of anchorages and fasteners.
- C. Clean surfaces to receive units. Remove materials and substances detrimental to the installation.

### **3.03 INSTALLATION**

- A. Comply with manufacturer's drawings and written instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects and with tight joints, except where necessary for expansion.
- C. Anchor securely to structure.
- D. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- E. Weld connections that cannot be shop welded due to size limitations.
  - 1. Weld in accordance with AWS D1.1/D1.1M.
  - 2. Match shop welding and bolting.
  - 3. Clean welds, bolted connections and abraded areas.
  - 4. Touch up shop primer and factory applied finishes.
- F. Isolate dissimilar materials with bushings, grommets or washers to prevent electrolytic corrosion.

### **3.04 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

### **3.05 FIELD QUALITY CONTROL**

- A. Field Services: Provide the services of the manufacturer for field observation of installation of railings.

### **3.06 CLEANING**

- A. Remove protective film from exposed metal surfaces.

- B. Metal: Clean exposed metal finishes with potable water and mild detergent, in accordance with manufacturer recommendations; do not use abrasive materials or chemicals, detergents or other substances that may damage the material or finish.

### **3.07 PROTECTION**

- A. Protect installed components and finishes from damage after installation.
- B. Repair damage to exposed finishes to be indistinguishable from undamaged areas.
  - 1. If damage to finishes and components cannot be repaired to be indistinguishable from undamaged finishes and components, replace damaged items.

**END OF SECTION**

## SECTION 06 1000

### ROUGH CARPENTRY

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Preservative treatment of wood.
- B. Miscellaneous framing.
- C. Concealed wood blocking for support of toilet and bath accessories, and wood trim.
- D. Miscellaneous wood nailers and furring strips.

##### 1.02 REFERENCES

- A. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association; 2005.
- B. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2003.
- C. ASTM D 2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 1994 (Reapproved 1999).
- D. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2004.
- E. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.
- F. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2003.
- G. AWPA C20 - Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.
- H. AWPA C27 - Plywood -- Fire-Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2003.
- I. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association; 2004.
- J. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.
- K. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 1999.
- L. SPIB (GR) - Grading Rules; Southern Pine Inspection Bureau, Inc.; 2002.

##### 1.03 SUBMITTALS

- A. Product Data: Provide technical data on wood preservative materials.

##### 1.04 QUALITY ASSURANCE

- A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
- B. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.



## **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

## **PART 2 PRODUCTS**

### **2.01 DIMENSION LUMBER FOR CONCEALED APPLICATIONS**

- A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
- B. Grading Agency: Western Wood Products Association (WWPA).
- C. Sizes: Nominal sizes as indicated on drawings, Rough (unsurfaced).
- D. Moisture Content: S-dry or MC19.
- E. Framing (2 x 2 through 2 x 12 ):
  - 1. Species: Douglas Fir or Southern Pine.
  - 2. Grade: No. 1 or construction grade.
- F. Miscellaneous Blocking, Furring, and Nailers:
  - 1. Lumber: S4S, No. 1 or Construction Grade.
  - 2. Boards: Standard or No. 3.

### **2.02 EXPOSED DIMENSION LUMBER**

- A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
- B. Grading Agency: Western Wood Products Association (WWPA).
- C. Sizes: Nominal sizes as indicated on drawings, S4S.
- D. Moisture Content: Kiln-dry or MC15.
- E. Framing (2 x 2 through 2 x 12 ):
  - 1. Species: Douglas Fir or Southern Pine.
  - 2. Grade: Clear.

### **2.03 ACCESSORIES**

- A. Fasteners and Anchors:
  - 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
  - 2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of panels.
  - 3. Anchors: Toggle bolt type for anchorage to hollow masonry; Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
  - 4. Bolts: Galvanized lag and carriage bolts washers and nuts.

### **2.04 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
- B. Preservative Treatment:
  - 1. Manufacturers:
    - a. Arch Wood Protection, Inc: [www.wolmanizedwood.com](http://www.wolmanizedwood.com).
    - b. Chemical Specialties, Inc: [www.treatedwood.com](http://www.treatedwood.com).
    - c. Osmose, Inc: [www.osmose.com](http://www.osmose.com).
- C. Preservative Pressure Treatment of Lumber Above Grade: AWPA Use Category UC3B,

Commodity Specification A (Treatment C2) using waterborne preservative to 0.25 lb/cu ft retention.

1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
2. Treat lumber in contact with roofing, flashing, or waterproofing.
3. Treat lumber in contact with masonry or concrete.
4. Treat lumber less than 18 inches above grade.
  - a. Treat lumber in other locations as indicated.
5. Preservative Pressure Treatment of Plywood Above Grade: AWWA Use Category UC2 and UC3B, Commodity Specification F (Treatment C9) using waterborne preservative to 0.25 lb/cu ft retention.
  - a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
  - b. Treat plywood in contact with roofing, flashing, or waterproofing.
  - c. Treat plywood in contact with masonry or concrete.
  - d. Treat plywood less than 18 inches above grade.
  - e. Treat plywood in other locations as indicated.

### **PART 3 EXECUTION**

#### **3.01 FRAMING INSTALLATION**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- D. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- E. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated,
- F. Provide miscellaneous members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- G. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

#### **3.02 SITE APPLIED WOOD TREATMENT**

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

#### **3.03 TOLERANCES**

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

#### **3.04 CLEANING**

- A. Waste Disposal: Comply with the requirements of Section 01 7419.
  1. Comply with applicable regulations.
  2. Do not burn scrap on project site.
  3. Do not burn scraps that have been pressure treated.
  4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation

facilities or “waste-to-energy” facilities.

- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

**END OF SECTION**

**SECTION 06 1500  
WOOD DECKING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Softwood lumber structural wood decking.
- B. Preservative treatment of wood.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Bearing support.
- B. Section 05 7000 - Decorative Metal: Attached metal railings and handrails.
- C. Section 06 1000 - Rough Carpentry: Bearing support.
- D. Section 09 9000 - Painting and Coating: Field finishing.

**1.03 REFERENCE STANDARDS**

- A. ASTM D1761 - Standard Test Methods for Mechanical Fasteners in Wood; 2012.
- B. ASTM D2559 - Standard Specification for Adhesives for Bonded Structural Wood Products for Use Under Exterior Exposure Conditions; 2012a.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- E. NELMA (SGR) - Standard Grading Rules for Northeastern Lumber; 2013.
- F. NLGA (SGRNL) - Standard Grading Rules for Canadian Lumber; 2014.
- G. PS 20 - American Softwood Lumber Standard; 2010.
- H. SPIB (GR) - Grading Rules; 2014.
- I. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17; 2004, and supplements.
- J. WWPA G-5 - Western Lumber Grading Rules; 2011.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide technical data on wood preservative materials.
- C. Shop Drawings: Indicate deck framing system, loads and cambers, bearing details, and framed openings.
- D. Samples of Wood Deck Exposed To View: Submit two (2) samples, 6 inches in length illustrating wood grain, stain, and finish.

**PART 2 PRODUCTS**

**2.01 WOOD MATERIALS**

- A. Wood fabricated from old growth timber is not permitted.
- B. Provide sustainably harvested wood; see Section 01 6000 - Product Requirements for requirements.
- C. Lumber Porch and Ramp Decking: Fabricated to AITC 112.
  - 1. Species: Douglas Fir, graded under SPIB (GR) rules as AITC Select quality.
  - 2. Size: 1 inch x 3 1/8 inches - nominal, tongue & groove.
  - 3. Pattern: square edge tongue and groove.
  - 4. Moisture Content: 19 percent, maximum.
  - 3. After end trimming, seal with penetrating sealer.

### **2.03 ACCESSORIES**

- A. Fasteners and Anchors:
  - 1. Fastener Type and Finish: Hot-dipped galvanized steel.

### **2.04 WOOD TREATMENT**

- A. Factory-Treated Lumber: Comply with requirements of AWWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that support framing is ready to receive decking.

### **3.02 PREPARATION**

- A. Coordinate placement of bearing items.

### **3.03 INSTALLATION - BOARD DECKING**

- A. Install decking perpendicular to framing members, with ends staggered over firm bearing. On sloped surfaces, lay decking with tongue upward.
- B. Fit butt end deck joints occurring between support members with metal splines to maintain tight, aligned joints.
- C. Engage decking tongue and groove edges.
- D. Secure with fasteners. Side spike planks together within tongue and groove joint for concealed fastener result.
- E. Maintain decking joint space of 1/16 inch maximum.

### **3.04 TOLERANCES**

- A. Surface Flatness of Decking Without Load: 1/4 inch in 10 feet maximum, and 1/2 inch in 30 feet maximum.

**END OF SECTION**

**SECTION 06 2000**  
**FINISH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Wood door frames, glazed frames.
- C. Hardware and attachment accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 08 1433 - Stile and Rail Wood Doors.
- C. Section 08 8000 - Glazing
- D. Section 09 9000 – Painting and Coatings

**1.03 REFERENCE STANDARDS**

- A. AWWA U1 - Use Category System: User Specification for Treated Wood; 2012.
- B. ASTM C1036 - Standard Specification for Flat Glass; 2011.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- E. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- F. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data:
  - 1. Provide data on fire retardant treatment materials and application instructions.
- C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
  - 1. Provide the information required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
  - 2. Include certification program label.
- D. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five (5) years of documented experience.
  - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Quality Certification:
  - 1. Provide labels or certificates indicating that the work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
  - 2. Provide designated labels on shop drawings as required by certification program.
  - 3. Provide designated labels on installed products as required by certification program.
  - 4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect from moisture damage.

## **PART 2 PRODUCTS**

### **2.01 FINISH CARPENTRY ITEMS**

- A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Surface Burning Characteristics: Provide materials having fire and smoke properties as required by applicable code.
- C. Interior Woodwork Items:
  - 1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear poplar; prepare for paint finish.
  - 2. Window Sills: Clear fir.
- D. Exterior Woodwork Items:
  - 1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear cedar; prepare for paint finish.
  - 2. Panels/Plywood: MDO faced APA Exterior exposure 1 panel grade
    - a. Panel thickness to match existing soffit panel thickness.
  - 3. Window Sills: Clear cedar.

### **2.02 WOOD-BASED COMPONENTS**

- A. Wood fabricated from old growth timber is not permitted.

### **2.03 LUMBER MATERIALS**

- A. Softwood Lumber: poplar species, fine sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

### **2.04 FASTENINGS**

- A. Fasteners: Of size and type to suit application.

### **2.05 HARDWARE**

- A. Hardware: Comply with BHMA A156.9.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.

### **3.02 INSTALLATION**

- A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

### **3.03 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**

**SECTION 07 0150.19**  
**PREPARATION FOR RE-ROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Replacement of existing roofing system in preparation for new roofing system and integral gutter coating.
- B. Partial replacement of existing roofing system in preparation for replacement roofing system in designated areas as indicated on drawings.
- D. Removal of existing flashing and counterflashings.
- E. Temporary roofing protection.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 5300 - Elastomeric Membrane Roofing.
- B. Section 07 5600 - Fluid-Applied Roofing.
- C. Section 07 6200 - Sheet Metal Flashing and Trim: Replacement of flashing and counterflashings.
- D. Section 07 7100 - Roof Specialties

**1.03 PRICE AND PAYMENT PROCEDURES**

- A. See Section 01 2200 - Unit Prices, for additional unit price requirements.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Pre-installation Meeting: Convene one week before starting work of this section.
  - 1. Attendees:
    - a. Design Associate.
    - b. Contractor.
    - c. Owner.
    - d. Installer.
    - e. Roofing system manufacturer's field representative.
    - f. Inspection and Testing Agency Representatives.
  - 2. Meeting Agenda: Provide agenda to participants prior to meeting in preparation for discussions on the following:
    - a. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    - b. Necessary preparatory work.
    - c. Protection before, during, and after roofing system installation.
    - d. Removal of existing roofing system.
    - e. Existing roof drains and roof drainage during each stage of reroofing, and roof drain plugging and plug removal requirements.
    - f. Reroofing preparation, including membrane roofing system manufacturer's written instructions.
    - g. Condition and acceptance of existing roof deck.
    - h. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect reroofing.
    - i. Installation of new roofing system.
    - j. Temporary roofing and daily terminations.
    - k. Transitions and connection to and with other work.
    - l. Inspections and testing of installed systems.
    - m. Governing regulations and requirements for insurance and certificates if applicable.
- B. Schedule work to coincide with commencement of installation of new roofing system.



### **1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit for each type of material.
- C. Shop Drawings: Indicate size, configuration, and installation details.
- D. Preconstruction Test Reports.
- E. Materials Removal Company Qualification Statement.
- F. Installer's Qualification Statement.
- G. Preconstruction Testing Agency Qualification Statement.

### **1.06 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three (3) years of documented experience.
  - 1. When same installer as new roofing system, comply with related requirements of section indicated for new roofing system.
  - 2. Approved by existing roofing system warrantor to work on existing warranted roof system.
- B. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

### **1.07 FIELD CONDITIONS**

- A. Do not remove existing roofing membrane when weather conditions threaten the integrity of building contents or intended continued occupancy.
- C. Maintain continuous temporary protection prior to and during installation of new roofing system.
- D. Provide notice at least three (3) days before starting activities that will affect normal building operations.
- E. Verify that occupants have been evacuated from building areas when work on structurally impaired roof decking is scheduled to begin.
- F. Owner will occupy building areas directly below re-roofing area.
  - 1. Provide Owner with at least forty eight (48) hours written notice of roofing activities that may affect their operations and to allow them to prepare for upcoming activities as necessary.
  - 2. Do not disrupt Owner's operations or activities.
  - 3. Maintain access of Owner's personnel to corridors, existing walkways, and adjacent buildings.
- G. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- H. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- I. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

### **1.08 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Existing Warranties: Perform this work using methods and materials that will maintain roof system warranties.
  - 1. Upon completion of this work, notify warrantor of reroofing completion and obtain documentation to verify that roofing system has been inspected and warranty is still in effect.
    - a. Submit documentation upon project closeout.

## **PART 2 PRODUCTS**

### **2.01 COMPONENTS**

- A. Refer to following sections for additional information on components relating to this work:
  - 1. Remove existing flashing and counterflashings in preparation for replacement of these materials as part of this work, refer to Section 07 6200 for material requirements.

### **2.02 MATERIALS**

- A. Patching Materials: Provide necessary materials in accordance with requirements of existing roofing system.
- B. Temporary Roofing Protection Materials:
  - 1. Contractor's responsibility to select appropriate materials for temporary protection of roofing areas as determined necessary for this work.
  - 2. Plastic Sheeting: Provide polyethylene sheets; use weights to retain sheeting in position.
- C. Roofing Recover Materials:
  - 1. Contractor's responsibility to select appropriate materials for roofing re-cover as determined necessary for this work.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing roof surface has been cleared of materials being removed from existing roofing system and ready for next phase of work as required.

### **3.02 PREPARATION**

- A. Sweep roof surface clean of loose matter.
- B. Remove loose refuse and dispose of properly off-site.

### **3.03 MATERIAL REMOVAL**

- A. Remove only existing roofing materials that can be replaced with new materials the same day.
- B. Remove metal counter flashings.
- C. Remove damaged portions of roofing membrane, perimeter base flashings, flashings around roof protrusions, pitch pans and pockets.
- D. Cut and lay flat any membrane blisters.
- E. Remove damaged insulation and fasteners, cant strips, and blocking.
- F. Repair existing damaged wood deck surface to provide smooth working surface for new roof system.

### **3.04 INSTALLATION**

- A. Coordinate scope of this work with requirements for installation of new roofing system, refer to Section 07 5100 for additional requirements.

### **3.05 PROTECTION**

- A. Provide protection of existing roofing system that is not having work performed on it.
- B. Provide temporary protective sheeting over uncovered deck surfaces.
- C. Provide for surface drainage from sheeting to existing drainage facilities.
- D. Do not permit traffic over unprotected or repaired deck surface.
- E. Install recover board over existing membrane.

### **3.06 EXISTING BASE FLASHINGS**

- A. Remove existing base flashings around parapets, curbs, walls, and penetrations.
  - 1. Clean substrates of contaminants such as a, sheet materials, dirt, and debris.

- B. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings specified in Division 07 Section Sheet Metal Flashing and Trim.

### **3.07 FASTENER PULL-OUT TESTING**

- A. Where roof decking/boards are suspected of being in poor or unacceptable condition, perform fastener pull-out tests according to SPRI FX-1, and submit test report to Design Associate.

### **3.08 DISPOSAL**

- A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
  - 1. Storage or sale of demolished items or materials on-site is not permitted.
- B. Transport and legally dispose of demolished materials off Owner's property.

**END OF SECTION**

## SECTION 07 3113

### ASPHALT SHINGLES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Associated metal flashings and accessories.

##### 1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry
- B. Section 07 0150.19 - Preparation for Re-roofing
- C. Section 07 5300 - Elastomeric Membrane Roofing
- D. Section 07 5600 - Fluid Applied Roofing
- E. Section 07 6200 - Sheet Metal Flashings and Trim
- F. Section 07 7100 - Roof Specialties
- G. Section 07 7123 - Manufactured Gutters and Downspouts
- H. Section 07 7200 - Roof Accessories: Manufactured curbs, roof hatches, and snow guards.
- I. Section 07 9005 - Joint Sealers.

##### 1.03 REFERENCE STANDARDS

- A. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2006.
- B. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2001.
- C. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method); 2008b.
- D. ASTM D 3462 - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules; 2007.
- E. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007.
- F. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.
- G. UL (RMSD) - Roofing Materials and Systems Directory; Underwriters Laboratories Inc.; current edition.

##### 1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating material characteristics and performance criteria.
- C. Shop Drawings: For metal flashings, indicate specially configured metal flashings, jointing methods and locations, fastening methods and locations, and installation details.
- D. Samples: Submit two (2) samples of each shingle color indicating color range and finish texture/pattern; for color selection.

- E. Manufacturer's Instructions: Indicate installation criteria and procedures.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Shingles: 50 sq. ft.

### **1.05 QUALITY ASSURANCE**

- A. Perform Work in accordance with the recommendations of NRCA Steep Roofing Manual.
  - 1. Maintain one (1) copy of document on site.
- B. Products Required to Comply with Fire or Wind Resistance Criteria: UL listed and labeled.

### **1.06 FIELD CONDITIONS**

- A. Do not install shingles or eave protection membrane when surface temperatures are below 45 degrees F.

## **PART 2 PRODUCTS**

### **2.01 SHINGLES**

- A. Manufacturers:
  - 1. Certaineed; [www.certainteed.com](http://www.certainteed.com).
  - 2. Owens-Corning; [www.owenscorning.com/roofing](http://www.owenscorning.com/roofing)
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Asphalt Shingles: Fiber glass mat base asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D 3462; UL Class A fire resistance; UI CERTIFID astm3018
  - 1. Wind Resistance: Class A, when tested in accordance with ASTM D 3161.
  - 2. Warranted Wind Speed: Not less than tested wind resistance – Class F, 110 mph.
  - 3. Miami-Dade County approved.
  - 4. Weight: Minimum 300 lbs. per square.
  - 5. Algae Resistant.
  - 6. Color: As selected by Design Associate.

### **2.02 SHEET MATERIALS**

- A. Eave & Valley Underlayment Protection Membrane:
  - 1. Composite material of asphalt polymers under asphalt roofing shingles and metal valley flashing. Similar to CertainTeed "Winterguard".
  - 2. Substitutions: See Section 01 6000 - Product Requirements for no less than 30# asphaltic felt equivalent.
- B. Underlayment:
  - 1. Synthetic polymer-based underlayment water-resistant layer with scrim-reinforced underlayment beneath asphalt roofing shingles. Similar to CertainTeed "Roof Runner".
  - 2. Substitutions: See Section 01 6000 - Product Requirements for no less than 15# asphaltic felt equivalent.
- C. Flexible Flashing: Self-adhering polymer-modified asphalt sheet complying with ASTM D 1970; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.

### **2.03 ACCESSORIES**

- A. Nails: As required by shingle manufacturer.
- B. Plastic Cement: ASTM D 4586, asphalt roof cement.

- C. Lap Cement: Fibrated cutback asphalt type, recommended for use in application of underlayment, free of toxic solvents.

## **2.04 METAL FLASHINGS**

- A. Metal Flashings: Per Section 07 6200 - Sheet Metal Flashings and Trim.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions prior to beginning work.
- B. Verify that deck is of sufficient thickness to accept fasteners.
- C. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.
- D. Verify roof openings are correctly framed.
- E. Verify roof board decking surfaces are dry, free of ridges, warps, or voids.

### **3.02 PREPARATION**

- A. Seal roof board deck joints wider than 1/16 inch with deck tape.
- B. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.
- C. Broom clean deck surfaces before installing underlayment or eave protection.
- D. Install eave edge flashings tight with fascia boards. Weather lap joints 2 inches and seal with plastic cement. Secure flange with nails spaced 24 inches on center.

### **3.03 INSTALLATION - EAVE PROTECTION MEMBRANE**

- A. Install eave protection membrane from eave edge to minimum 2 ft. up-slope beyond interior face of exterior wall.
- B. Install eave protection membrane in accordance with manufacturer's instructions.
- C. Place starter strip with eave edge flush with face of flashings. Secure in place. Lap ends minimum 6 inches.
- D. Apply lap cement at rate of approximately 1 1/4 gal/100 sq ft over starter strip.
- E. Starting from lower edge of starter strip, lay additional 36 inch wide strips in lap cement, to produce a two ply membrane. Weather lap plies minimum 19 inches and nail in place. Lap ends minimum 6 inches. Stagger end joints of each consecutive ply.

### **3.04 INSTALLATION - UNDERLAYMENT**

- A. At Roof Slopes: Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches. Stagger end laps of each consecutive layer. Nail in place. Weather lap minimum 4 inches over eave protection.
- B. Items projecting through or mounted on roof: Weather lap and seal watertight with plastic cement.

### **3.05 INSTALLATION - VALLEY PROTECTION**

- A. Install metal valley flashing, minimum 24 inches wide, centered over valleys per Section 07 6200 - Sheet Metal Flashings and Trim.
- B. Weather lap joints minimum 12 inches and seal laps.

- C. Apply an approximately 3-inch width of asphalt roofing cement along the sides of flashing and embed shingles in mastic.
- D. Clip the top corner of shingles along valleys to keep water flow toward center of valley.
- E. Take care not to place any fasteners in the exposed center area of the metal flashing.
- F. Nail in place minimum 18 inches on center, 1 inch from edges.
- G. Extend entire width of flashing "completely" to the bottom of the roof valley.
- H. Cut bottom of flashing so the entire width of the valley flashing extends approximately 1/2" to 3/4" over the fascia trim board along eaves.

### **3.06 INSTALLATION - METAL FLASHING AND ACCESSORIES**

- A. Install flashings in accordance with manufacturer's instructions.
- B. Weather lap joints minimum 12 inches and seal weather tight with plastic cement.

### **3.07 INSTALLATION - SHINGLES**

- A. Install shingles in accordance with manufacturer's instructions.
- B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area. Provide double course of shingles at eaves.
- C. Project first course of shingles 3/4 inch beyond fascia boards and roof coated integral gutter.
- F. Cap hips and ridges with individual shingles, maintaining 5 inch weather exposure. Place to avoid exposed nails.
- G. After installation, place one daub of plastic cement, one inch diameter under each individual shingle tab exposed to weather, to prevent lifting.
- H. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counterflashings.
- I. Complete installation to provide weather tight service.

### **3.08 PROTECTION**

- A. Do not permit traffic over finished roof surface.

### **3.09 ROOFING INSTALLER'S WARRANTY**

- A. WHEREAS <Insert name> of <Insert address>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  - 1. Owner: <Insert name of Owner>.
  - 2. Address: <Insert address>.
  - 3. Building Name/Type: <Insert information>.
  - 4. Address: <Insert address>.
  - 5. Area of Work: <Insert information>.
  - 6. Acceptance Date: <Insert date>.
  - 7. Warranty Period: <Insert time>.
  - 8. Expiration Date: <Insert 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 he will, at his 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 110 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 **<Insert day>** day of **<Insert month>**, **<Insert year>**.

1. Authorized Signature: **<Insert signature>**.
2. Name: **<Insert name>**.
3. Title: **<Insert title>**



**3.09 MANUFACTURER'S WARRANTY**

- A. Warranty Period: 50-year limited
- B. Wind (110 MPH) Warranty Period: 15-year
- C. Algae Warranty Period: 10-year
- D. Streak Protection: 15-year

**END OF SECTION**

**SECTION 07 5300**  
**ELASTOMERIC MEMBRANE ROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Elastomeric roofing membrane and mechanically fastened conventional application.
- B. Insulation, flat and tapered.
- C. Vapor retarder.
- D. Deck sheathing.
- E. Flashings.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry
- B. Section 07 0150.19 - Preparation for Re-Roofing
- C. Section 07 6200 - Sheet Metal Flashing and Trim
- D. Section 07 7100 - Roof Specialties
- E. Section 07 5600 - Fluid Applied Roofing

**1.03 REFERENCE STANDARDS**

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- B. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2013.
- C. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2015.
- D. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.
- E. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2016.
- F. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2006a (Reapproved 2015a).
- G. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2012).
- H. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact; 2014.
- I. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics; 2016.
- J. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015.
- K. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2015.
- L. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- M. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate with installation of associated counterflashings installed under other sections.
- B. Pre-installation Meeting:

1. Convene a pre-installation meeting one (1) week before starting work of this section; require attendance by all affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.
2. Roofing Contractor is to meet with the Owner, Design Associate, the roofing foreman which will be working on the project, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
4. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
5. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
6. Review structural loading limitations of roof deck during and after roofing.
7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.

#### **1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.
- C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and paver layout.
- D. Samples for Verification: Submit two (2) samples 12 inches by 12 inches in size illustrating insulation.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- G. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.
- H. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three (3) years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact.
- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.
- D. Protect foam insulation from direct exposure to sunlight.

#### **1.08 FIELD CONDITIONS**

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane when ambient temperature is below 40 degrees F.
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- E. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

## **1.09 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Roof Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
  - 1. Roof warranty (total system) includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, walk pads, roof edge metal and other components of roofing system for a total system roofing warranty.
  - 2. Warranty Period: 20 years from date of Substantial Completion. Provide wind uplift warranty of 115 mph.
- C. Contractor's Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, and vapor retarders for the following warranty period.
  - 1. Warranty Period: Two (2) years from date of Substantial Completion.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Source Limitations: Obtain components including roof insulation and fasteners for roofing system from manufacturer as membrane roofing.

### **2.02 PERFORMANCE REQUIREMENTS**

- A. General Performance: Installed roofing 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 base flashings shall remain watertight.
  - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
  - 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Tested by a qualified testing agency to resist the following uplift pressures:
  - 1. Corner Uplift Pressure: 65 lbf/sq. ft.
  - 2. Perimeter Uplift Pressure: 55 lb/sq. ft.
  - 3. Field-of-Roof Uplift Pressure: 45 lbf/sq. ft.
- D. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in ASCE-7 as part of a roofing system.
  - 1. Fire/Windstorm Classification: Class 1A-90.
  - 2. Hail-Resistance Rating: SH.
- E. Exterior Fire-Test Exposure: ASTM E 108 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.

- F. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

### **2.03 ROOFING – EPDM ROOFING**

- A. Elastomeric Membrane Roofing: One ply membrane, fully adhered, over vapor retarder and insulation.
- B. Elastomeric Membrane Roofing; ASTM 4637, Type 1, non-reinforced, Type III, fabric backed, uniform, flexible EPDM sheet.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Carlisle SynTec Incorporated.
    - b. Versico Incorporated.
    - c. Firestone Building Products.
  - 2. Thickness: 115 mils, nominal roof membrane.
  - 3. Exposed Face Color: Black
- C. Roofing Assembly Requirements:
  - 1. Solar Reflectance Index (SRI): Minimum of 64 based on three-year aged value; if three-year aged data is not available, minimum of 82 initial value.
    - a. Calculate SRI in accordance with ASTM E1980.
    - b. Field applied coating may not be used to achieve specified SRI.
  - 2. Solar Reflectance Index (SRI): 78, minimum, calculated in accordance with ASTM E1980, based on 3-year aged data.
    - a. Field applied coating may not be used to achieve specified SRI.
  - 3. Roof-Ceiling Fire Resistance Rating: Comply with UL (FRD) certified Assembly Design.
  - 4. Roof Covering External Fire Resistance Classification: UL (DIR) certified Class A.
  - 5. Factory Mutual Classification: Class 1 and windstorm resistance of 1-90, in accordance with FM DS 1-28.
- D. Seaming Materials: As recommended by membrane manufacturer.

### **2.04 AUXILIARY ROOFING MATERIALS**

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
  - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
  - 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
    - a. Plastic Foam Adhesives: 50 g/L.
    - b. Gypsum Board and Panel Adhesives: 50 g/L.
    - c. Multipurpose Construction Adhesives: 70 g/L.
    - d. Fiberglass Adhesives: 80 g/L.
    - e. Single-Ply Roof Membrane Adhesives: 250 g/L.
    - f. Single-Ply Roof Membrane Sealants: 450 g/L.
    - g. Nonmembrane Roof Sealants: 300 g/L.
    - h. Sealant Primers for Nonporous Substrates: 250 g/L.
    - i. Sealant Primers for Porous Substrates: 775 g/L.
    - j. Other Adhesives and Sealants: 250 g/L.
- B. Sheet Flashing: 115-mil- thick fleeced back EPDM, according to application. In addition, provide partially cured or cured as per roof manufacturer's instructions.
- C. Bonding Adhesive: Manufacturer's standard.
- D. Low-Rise, Urethane, Fabric-Backed Membrane Adhesive: Roof system manufacturer's standard spray-applied, low-rise, two-component urethane adhesive formulated for compatibility and use with fabric-backed membrane roofing.

- E. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 6- inch- wide minimum, butyl splice tape with release film.
- 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, pre-punched.
- J. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening membrane to substrate, and acceptable to roofing system manufacturer. Contractors may use fasteners to keep insulation in place while adhesive sets.
- 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.

## **2.05 SUBSTRATE BOARDS**

- A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch thick. Substrate boards to be installed over wood roof decks only.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. Georgia-Pacific Corporation; Dens Deck Prime
    - b. Approved equal.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion resistance provisions in FM Global 4470, designed for fastening substrate panel to roof deck.

## **2.06 ROOF INSULATION**

- A. General: Preformed roof insulation boards manufactured by EPDM roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Global-approved roof insulation.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 2, Grade 2, coated glass-fiber mat facer on both major surfaces.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Insulation to be supplied by the roof manufacturer.
    - a. Carlisle SynTec Incorporated.
    - b. Firestone Building Products.
    - c. Insulfoam LLC; a Carlisle company.
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of ¼ inch per 12 inches for field of roof, unless otherwise indicated. Slope ½" per 1'-0", unless otherwise indicated.

## **2.07 ACCESSORIES**

- A. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.
- B. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self-adhering.
- 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 multi-component urethane adhesive. Bead spacing not to exceed 3" o.c.
  2. Full-spread spray-applied, low-rise, two-component urethane adhesive.
- D. Membrane Adhesive: As recommended by membrane manufacturer.
  - E. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
  - F. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
  - G. Insulation Adhesive: As recommended by insulation manufacturer.
  - H. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
  - I. Insulation Perimeter Restraint: Stainless steel edge device configured to restrain insulation boards in position and provide top flashing over ballast.
  - J. Sealants: As recommended by membrane manufacturer.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof penetrations through roof are solidly set, and cant strips are in place.

### **3.05 INSULATION INSTALLATION**

- A. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
  1. Extend vapor retarder under cant strips and blocking to deck edge.
  2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.
- C. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- D. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- E. Install tapered insulation under area of roofing to conform to slopes indicated. The Contractor is not to proceed with the installation of the tapered insulation until the Contractor has field verified the height of the insulation with any conflict in field conditions. Any conflicts with the height of the insulation is to be brought to the attention of the Architect. Contractor to provide a letter stating that the field conditions and dimensions have been field verified prior to fabrication.
- F. Install insulation under area of roofing to achieve a thickness that matches the existing insulation thickness. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
  1. Where installing composite and noncomposite insulation in two or more layers, install non-composite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
- G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:

1. Set each layer of insulation in ribbons of bead-applied insulation adhesive not exceeding 3" o.c., firmly pressing and maintaining insulation in place.
  2. Set each layer of insulation in a full spray of insulation adhesive, low rise polyurethane foam, firmly pressing, and weighing down and maintaining insulation in place.
  3. Securement of the roof system must follow ASCE-7 requirements for additional securement if required above what is specified.
- H. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.
- I. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- J. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- K. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
- L. Do not apply more insulation than can be covered with membrane in same day.

### **3.06 MEMBRANE APPLICATION**

- A. Apply elastomeric membrane roofing system in accordance with manufacturer's recommendations and NRCA (WM) applicable requirements.
- B. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- C. Shingle joints on sloped substrate in direction of drainage.
- D. Fully Adhered Application: Fully embed membrane in adhesive except in areas directly over or within 3 inches of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.
- E. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- F. At intersections with vertical surfaces:
1. Extend membrane over cant strips and up a minimum of 4 inches onto vertical surfaces.
  2. Fully adhere flexible flashing over membrane and up to nailing strips.
  3. Secure flashing to nailing strips at 4 inches on center.
  4. Insert flashing into reglets and secure.
  5. Install in accordance with NRCA Details.
- G. Around roof penetrations, seal flanges and flashings with flexible flashing.
1. Install in accordance with NRCA Details.
- H. Coordinate installation of flashings.
1. Install in accordance with NRCA Details.
- I. Coordinate installation of associated counterflashings installed under other sections.
3. Finish with colored coating.

### **3.07 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for general requirements for field quality control and inspection.
- B. Require site attendance of roofing and insulation material manufacturers daily during installation of the Work.

### **3.08 CLEANING**

- A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.
- B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- C. Repair or replace defaced or damaged finishes caused by work of this section.



### 3.09 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

### 3.10 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS <Insert name> of <Insert address>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  - 1. Owner: <Insert name of Owner>.
  - 2. Address: <Insert address>.
  - 3. Building Name/Type: <Insert information>.
  - 4. Address: <Insert address>.
  - 5. Area of Work: <Insert information>.
  - 6. Acceptance Date: <Insert date>.
  - 7. Warranty Period: <Insert time>.
  - 8. Expiration Date: <Insert 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 he will, at his 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 110 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. 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.
  6. 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 **<Insert day>** day of **<Insert month>**, **<Insert year>**.
1. Authorized Signature: **<Insert signature>**.
  2. Name: **<Insert name>**.
  3. Title: **<Insert title>**.

### **3.11 ROOF MANUFACTURER'S WARRANTY**

- A. Provide a 20-year total system roof manufacturer's warranty including all roof edge metal and wind up-lift up to and including 72 mph. The warranty shall be a no dollar limit warranty (NDL). The warranty shall list the owner's name, the actual project's location (address) as well as note which building (address) and roof areas are included under the warranty. If the warranty does not list the above information, it will be returned to the contractor for revision at the contractor's own expense.

**END OF SECTION**

**SECTION 07 5600**  
**FLUID-APPLIED ROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fluid-applied roofing materials.
- B. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 6200 - Sheet Metal Flashing and Trim: Metal parapet covers, copings, and counterflashings.

**1.03 REFERENCE STANDARDS**

- A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2006a (Reapproved 2015a).
- B. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015.
- C. CRRC-1 - Standard; Cool Roofs Rating Council; 2012.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's data for membrane and accessory materials.
- C. Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.
- D. Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer's Installation Instructions: Include standard installation instructions, acceptable installation temperature range, and procedures for unusual perimeter conditions.
- F. Field Quality Control Test Report.
- G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacture of fluid-applied roofing or waterproofing systems.
  - 1. Twenty (2) years documented experience manufacturing type of product specified and be IDSO 9001 certified.
- B. Installer Qualifications: Company specializing in installation of fluid-applied roofing or waterproofing systems.
  - 1. Approved by roofing manufacturer.
  - 2. Five (5) years of documented experience.
- C. Coating shall have an Underwriters Laboratories (UL) Listing, Factory Mutual (FM) Class 1, 4470 Approval and a Miami-Dade NOA (Notice of Acceptance).
- D. Adhesion Test: Prior to estimating coating restoration project, conduct an adhesion test in accordance with MPM adhesion testing procedures to determine if a primer or other specific surface preparation is required.
- E. Contractor Qualifications: The contractor shall be approved by MPM and eligible to offer a Enduris Silicone Labor & Material Warranty.
- F. Deviations: Any deviation from this specification must be approved in writing by MPM.
- G. Field Quality Control: Upon completion of the roof coating project, an inspection by MPM's designated third-party inspection agency may be required. Consult with MPM for specific requirements.

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

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact.
- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

## **1.07 FIELD CONDITIONS**

- A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until cured.
- B. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.
- C. Mask or otherwise protect all surfaces not to be prepared and/or coated to prevent overspray damage. Use wind screens as appropriate.
- D. Review existing and imminent weather conditions (including potential for extreme temperatures, relative humidity, frost, dew, and precipitation) to assure that coating and accessory material will have sufficient curing time.
- E. Temperature at the time of application of the Enduris 3500 roof coating application should be above 0°F (-18°C) to allow coating to cure properly. Contact manufacturer if applying to substrates over 120°F (49°C).
- F. Apply Enduris 3500 roof coatings only to clean, dry and secure surfaces.

## **1.08 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide Twenty (20) year manufacturer warranty that roofing membrane will not crack, split, or flake under normal weather conditions and will not fail to resist penetration of water during that time period.
  - 1. Hairline cracking of concrete due to temperature change or shrinkage is not considered a structural failure.
- C. Inspections: Warranted projects are subject to:
  - 1. Pre-job inspection and adhesion test; and
  - 2. Final quality control inspection.
  - 3. Inspections may be performed by MPM or its designated third-party inspectors at MPM's discretion.
- D. Warranty submittals:
  - 1. MPM Warranty Pre-Approval Application
  - 2. Adhesion test results

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Fluid-Applied Roofing:
  - 1. Basis of Design: Momentive Performance Materials, Inc.- General Electric Silicones:
  - 2. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 MATERIALS**

- A. Fluid-Applied Roofing
  - 1. Basis of Design: Enduris 3500 alkoxy-based, moisture-cured, silicone roof coating.
    - a. Tensile Strength: ASTM D2370, 200 psi
    - b. Elongation at Break: ASTM D2370, 500%
    - c. Volume Solids: ASTM D2697, 90%
    - d. Weight Solids: ASTM D1644, 90%

- B. Application: Provide elastomeric roof coating with elastomeric base coat.

### **2.03 ACCESSORIES TREATMENT MATERIALS**

- A. GE Enduris Silicone Seam Sealant.
- B. GE UltraSpan\* UST / USM pre-cured silicone transition sheets and molded corners. The UltraSpan Technical Data Sheet for physical property information (mandatory for cover board).
- C. Reinforcement Fabric: GE RF100 series 100% polyester spun-laced textile reinforcing fabric that is available in 4", 6" or 12" widths. RF100 Technical Data Sheet.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions prior to starting this work.
- B. Verify substrate surfaces are free of frozen matter, dampness, loose particles, cracks, pits, projections, penetrations, or foreign matter detrimental to adhesion or application of roofing system.
- C. Verify that substrate surfaces are smooth, free of honeycombs or pitting, and not detrimental to full contact bond of roofing materials.
- D. Verify that roof openings and items that penetrate surfaces to receive roofing materials are securely and properly installed.

### **3.02 PREPARATION**

- A. Clean and prepare surfaces to receive roofing in accordance with manufacturer's instructions and recommendations.
- B. Seal cracks and non-moving open joints less than 1/2 inch wide with sealant using methods recommended by roofing and sealant manufacturers; do not seal expansion joints or moving joints of any width.
- C. Install cant strips at inside corners, where indicated and where required by roofing manufacturer.
- D. Protect adjacent surfaces not designated to receive roofing.
- E. The surface must be clean, sound, dry and free of any materials, laitance, membrane chalk, and loose coating that may inhibit the proper adhesion of the coating or sealant.
- F. Pressure wash entire roof surface at 2500-4000 psi, utilizing GE roof prep wash or approved biodegradable detergent as needed to remove oils or other materials that interfere with adhesion. Rinse with clean water. Let dry thoroughly.
- G. Heavy areas of loose granules may require removal by vacuum.

### **3.03 INSTALLATION**

- A. Install fluid-applied roofing in accordance with manufacturer's instructions and recommendations, to specified minimum thickness.
- B. Apply roofing materials to surfaces that are acceptable to manufacturer.
- C. Any water saturated insulation is to be removed and replaced with like material. The roof membrane should be replaced with new, like material.
- D. All loose or flaking rust must be mechanically removed.
- E. Asphaltic surfaces may optionally take advantage of GE Asphalt Bleed Blocker to prevent bleed through to the finished surface, but is not required for warranty purposes. Bleed Blocker to be applied at 1 gallon per 100 square feet.
- F. Areas of heavy alligatoring should be treated with Seam Sealant.

- J. Gaps, flashing details, angle changes and penetrations must be sealed with a minimum 60 mils of Enduris Seam Sealant.
- K. Loose seams must be repaired with Seam Sealant and fabric.
- L. All new pitch pockets must be filled 3 inches vertically with GE self-leveling silicone sealant or approved equal. Restore existing pitch pockets with seam sealer.

#### **3.04 FINISH COATING CHARACTERISTICS**

- A. The cured Enduris 3500 Series silicone roof coating shall be monolithic and seamless, encapsulating the entire roof surface.
- B. Coating is to be applied at a rate of 2.5 gallons per 100 square feet.
- C. Enduris 3500 Series silicone roof coating may be applied by brush, roller, or airless sprayer. Back-rolling should be kept to a minimum.
- D. Enduris Seam Sealant may be applied by brush, trowel, or gloved hand.
- E. Minimum cured coating thickness is 36 mils.

#### **3.05 FIELD QUALITY CONTROL**

- A. Owner will provide testing services in accordance with Section 01 4000 - Quality Requirements, and Contractor shall provide temporary construction and materials for testing.
- B. Upon completion of horizontal fluid-applied roofing material installation, install dam at perimeter of installation area in preparation for flood testing.
- C. Flood area to a minimum depth of 1 inch with clean water, and after 72 hours, inspect for leaks.
- D. If leaking is found, remove water, repair leaking areas with new roofing materials as directed by Architect, and repeat flood test. Repair damages to building related to roof test leakage.
- E. When area is confirmed to be watertight, drain water and remove dam materials.

#### **3.06 PROTECTION**

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must proceed over installed roofing materials, protect surfaces using durable materials acceptable to roofing material manufacturer.

**END OF SECTION**

**SECTION 07 6200**  
**SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including flashings, counterflashings, and other items indicated in Schedule.
- B. Sealants for joints within sheet metal fabrications.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 0150.19 - Preparation for Re-roofing
- B. Section 07 3113 - Asphaltic Shingles
- C. Section 07 5300 - Elastomeric Membrane Roof
- D. Section 07 5600 - Fluid Applied Roofing
- E. Section 07 6200 - Sheet Metal Flashing & Trim
- F. Section 07 7123 - Manufactured Gutters and Downspouts
- G. Section 07 9005 - Joint Sealers

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- C. ASTM B101 - Standard Specification for Lead-Coated Copper Sheet and Strip for Building Construction; 2012.
- D. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction; 2012.
- E. ASTM B749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products; 2014.
- F. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- G. CDA A4050 - Copper in Architecture - Handbook; current edition.
- H. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one (1) week before starting work of this section.
  - 1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
  - 3. Review requirements for insurance and certificates if applicable.
  - 4. Review sheet metal flashing observation and repair procedures after flashing installation.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

- C. Shop Drawings: For sheet metal flashing and trim.
  - 1. Include plans, elevations, sections, and attachment details.
  - 2. Detail fabrication and installation layouts, and key 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 roof-penetration flashing.
  - 9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counter flashings as applicable.
  - 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 1-1/2 inches per 12 inches .
- D. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.
- E. Samples for Verification: For each type of exposed finish.
  - 1. Sheet Metal Flashing: 12 inches (300 mm) long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
  - 2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches (300 mm) long and in required profile. Include fasteners and other exposed accessories.
  - 3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.

#### **1.06 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Maintain one (1) copy of each document on site.
- C. 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.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

#### **1.08 WARRANTY**

- A. 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 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.



2. Finish Warranty Period: **20 years** from date of Substantial Completion.

## **PART 2 PRODUCTS**

### **2.01 PERFORMANCE REQUIREMENTS**

- A. 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 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  2. Finish Warranty Period: **20 years** from date of Substantial Completion.
- B. 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 (67 deg C, ambient; 180 deg F (100 deg C).

### **2.02 SHEET MATERIALS**

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 or H01 temper.
  1. Revere or approved equal
  2. Non-patinated,

### **2.03 EPDM UNDERLAYMENT MATERIALS**

- A. 115 EPDM Fleece Backed.
- B. Self-Adhering, High-Temperature Sheet: Minimum 30 mils (0.76 mm) thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.
  1. Carlisle Whip 300 HT or approved by Design Associate.
  2. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C) or higher.
  3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C) or lower.
- D. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) `minimum.

### **2.04 MISCELLANEOUS MATERIALS**

- A. General: Provide materials and types of fasteners for prefinished metal, solder bare metals, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: 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 or manufactured item.
  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 Copper Sheet: Copper, hardware bronze or passivated Series 300 stainless steel.
- C. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.
- D. Solder:
  - 1. For Copper : ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead with maximum lead content of 0.2 percent.
  - 2. For Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
- E. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, non-staining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
- F. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- G. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- H. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- J. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

## **2.05 MANUFACTURED SHEET METAL FLASHING AND TRIM**

- A. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions and with interlocking counterflashing on exterior face, of same metal as reglet.
  - 1. Material: Stainless steel, 0.029 inch (0.48 mm) thick.
  - 2. Retain one or more reglet types and accessories of the following:
    - a. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
    - b. Stucco Type: Provide with upturned fastening flange and extension leg of length to match thickness of applied finish materials.
    - c. Accessories:
      - 1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
      - 2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing's lower edge.

## **2.06 FABRICATION – GENERAL**

- A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
  2. Obtain field measurements for accurate fit before shop fabrication.
  3. Form 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.
  4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
- C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."
- D. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
  2. Use lapped expansion joints only where indicated on Drawings.
- E. Sealant Joints: Where movable, non-expansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- G. Fabricate cleats 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 of metal being secured.
- H. Seams( Bare Metal): Fabricate nonmoving seams with 1 ½" lapped seams. Tin edges to be seamed, form seams, pop rivet and solder.
- I. Seams (Pre-finished metal): Fabricate nonmoving seams with 1 ½" lapped seam minimum. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use rivet joints as shown on the drawings.
- K. Do not use graphite pencils to mark metal surfaces.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify roof openings, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

### **3.02 UNDERLAYMENT INSTALLATION**

- A. EPDM: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm).
- B. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps and edges with roller. Cover underlayment within 14 days.

- C. Apply slip sheet, wrinkle free, over underlayment before installing sheet metal flashing and trim.

### 3.03 INSTALLATION – GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners and, solder at bare metals. Pop rivet and caulk at prefinished metals. Provide protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  - 3. Space cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
  - 4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
  - 5. Torch cutting of sheet metal flashing and trim is not permitted.
  - 6. Do not use graphite pencils to mark prefinished metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
  - 1. Coat concealed side of uncoated-copper sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
  - 2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.
  - 1. Form standing head expansion joints with covers at built in gutters and hanging gutters. See also fig. 1-8 and fig. 1-10 in SMACNA.
  - 2. Counterflashing and roof edge metal lap 4" minimum and apply sealant between the metal where prefinished metals is used.
- D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than
  - 1. 1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws][substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. 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.
- F. Seal all joints for watertight construction in prefinished metal. Joints in bare metal are to be pop soldered.
  - 1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).
  - 2. Prepare joints and apply sealants to comply with requirements in Section 079200 Joint Sealants.
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1-1/2 inches (38 mm); however, reduce pre-tinning where pre-tinned surface would show in completed Work.
  - 1. Pre-tin all copper.

2. Do not use torches for soldering.
4. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
4. Copper Soldering: Tin edges of uncoated sheets, using solder for copper.

### **3.04 ROOF-DRAINAGE SYSTEM INSTALLATION**

- A. General: Install sheet metal roof-drainage items to produce complete roof-drainage system according to cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.
- B. Built-in Gutters: See specification SECTION 07-5600 FLUID APPLIED ROOFING regarding gutter joint sealing and integral gutter costing with Enduris 3500 alkoxy-based, moisture-cured, silicone roof coating.
- C. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints.
  1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches (1500 mm) on center.
  2. Provide elbows at base of downspout to direct water away from building.
  3. Connect downspouts to underground drainage system.

### **3.05 ROOF FLASHING INSTALLATION**

- A. General: Install sheet metal flashing and trim to comply with performance requirements cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to 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 (75-mm) centers.
- C. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for FM Approvals' listing for required windstorm classification.
- D. Pipe Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints minimum of 4 inches (100 mm). Secure in waterproof manner by means of sealant and lead wedges 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.

### **3.06 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.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.

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

**END OF SECTION**

**SECTION 07 7123  
GUTTERS AND DOWNSPOUTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pre-finished aluminum gutters and downspouts.
- B. Precast concrete splash pads.
- C. Sheet metal splash pans.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 3113 - Asphalt Shingles
- B. Section 06 2000 – Finish Carpentry
- C. Section 07 5300 - Elastomeric Membrane Roofing
- D. Section 07 5600 - Fluid-Applied Roofing
- E. Section 07 6200 - Sheet Metal Flashing and Trim.
- F. Section 09 9113 - Painting: Field painting of metal surfaces.

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- C. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction;
- D. ASTM D4479/D4479M - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007 (Reapproved 2012).
- E. CDA A4050 - Copper in Architecture - Handbook; current edition.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Comply with SMACNA (ASMM) for sizing components for rainfall intensity determined by a storm occurrence of 1 in 5 years.
- B. Comply with applicable code for size and method of rain water discharge.
- C. Maintain one copy of each document on site.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on prefabricated components.
- C. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.
- D. Samples: Submit two samples, 12 inch long illustrating component design, finish, color, and configuration.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.
- B. Prevent contact with materials that could cause discoloration, staining, or damage.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Gutters and Downspouts:

1. ATAS International, Inc; Water Control System: [www.atas.com/#sle](http://www.atas.com/#sle).
2. Cheney Flashing Company; [www.cheneyflashing.com/#sle](http://www.cheneyflashing.com/#sle).
3. OMG Roofing Products; [www.omgroofing.com/#sle](http://www.omgroofing.com/#sle).
4. Substitutions: See Section 01 6000 - Product Requirements.

## **2.02 MATERIALS**

- A. Copper: ASTM B370, cold rolled 0.22 inch thick; natural finish.
- B. Primer: Zinc molybdate type.
- C. Protective Backing Paint: Zinc molybdate alkyd.
- D. Solder: ASTM B32; Sn50 (50/50) type.
- E. Primer and Solvent for Polyvinyl Chloride (PVC): As recommended by manufacturer.

## **2.03 COMPONENTS**

- A. Downspouts: Round sized to match existing replacement locations.
- B. Anchors and Supports: Profiled to suit gutters and downspouts.
  1. Anchoring Devices: In accordance with CDA requirements.
  2. Gutter Supports: Brackets.
  3. Downspout Supports: Brackets.

## **2.05 FABRICATION**

- A. Form downspouts of profiles and size to match existing.
- B. Fabricate with required connection pieces.
- C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- D. Hem exposed edges of metal.
- E. Tin edges of copper sheet to be soldered. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints.
- F. Fabricate gutter and downspout accessories; seal watertight.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that surfaces are ready to receive work.

### **3.02 PREPARATION**

- A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

### **3.03 INSTALLATION**

- A. Install downspouts and accessories in accordance with manufacturer's instructions.
- B. Solder metal joints for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.
- C. Connect downspouts to existing downspout receivers.

**END OF SECTION**



## SECTION 07 9005

### JOINT SEALERS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Sealants and joint backing.

##### 1.02 REFERENCES

- A. ASTM C 834 - Standard Specification for Latex Sealants; 2000.
- B. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications; 2002.
- C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2002.
- D. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2000.
- E. ASTM D 1667 - Standard Specification for Flexible Cellular Materials--Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam); 1997.

##### 1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

##### 1.04 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

##### 1.05 COORDINATION

- A. Coordinate the work with all sections referencing this section.

##### 1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

#### PART 2 PRODUCTS

##### 2.01 SEALANTS

- A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.
- B. Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.

- C. Type A - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single component.
  - 1. Color: Standard colors matching finished surfaces.
  - 2. Product: Manufactured by Pecora: [www.pecora.com](http://www.pecora.com).
  - 3. Applications: Use for:
    - a. Control, expansion, and soft joints in masonry.
    - b. Joints between concrete and other materials.
    - c. Joints between metal frames and other materials.
    - d. Other exterior joints for which no other sealant is indicated.
- D. Type B - General Purpose Exterior Sealant: Acrylic, solvent release curing; ASTM C 920, Grade NS, Class 12-1/2, Uses M, G, and A; single or multi- component.
  - 1. Color: Standard colors matching finished surfaces; or color as selected.
  - 2. Product: Manufactured by Tremco Inc.: [www.tremcosealants.com](http://www.tremcosealants.com).
  - 3. Applications: Use for:
    - a. Control, expansion, and soft joints in masonry.
    - b. Joints between concrete and other materials.
    - c. Joints between metal frames and other materials.
- E. Type C - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
  - 1. Product: Manufactured by Pecora, Inc.: [www.pecora.com](http://www.pecora.com).
  - 2. Applications: Use for:
    - a. Concealed sealant bead in sheet metal work.
    - b. Concealed sealant bead in siding overlaps.
- F. Type D - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.
  - 1. Color: Standard colors matching finished surfaces.
  - 2. Product: Manufactured by Pecora, Inc.: [www.pecora.com](http://www.pecora.com).
  - 3. Applications: Use for:
    - a. Interior wall and ceiling control joints.
    - b. Joints between door and window frames and wall surfaces.
    - c. Other interior joints for which no other type of sealant is indicated.
- G. Type G - Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Grade P, Class 25, Uses T, M and A; single component.
  - 1. Approved by manufacturer for wide joints up to 1-1/2 inches.
  - 2. Color: Standard colors matching finished surfaces.
  - 3. Product: Manufactured by Pecora, Inc.: [www.pecora.com](http://www.pecora.com).
  - 4. Applications: Use for:
    - a. Expansion joints in floors.

## 2.02 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.

- B. Verify that joint backing and release tapes are compatible with sealant.

### **3.02 PREPARATION**

- A. Remove loose materials and foreign matter which might impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

### **3.03 INSTALLATION**

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C 1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Tool joints concave.
- G. Pre-compressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.

### **3.04 CLEANING**

- A. Clean adjacent soiled surfaces.

### **3.05 PROTECTION OF FINISHED WORK**

- A. Protect sealants until cured.

**END OF SECTION**

**SECTION 08 1433**  
**STILE AND RAIL WOOD DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wood doors, stile and rail design; non-fire rated \_\_\_\_\_.
- B. Panels of wood with glass transom.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 2000 - Finish Carpentry
- B. Section 08 7100 - Door Hardware
- C. Section 08 8000 - Glazing
- D. Section 09 9123 - Interior Painting

**1.03 REFERENCE STANDARDS**

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights; 2007.
- C. AWI (QCP) - Quality Certification Program; current edition at [www.awiqcp.org](http://www.awiqcp.org).
- D. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- E. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- F. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate stile and rail core materials and construction; veneer species, type and characteristics.
- C. Specimen warranty.
- D. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, factory machining criteria, factory finishing criteria, and identify transom for glazing.
- E. Manufacturer's Installation Instructions: Indicate special installation instructions.
- F. Manufacturer's Qualification Statement.
- G. Installer's Qualification Statement.
- H. Warranty, executed in Owner's name.

**1.05 QUALITY ASSURANCE**

- A. Maintain one (1) copy of specified door quality standard on site for review during installation and finishing.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three (3) years of documented experience.
  - 1. Company with at least one project within the past five (5) years with value of woodwork within 20 percent of cost of woodwork for this project.
  - 2. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- C. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three (3) years of documented experience.
- D. Quality Certification:

1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section.

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

- A. Package, deliver, and store doors in accordance with quality standard specified.
- B. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

#### **1.07 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for warranty requirements.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Stile and Rail Wood Doors:
  1. Eggers Industries; [www.eggersindustries.com](http://www.eggersindustries.com)
  2. Karona, Inc; [www.karonadoor.com](http://www.karonadoor.com)
  3. Maiman Company; [www.maiman.com](http://www.maiman.com)
  4. Marshfield DoorSystems, Inc; [www.marshfielddoors.com](http://www.marshfielddoors.com)
  5. Shop fabricated per construction drawing dimensions and similar to the existing west entry door design and characteristics.
  6. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 DOORS**

- A. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless otherwise indicated.
- B. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with WDMA I.S. 6A.
- C. Exterior Doors: 1-3/4 inches thick unless otherwise indicated; solid lumber construction; mortise and tenon joints; water repellent treated. Painted finish as indicated on drawings.
- D. Design Style/Pattern: Exterior door to match design dimensioning of existing west exterior entry door including transom.

#### **2.03 COMPONENTS**

- A. Glazed Transom Openings:
  1. Laminated Safety Glass: Comply with 16 CFR 1201 test requirements for Category II.
  2. Glazing: Single vision units, 1/4 inch thick panes of glass.
  3. Tint: Clear.
- B. Panel or Glass Retention Molding: Wood of same species as door facing, molded stop applied one-side, mitered corners; prepared for countersink style tamper proof screws.
- C. Door Hardware: As specified in Section 08 7100.

#### **2.04 DOOR CONSTRUCTION**

- A. Vertical Exposed Edge of Stiles: Of same species as veneer facing.
- B. Panels: Raised as indicated on the drawings.
- C. At exterior doors, provide aluminum flashing at the top and bottom rail for full thickness and width of door.
- D. Machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware.
- E. Fit doors for frame opening dimensions identified on shop drawings mand verified in the field, with edge clearances in accordance with specified quality standard.

- F. Cut and configure exterior door edge to receive recessed weatherstripping devices. Provide edge clearances in accordance with referenced quality standards.

## **2.05 ACCESSORIES**

- A. Wood Door Frames: Modification of existing conditions to accommodate new door and transom.
- B. Door Hardware: As specified in Section 08 7100.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

### **3.02 INSTALLATION**

- A. Install doors in accordance with manufacturer's instructions and specified quality standards.
  - 1. Install exterior doors in accordance with ASTM E2112.
- B. Field-Finished Doors: Trimming to fit is acceptable.
  - 1. Adjust width of non-rated doors by cutting equally on both jamb edges.
  - 2. Trim door height by cutting bottom edges to a maximum of 3/4 inch.
  - 3. Trim fire-rated doors in strict compliance with fire rating limitations.
- C. Cut for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of transom glazing.

### **3.03 TOLERANCES**

- A. Comply with specified quality standard for fit, clearance, and joinery tolerances.
- B. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taut string, edge to edge, over an imaginary 36 by 84 inch surface area.

### **3.04 ADJUSTING**

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

### **3.05 SCHEDULE**

- A. Refer to Door and Frame Schedule on drawings.

**END OF SECTION**

## **SECTION 08 7100**

### **DOOR HARDWARE**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Locking/latching door hardware and core
- B. Door kick plate
- C. Threshold and sweep

##### **1.02 RELATED REQUIREMENTS**

- A. Section 08 1413 –Stile and Rail Doors

##### **1.03 REFERENCES**

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 1998.
- B. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1993.
- C. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

##### **1.04 SUBMITTALS**

- A. See Section 01 3300 – Submittal Procedures for submittal procedures.
- B. Coordination Shop Drawing/Document and product data:
  - 1. Indicate door location of door hardware products and hardware operation type for new wood doors and confirm with Miami University
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three (3) years of documented experience.
- D. Hardware Supplier Qualifications: Company specializing in supplying institutional door hardware with five (5) years of documented experience.

##### **1.05 DELIVERY, STORAGE, AND PROTECTION**

- A. Protect new hardware items and identify each hardware item according to door opening location.

##### **1.06 COORDINATION**

- A. Door Hardware Removal
  - 1. Existing restroom door handle hardware and strikes to be removed by Contractor and stored for reuse after adjustment of existing door within modified opening.
- B. New Exterior Hardware
  - 1. New exterior mortise set door hardware to be coordinated with new wood stile and rail door.
- C. Final Keying:
  - 1. New door locking hardware to be purchased and installed by Contractor with removable Best cores to be shipped from manufacturer to Miami University Key Shop. Key shop to install cores.

##### **1.07 WARRANTY**

- A. See Section 01 7700 - Closeout Submittals for additional warranty requirements.

## **1.08 MAINTENANCE PRODUCTS**

- A. Provide special wrenches and tools applicable to each different or special hardware component.
- B. Provide maintenance tools and accessories supplied by hardware component manufacturer.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS & GENERAL INFORMATION**

- A. Mortise Lock and Latch Set (Exterior Door):
  - 1. Key System: Best Access N/A – Univ. Std. (& pin per Miami University Standards)
  - 2. Locks: Corbin Russwin mortise locks
  - 3. Corbin Russwin: Basis of Design
  - 4. Style: Vineyard Collection ML2000 Merlot MSL
  - 5. Finish: 722 Black Oxidized Bronze, oil rubbed.
- B. Strike: 4 7/8" Curved Lip Strike
  - 1. Manufacturer: Corbin Russwin
  - 2. Corbin Russwin: Basis of Design
  - 3. Existing door jambs to remain to be reviewed by contractor prior to construction and coordinated as necessary with existing and new hardware.
- C. Kick Plate
  - 1. Manufacturer Basis of Design: Rockwood
  - 2. Standard Duty Kick Plate: 0.05" Thickness
  - 3. Finish: 626 US28D
  - 4. Height: 6"
- D. Threshold
  - 1. Manufacturer Basis of Design: Assay Abloy Pemko
  - 2. Thermal Barrier Threshold 0.05" Thickness
  - 3. Finish: Dark Bronze Anodized Aluminum
- E. Sweep
  - 1. Manufacturer Basis of Design: Assay Abloy Pemko
  - 2. Door Bottom Sweep
- F. Weatherstrip
  - 1. Manufacturer Basis of Design: Assay Abloy Pemko
  - 2. Perimeter gasketing with concealed fasteners

### **2.02 GENERAL REQUIREMENTS FOR DOOR HARDWARE PRODUCTS**

- A. Provide products that comply with the following:
  - 1. Applicable provisions of Federal, State, and local codes.
  - 2. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
  - 3. Applicable provisions of NFPA 101, Life Safety Code.
  - 4. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.
- B. Finishes: All finishes as noted above.

### **2.03 KEYING**

- A. Door Locks/Latches & Final Keying:
  - 1. Contractor to remove cores from existing door latching/locking sets and provide to Miami University along with other removed door hardware.



2. New door locking hardware to be purchased and installed by contractor with removable Best cores to be shipped from manufacturer to Miami University Key Shop. Key shop to install cores.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that doors are ready to receive work and dimensions are as indicated on shop/coordination drawings/documents.

#### **3.02 INSTALLATION**

- A. Reinstall hardware in existing restroom doors following adjustment of existing door in modified frame.
- B. Install all exterior door hardware following adjustment of new door in existing frame.

#### **3.03 ADJUSTING**

- A. Adjust work under provisions of Section 01 7000.
- B. Adjust hardware for smooth operation.
- C. One Year Adjustment: Approximately one (1) year after date of Final Acceptance, Installer shall perform the following:
  1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
  2. Consult with and instruct personnel on recommended maintenance procedures.
  3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

#### **3.04 PROTECTION OF FINISHED WORK**

- A. Protect finished Work under provisions of Section 01 7000.
- B. Do not permit adjacent work to damage hardware or finish.

#### **3.05 DOOR IDENTIFICATION** - See drawings.

**END OF SECTION**

## SECTION 08 8000

### GLAZING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Glass.
- B. Glazing compounds and accessories.

##### 1.02 RELATED REQUIREMENTS

- A. Section 06 2000 - Finish Carpentry
- B. Section 07 9005 - Joint Sealers
- C. Section 08 1433 Stile and Rail Wood Doors

##### 1.03 REFERENCE STANDARDS

- A. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2009.
- B. GANA (SM) - FGMA Sealant Manual; Glass Association of North America; 1990.

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. PERFORMANCE REQUIREMENTS
  1. Provide glass and glazing materials for continuity of building enclosure.
  2. Select type and thickness of exterior glass to withstand dead loads and wind loads acting normal to plane of glass at design pressures of 25 lb/sq ft positive and negative.
    - a. Use the procedure specified in ASTM E 1300 to determine glass type and thickness.
    - b. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
    - c. Thicknesses listed are minimum.

##### 1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements.

##### 1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with SIGMA TM-3000 Glazing Guidelines for glazing installation methods.

##### 1.07 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

##### 1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Laminated Safety Glass: Provide a ten (10) year warranty to include coverage for delamination,

including replacement of failed units.

## **PART 2 PRODUCTS**

### **2.01 FLAT GLASS MATERIALS**

- A. Manufacturers:
  - 1. ACH Glass/Versalux: [www.versaluxglass.com](http://www.versaluxglass.com).
  - 2. AFG Industries, Inc: [www.afgglass.com](http://www.afgglass.com).
  - 3. Pilkington Building Products North America: [www.pilkington.com](http://www.pilkington.com).
  - 4. PPG Industries, Inc: [www.ppg.com](http://www.ppg.com) <<http://www.ppg.com>>.
  - 5. Substitutions: Refer to Section 00 2113 - Instructions to Bidders.
- B. Safety Glass (Type S.1): Clear; fully tempered with horizontal tempering.
  - 1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select) and ASTM C 1048.
  - 2. Comply with 16 CFR 1201 test requirements for Category II.
  - 3. Comply with ANSI Z97.1.
  - 4. 6 mm minimum thick.
  - 5. Provide this type of glazing in the locations required by code.
    - a. Glazed transom above door.

### **2.03 GLAZING COMPOUNDS**

- A. Manufacturers:
  - 1. Bostik, Inc: [www.bostik-us.com](http://www.bostik-us.com).
  - 2. Momentive Performance Materials, Inc. (formerly GE Silicones): [www.momentive.com](http://www.momentive.com).
  - 3. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
  - 4. BASF Construction Chemicals, Inc: [www.chemrex.com](http://www.chemrex.com).
  - 5. Substitutions: Refer to Section 00 2113 - Instructions to Bidders.
- B. Silicone Sealant: Paintable, single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 15 to 25; color as selected.

### **2.04 GLAZING ACCESSORIES**

- A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 Option I. Length of 0.1 inch for each square foot (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) x width of glazing rabbet space minus 1/16 inch (1.5 mm) x height to suit glazing method and pane weight and area.
- B. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; size; black color.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement; weeps are clear, and ready to receive glazing.

### **3.02 PREPARATION**

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.
- D. Install sealants in accordance with ASTM C 1193 and FGMA Sealant Manual.

### **3.03 INSTALLATION - DRY METHOD (PREFORMED TAPE AND SEALANT)**

- A. Cut glazing tape to length and set against permanent stops, 3/16 inch below sight line. Seal corners by butting tape and dabbing with silicone sealant.
- B. Apply heel bead of silicone sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
- C. Place setting blocks at 1/3 points with edge block no more than 6 inches from corners.
- D. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.
- E. Fill gap between glazing and stop with silicone type sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch below sight line.
- F. Apply cap bead of silicone type sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

### **3.05 CLEANING**

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

**END OF SECTION**

**SECTION 09 2300  
GYPSUM PLASTERING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Gypsum plastering.

**1.02 REFERENCE STANDARDS**

- A. ASTM C28/C28M - Standard Specification for Gypsum Plasters; 2010 (Reapproved 2015).
- B. ASTM C631 - Standard Specification for Bonding Compounds for Interior Gypsum Plastering; 2009 (Reapproved 2014).
- C. ASTM C842 - Standard Specification for Application of Interior Gypsum Plaster; 2005 (Reapproved 2015).

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittals procedures.
- B. Product Data: Provide data on plaster materials, characteristics, and limitations of products specified.

**1.04 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience.
- B. Copies of Documents at Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

**1.05 FIELD CONDITIONS**

- A. Do not apply plaster when substrate or ambient air temperature is under 50 degrees F or over 80 degrees F.
- B. Maintain minimum ambient temperature of 50 degrees F during and after installation of plaster.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Gypsum Plaster:
  - 1. National Gypsum Company; [www.nationalgypsum.com](http://www.nationalgypsum.com)
  - 2. USG; [www.usg.com](http://www.usg.com)
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 PLASTER MATERIALS**

- A. Ready-Mixed Finishing Plaster: Gypsum/Lime putty type, ASTM C28/C28M; mixture of gauging plaster and lime.
- B. Ready-Mixed Finishing Plaster: Keene's cement/lime putty type; ASTM C61/C61M and ASTM C206.
- C. Water: Clean, fresh, potable and free of mineral or organic matter that could adversely affect plaster.

**2.03 PLASTER MIXES**

- A. Ready-Mixed Plaster Materials: Mix in accordance with manufacturer's instructions.
- B. Finish Coat for Troweled Finish: Lime putty with gypsum gauging plaster, mixed and proportioned in accordance with ASTM C842.
- C. Finish Coat for Floated Finish: Lime putty with gypsum gauging plaster, mixed and proportioned in accordance with ASTM C842.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Gypsum: Verify substrate is flat and surface is ready to receive work of this section. Verify joint and surface perimeter accessories are in place.

### **3.02 PREPARATION**

- A. Dampen surfaces to reduce excessive suction.
- B. Clean surfaces of foreign matter. Thoroughly dampen surfaces before using acid solutions, solvent, or detergents to perform cleaning. Wash surface with clean water.
- C. Apply bonding agent in accordance with manufacturer's instructions.

### **3.03 PLASTERING**

- A. Apply gypsum plaster in accordance with ASTM C842 and manufacturer's instructions.
- D. Finish Texture: Float to a consistent and smooth finish to match existing adjacent conditions.

**END OF SECTION**

**SECTION 09 3000  
TILING (ALTERNATE)**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Tile for wall applications.
- B. Ceramic trim and accessories.
- C. Setting materials

**1.02 REFERENCE STANDARDS**

- A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2011.
- B. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex Portland Cement Mortar; 2011.
- C. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2011.
- D. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2011.
- E. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2011.
- F. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 2011.
- G. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2011.
- H. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile Setting and - Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 2011.
- I. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2011.
- J. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2011.
- K. ANSI A118.8 - American National Standard Specifications for Modified Epoxy Emulsion Mortar/Grout; 2011.
- L. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2011.
- M. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-set Ceramic Tile and Dimension Stone Installation; 2011.
- N. ANSI A136.1 - American National Standard for Organic Adhesives for Installation of Ceramic Tile; 2011.
- O. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2008.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, and junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.

### **1.05 QUALITY ASSURANCE**

- A. Maintain one (1) copy of The Tile Council of North America Handbook and ANSI A108 Series/A118 Series on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five (5) years of documented experience.
- C. Installer Qualifications: Company specializing in performing tile installation, with minimum of five (5) years of documented experience.

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

- A. Deliver and store products in manufacturer's unopened packaging until ready for installation.
- B. Protect adhesives and liquid additives from freezing or overheating in accordance with manufacturer's instructions.
- C. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing or overheating.

### **1.07 FIELD CONDITIONS**

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Manufacturers:
  - 1. American Olean: [www.americanolean.com](http://www.americanolean.com).
  - 2. Dal-Tile Corporation: [www.daltile.com](http://www.daltile.com).
  - 3. Metropolitan Ceramics: [www.metroceramics.com](http://www.metroceramics.com)
  - 4. Summitville Tiles, Inc: [www.summitville.com](http://www.summitville.com).
  - 5. Crossville: <http://crossvilleinc.com/>

### **2.02 TILE**

- B. Ceramic Tile: ANSI A137.1, and as follows:
  - 1. Moisture Absorption: 0 to 0.1 percent.
  - 2. Size and Shape:
    - a. 1 inch square
  - 3. Edges: Square
  - 4. Surface Finish: To be selected by Design Associate
  - 5. Colors: To be selected by Design Associate

### **2.03 SETTING MATERIALS**

- A. Provide setting materials made by the same manufacturer as grout.
- B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
  - 1. Application(s): Use this type of bond coat where indicated and where no other type of bond coat is indicated.



2. Products:
  - a. ARDEX Engineered Cements; ARDEX X 77 MICROTEC: [www.ardexamericas.com](http://www.ardexamericas.com).
  - b. AVM Industries, Inc; Thin-Set 780: [www.avmindustries.com](http://www.avmindustries.com).
  - c. LATICRETE International, Inc; LATICRETE 254 Platinum: [www.laticrete.com](http://www.laticrete.com).
  - d. Merkrete, by Parex USA, Inc; Merkrete 720 Marble Pro: [www.merkrete.com](http://www.merkrete.com).
  - e. ProSpec, an Oldcastle brand; Permalastic System: [www.prospec.com](http://www.prospec.com).
  - f. Substitutions: See Section 01 6000 - Product Requirements.

## 2.04 GROUTS

- A. Manufacturers:
  1. ARDEX Engineered Cements: [www.ardexamericas.com](http://www.ardexamericas.com).
  2. ProSpec, an Oldcastle brand; ProColor Sanded Tile Grout: [www.prospec.com](http://www.prospec.com).
  3. Bostik Inc; [www.bostik-us.com](http://www.bostik-us.com).
  4. LATICRETE International, Inc; LATICRETE SpectraLOCK PRO Premium Grout: [www.laticrete.com](http://www.laticrete.com).
  5. Merkrete, by Parex USA, Inc; Merkrete Non-Sanded Color Grout: [www.merkrete.com](http://www.merkrete.com).
  6. Substitutions: See Section 01 6000 - Product Requirements.
- B. Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
  1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
  2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
  3. Color(s): As selected by Architect from manufacturer's full line.
  4. Color(s): As scheduled.
  5. Products:
    - a. ARDEX Engineered Cements; ARDEX Flex Sanded Grout: [www.ardexamericas.com](http://www.ardexamericas.com).
    - b. Bostik Inc; [www.bostik-us.com](http://www.bostik-us.com).
    - c. LATICRETE International, Inc; LATICRETE PermaColor: [www.laticrete.com](http://www.laticrete.com).
    - d. Merkrete, by Parex USA, Inc; Merkrete Non-Sanded Color Grout: [www.merkrete.com](http://www.merkrete.com).
    - e. ProSpec, an Oldcastle brand; ProColor Sanded Tile Grout: [www.prospec.com](http://www.prospec.com).
    - f. Substitutions: See Section 01 6000 - Product Requirements.
- C. Standard Grout: ANSI A118.6 standard cement grout.
  1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
  2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
  3. Color(s): As selected by Architect from manufacturer's full line.
  4. Color(s): As scheduled.
  5. Products:
    - a. Bostik Inc; [www.bostik-us.com](http://www.bostik-us.com).
    - b. LATICRETE International, Inc; 1600 Unsanded Grout: [www.laticrete.com](http://www.laticrete.com).
    - c. Merkrete, by Parex USA, Inc; Merkrete Integra Color Grout: [www.merkrete.com](http://www.merkrete.com).
    - d. ProSpec, an Oldcastle brand; ProColor Sanded Tile Grout: [www.prospec.com](http://www.prospec.com).
    - e. Substitutions: See Section 01 6000 - Product Requirements.
- D. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
  1. Composition: Water-based colorless silicone.
  2. Products:
    - a. Bonsal, W.R., Company; Grout Sealer
    - b. Bostick: Cerma Seal
    - c. MAPEI Corporation; KER 004, KerasealPenetrating Sealer

## 2.05 THIN-SET ACCESSORY MATERIALS

- A. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
  - 1. Type: Fluid-applied.
  - 2. Material: PVC sheet membrane, 40 mils, thick, minimum.
  - 3. Material: Chlorinated polyethylene sheet membrane with polyester fabric laminated to both sides, 30 mils, thick, minimum.
  - 4. Material: SBS rubber.
  - 5. Thickness: 25 mils, minimum, dry film thickness.
  - 6. Products:
    - a. ARDEX Engineered Cements; ARDEX 8+9: [www.ardexamericas.com](http://www.ardexamericas.com).
    - b. AVM Industries, Inc; System 700 with continuous polyester fabric reinforcement: [www.avmindustries.com](http://www.avmindustries.com).
    - c. AVM Industries, Inc; System 750 with polyester fabric reinforcing at edges, corners, joints, and cracks: [www.avmindustries.com](http://www.avmindustries.com).
    - d. COMPOTITE Corporation; Composeal Gold: [www.compotite.com](http://www.compotite.com).
    - e. LATICRETE International, Inc; LATICRETE Hydro Ban: [www.laticrete.com](http://www.laticrete.com).
    - f. Merkrete, by Parex USA, Inc.; Merkrete Hydro Guard 2000: [www.merkrete.com](http://www.merkrete.com).
    - g. Substitutions: See Section 01 6000 - Product Requirements.
- B. Underlayment at Floors: Specifically designed for bonding to thin-set setting mortar; not primarily a waterproofing material and having the following characteristics:
  - 1. Sound Reduction: Comply with ANSI A118.13, bonded membrane.
  - 2. Crack Isolation: Comply with ANSI A118.12.
  - 3. Water Resistance: Comply with ANSI A118.10, bonded waterproofing.
  - 4. Type: cementitious panel
- C. Metal Transitional Strip:
  - 1. Basis of Design: Schluter Systems; [www.schluter.com](http://www.schluter.com)
  - 2. Schluter: Reno-Ramp – 2”
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION g. Substitutions: See Section 01 6000 - Product Requirements.

## 3.01 EXAMINATION

- A. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

## 3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Install backer board in accordance with Section 09 2116 ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

## 3.03 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and The Tile Council of North America Handbook recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout..
- E. Install ceramic accessories rigidly in prepared openings.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
- H. Prior to grouting, allow installation to completely cure; minimum of forty (48) hours.
- I. Grout tile joints. Use standard grout unless otherwise indicated.
- J. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

#### **3.04 INSTALLATION - FLOOR TILE**

- A. Over cementitious backer units install in accordance with The Tile Council of North America Handbook Method W244, using cementitious backer panel and waterproof membrane at toilet room.

#### **3.05 CLEANING**

- A. Clean tile and grout surfaces.

#### **3.06 SCHEDULE**

- A. As indicated on drawings.

**END OF SECTION**

## SECTION 09 6516

### RESILIENT SHEET FLOORING

#### PART 1 - GENERAL

##### 1.01 THIS SECTION INCLUDES

- A. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

##### 1.02 RELATED DOCUMENTS

- B. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work of this section.

##### 1.03 RELATED SECTIONS

- A. Other Division 09 sections for floor finishes related to this section but not the work of this section.

##### 1.04 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS

- A. Select an installer who is competent in the installation of Armstrong resilient sheet flooring.
- B. If required, provide types of flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.
- C. If required, provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
  - 1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I.
  - 2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

##### 1.05 SUBMITTALS

- A. Submit shop drawings, seaming plan, and manufacturer's technical data, installation and maintenance instructions for flooring and accessories.
- B. Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.
- C. If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests.

##### 1.06 ENVIRONMENTAL CONDITIONS

- A. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- B. Store materials in a clean, dry, enclosed space off the ground, and protected from the weather and from extremes of heat and cold. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.
- C. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of 100°F (38°C) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F (13°C) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.
- D. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring.
- E. During floor preparation all equipment used that generates dust or particulates shall include HEPA filtration systems as required by OSHA.

## **PART 2 - PRODUCTS**

### **2.01 RESILIENT SHEET VINYL FLOORING MATERIALS INCLUDING SEAM SEALERS**

- A. Provide Sheet Vinyl Flooring manufactured by Armstrong in color & style specified on drawings and as follows:
  - 1. Manufacturer: Armstrong
  - 2. Type: Sheet Vinyl
  - 3. Style: Acczent
  - 4. Color: Chalk WG 25002
  - 5. Provide Seam Sealer manufactured by Armstrong, in color to match specified sheet vinyl material.
- B. Provide transition strip accessory manufactured by Schluter Systems between existing hard surface flooring and new resilient sheet vinyl.
  - 1. Manufacturer: Schluter Systems: [www.schluter.com](http://www.schluter.com)
  - 2. Basis of Design: Schluter-RENO-V

### **2.02 ADHESIVES**

- A. As per manufacturer's recommendation

### **2.03 ACCESSORIES**

- A. For patching, smoothing, and leveling monolithic subfloors (concrete), provide Fast-Setting Cement-Based Underlayment, Fast-Setting Cement-Based Patch and Skim Coat, or Fast-Setting Cement-Based Patch and Underlayment per manufacturer's recommendations for these specific site conditions.

## **PART 3 - EXECUTION**

### **3.01 INSPECTION**

- A. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- B. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- C. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- D. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

### **3.02 PREPARATION**

- A. Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Underlayment or Skim Coat recommended by the flooring manufacturer.
- B. Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents.
- C. Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

### **3.03 INSTALLATION OF SHEET VINYL FLOORING**

- A. Install flooring in strict accordance with the latest edition of manufacturer's instructions. Refer to drawings for pattern requirements, if applicable.

- B. Install flooring wall to wall before the installation of floor-set cabinets. Extend flooring into door recesses, closets, and similar openings.
- C. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets. Apply sealant at all penetrations.
- D. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

**3.04 INSTALLATION OF ACCESSORIES**

- A. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.

**3.05 CLEANING AND PROTECTION**

- A. Perform initial maintenance according to the latest edition of manufacturer's instructions.
- B. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

**END OF SECTION**

## SECTION 09 9000

### PAINTING AND COATINGS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints, and other coatings.
- C. Scope: Finish interior surface areas indicated on the drawings and all exterior wood and metal surfaces exposed to view as noted on the drawings unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
  - 5. Stainless steel, anodized aluminum, bronze, terne, and lead items unless noted otherwise.

##### 1.02 RELATED REQUIREMENTS

- A. Section 06 1000 – Wood Decking
- B. Section 06 2000 - Finish Carpentry
- C. Section 08 1433 - Stile and Rail Wood Doors
- D. Section 09 2300 - Gypsum Plastering

##### 1.03 DEFINITIONS

- A. Conform to ASTM D 16 for interpretation of terms used in this section.

##### 1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2007.
- C. ASTM D 4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 1992 (Reapproved 2003).
- D. SSPC (PMI) – Good Painting Practice; SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

##### 1.05 SUBMITTALS

- A. See Document 00 72 16 – General Requirements, Article 13 – Action Submittals for submittal procedures.
- B. See Section 01 3300 – Submittal Procedures for submittal procedures.
- C. Product Data: Provide data on all finishing products and special coatings, including VOC content.
- D. Samples: Submit two (2) paper chip samples, 6 x 6 inch in size illustrating range of colors and

textures available for each surface finishing product scheduled.

- E. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.
- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum seven (7) years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum seven (7) years experience.
- C. Warranty: All components of each finish product/system shall be protected against failure and/or performance deficiencies by a product manufacturer's installation and materials warranty. Said warranties shall be specific to each system required and shall be non-prorated warranties which guarantee against material and labor defects for a minimum period of five (5) years.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

#### **1.08 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- D. Provide interior lighting level of 80 ft candles measured mid-height at substrate surface.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
- B. Paints:
  - 1. Basis of Design: **Porter PPG**: [www.ppgporterpaints.com](http://www.ppgporterpaints.com)
  - 2. Approved Standard: PPG Porter – PPG paints. No other manufacturer shall be approved.
  - 3. Coating Systems:
    - a. **New Gypsum Plaster** – 1 coat primer, 2 coat finish paint. Type of coating may vary due to project requirements. Miami University approved products as noted in Schedule below.
    - b. **Existing or Previously Painted Surfaces** – If Color is to remain the same then 2 coats of finish paint. If color is to be changed, 1 coat primer and 2 coats finish paint is required. Miami University approved products as noted in Schedule below.



- c. **Wood Doors and Frames** - 1 coat primer, 2 coats semi-gloss enamel. Miami University approved products: as noted in Schedule below.
- d. **Exposed Metal Conduit and Metal Railings** – Miami University approved products: as noted in Schedule below.
- e. **Exterior Wood Decking:**
  - 1. 1 coat tintable PPG Porter Acry-shield acrylic bonding primer.
  - 2. 2 coats PPG Porter Floor & Porch 100% water-borne alkyd gloss finish

## 2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed.
  - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  - 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
  - 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  - 4. Supply each coating material in quantity required to complete entire project's work from a single production run.
  - 5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
  - 1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Ozone Transport Commission (OTC) Model Rule, Architectural, Industrial, and Maintenance Coatings; [www.otcair.org](http://www.otcair.org); specifically:
      - 1. Opaque, Flat: 50 g/L, maximum.
      - 2. Opaque, Nonflat: 150 g/L, maximum.
      - 3. Opaque, High Gloss: 250 g/L, maximum.
      - 4. Primers, Sealers and Undercoaters: 200 g/L., maximum
      - 5. Floor Coatings: 100 g/L, maximum
      - 6. Shellacs, Clear: 730 g/l, maximum
      - 7. Shellacs, Pigmented: 550 g/L, maximum.
    - c. Architectural coatings VOC limits of State in which the project is located.
  - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Flammability: Comply with International Building Code for surface burning characteristics.
- E. Colors: Custom color to match existing adjacent color
  - 1. Test color match sample against adjacent walls, to be reviewed and approved by Miami University's Project Manager.

## 2.03 PAINT SYSTEMS

### Miami University - Product Supplement Painting Standards Schedule

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#### INTERIOR

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## APPLICATION

<u>Areas of use</u>	<u>Products</u>
<b>PPG Porter Paints Painting Standard</b>	
<b><u>Primers (Interior)</u></b>	
All surfaces, new or previously painted, (except metal and masonry).	PPG Porter Paints 17-921 Seal Grip <b>(no product substitution will be accepted)</b>
Metal surfaces, new or previously painted.	PPG Porter Paints Low VOC Multi-Purpose Primer 7-282 PPG Porter Paints Pitt-Tech Primer 90-712 <b>(no product substitution will be accepted)</b>
Masonry, concrete, surfaces, new or previously painted.	PPG Porter Paints Pigmented Bonding Primer 4-809 PPG Porter Paints Seal Grip 17-921 PPG Porter Paints Acri Shield Bonding Primer 515 <b>(no product substitution will be accepted)</b>
<b><u>Paint (Interior)</u></b>	
Ceilings	PPG Porter Paints SpeedHide Eggshell 6-411 <b>(no product substitution will be accepted)</b>
Metal surfaces Walls	PPG Porter Paints Pitt Tech Satin 90-474 <b>(no product substitution will be accepted)</b>
Trim	PPG Porter Paints Pitt Tech Satin 90-474 <b>(no product substitution will be accepted)</b>
Doors, Frames	PPG Porter Paints Pitt Tech Plus S/G 90-1210 <b>(no product substitution will be accepted)</b>
<b><u>Caulk (Interior)</u></b>	
Window casings, Door Casings, Trim	Guarantee. Color: White PPG Porter Paints Top Gun 200 1414" <b>(no product substitution will be accepted)</b>
<b><u>Primers (exterior)</u></b>	
Metal Windows, Doors & Frames  new or previously painted.	PPG Porter Paints Multi-Purpose Primer 7-282 PPG Porter Paints Pitt-Tech Primer 90-712 Town & Ranch - Rust -Nox Alkyd Rust Inhibitive Primer Town & Ranch - Rust -Nox II Acrylic DTM Primer Benjamin Moore Acrylic Metal Primer (M04) <b>PPG Porter Paints Acri-Shield</b> Acrylic bonding primer
Reconditioned wood decking	
<b><u>Paint (exterior)</u></b>	
Doors, Trim, Windows,	<b>PPG Porter Paints Acri-Shield S/G PP649</b>

wood or metal, and all previously painted wood surfaces

Town & Ranch  
Trim Lux  
Benjamin Moore Moorcraft Super Spec House & Trim (170)

Reconditioned Wood Porch Final Coat

**PPG Porter Floor & Porch**  
100% water-borne alkyd gloss finish.

Steel Grates, Handrails, Railings  
Ladders, and building related  
misc. steel

**PPG Porter Paints Pitt Thane**  
**Urethane 95-812**

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin application of coatings until substrates have been properly prepared, including properly sanding and priming.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. If substrate preparation is the responsibility of another installer, notify Design Associate of unsatisfactory preparation before proceeding.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Gypsum Plaster: 12 percent.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing coatings that exhibit surface defects.
- D. Remove surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Seal voids between pipe penetrations and wall surfaces before painting as indicated on the drawings.
- G. Gypsum Plaster and Wood Surfaces to be Painted: Fill defects with filler compound. Spot prime defects after repair.

### **3.03 APPLICATION**

- A. Apply products in accordance with manufacturer's instructions.
- B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.

- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
- H. Prime all sides of tongue and groove douglas fir deck and ramp planks before installation.

#### **3.04 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

#### **3.05 PROTECTION**

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

**END OF SECTION**

## SECTION 10 2800

### TOILET ROOM ACCESSORIES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Accessories for toilet rooms .

##### 1.02 REFERENCES

- A. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.
- B. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2003.
- C. ASTM C 1036 - Standard Specification for Flat Glass; 2001.
- D. GSA CID A-A-3002 - Mirrors, Glass; U.S. General Services Administration; 1996.

##### 1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.

##### 1.04 COORDINATION

- A. Coordinate the work with the placement of wall reinforcement and reinforcement of toilet partitions to receive anchor attachments.

#### PART 2 PRODUCTS

##### 2.01 MANUFACTURERS

- A. Products by manufacturers as listed on drawings.
  - 1. Substitutions: Not permitted.
- B. All items of each type to be made by the same manufacturer.

##### 2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
  - 1. Grind welded joints smooth.
  - 2. Fabricate units made of metal sheet of seamless sheets, with flat surfaces.
- B. Stainless Steel Sheet: ASTM A 666, Type 304.
- C. Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof where applicable.
- D. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

##### 2.03 FINISHES

- A. Stainless Steel: No. 4 satin brushed finish.

##### 2.04 TOILET ROOM ACCESSORIES

- A. Per drawings.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.

### **3.02 PREPARATION**

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

### **3.03 INSTALLATION**

- A. Install accessories in accordance with manufacturers' instructions and in a manner that meets OBC Loading Requirements.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights and Locations: Heights must meet ADA requirements. Locations are indicated on drawings.

### **3.04 SCHEDULE**

- A. Framed Mirror  
Basis of Design: Bobrick B-290 2436
  - a. Frame Finish: Stainless Steel - Satin
  - b. Configuration: 24" wide x 36" tall mirror with channel frame
- B. Paper Towel Dispenser  
Basis of Design: Bobrick B-262
  - a. Finish: Stainless Steel – Mat (Finish Code 100SS29)
  - b. Configuration: Wall mounted.
- C. Toilet Paper Dispenser  
Basis of Design: Bobrick B-274
  - a. Finish: Stainless Steel – Mat (Finish Code 100SS29)
  - b. Configuration: Wall mounted. Double roll dispenser
- D. Grab Bar  
Basis of Design: Bobrick B-6806-18
  - a. Finish: Stainless Steel – Mat (Finish Code 100SS29)
  - b. Configuration: Wall mounted - 18"
- E. Grab Bar  
Basis of Design: Bobrick B-6806-42
  - a. Finish: Stainless Steel – Mat (Finish Code 100SS29)
  - b. Configuration: Wall mounted - 42"
- F. Grab Bar  
Basis of Design: Wing-IT
  - a. Finish: Stainless Steel – Mat (Finish Code 100SS29)
  - b. Configuration: Wall mounted - 36"

**END OF SECTION**

## SECTION 31-2316

### EXCAVATION

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Scope:
  - 1. Contractor shall provide all labor, materials, equipment and incidentals required to perform all excavating, backfilling, filling and grading, and disposing of earth materials as shown, specified, and required for construction of new ADA accessible ramp base, gravel bed, sonotubes and sidewalk.
  - 2. All necessary preparation of subgrade for concrete sidewalk.
  - 3. No classification of excavated materials will be made. Excavation includes all materials regardless of type, character, composition, moisture, or condition thereof.

##### 1.2 JOB CONDITIONS

- A. Existing Structures: The Drawings show certain surface and underground structures adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of Contractor. Contractor shall explore ahead of the required excavation to determine the exact location of all structures. They shall be supported and protected from damage by Contractor. If they are broken or damaged, they shall be restored immediately by Contractor at his expense.
- B. Existing Utilities: Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection during all operations.
  - 1. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult Miami University Project Manager immediately for directions as to procedure. Cooperate with Owner in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
  - 2. In general, service lines to individual house and other Campus buildings are not shown; however, Contractor shall assume that a service exists for each utility to house or other buildings.
  - 3. Do not interrupt existing utilities serving facilities occupied and used by others, except when permitted in writing by Architect and then only after acceptable temporary utility services have been provided.
- C. Protection of Persons and Property: Barricade open excavations occurring as part of this Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
  - 1. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

#### PART 2 - PRODUCTS

##### 2.1 SOIL MATERIALS

- A. Select Fill:
  - 1. Place selected fill around structures, roads, tanks, walks, and other work areas where required for scope of Work in coordination with Miami University Project Manager.

2. Use well graded granular material or bank run gravel, free from organic matter. Not more than 70 percent by weight shall pass through a No. 40 sieve; not more than 10 percent by weight
- B. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, or natural or crushed sand.
- C. General Backfill and Fill Materials: Provide approved soil materials for backfill and fill, free of clay, rock or gravel larger than 6 inches in any dimension, debris, waste, frozen materials, vegetable and other organic matter and other deleterious materials. Previously excavated materials meeting these requirements may be used for backfill.

## **PART 3 -EXECUTION**

### **3.1 INSPECTION**

- A. Provide Design Associate with sufficient notice and with means to examine the areas and conditions under which excavating, filling, and grading are to be performed. Design Associate will notify Contractor if conditions are found that may be detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner.

### **3.2 EXCAVATION**

- A. Perform all excavation required to complete the Work as shown and specified. Excavations shall include earth, sand, clay, gravel, and other materials within the excavation limits.
- B. Excavations for structures shall be open excavations. Provide excavation protection system(s) required by ordinances, codes, law and regulations to prevent injury to workmen and to prevent damage to new and existing structures or pipelines. Unless shown or specified otherwise, protection system(s) shall be utilized under the following conditions.
  1. Excavation Less Than 5 Feet Deep: Excavations in stable rock or in soil conditions where there is no potential for a cave-in may be made with vertical sides. Under all other conditions, excavations shall be sloped and benched, shielded, or shored and braced.
- C. Dry conditions shall prevail until concrete has reached sufficient strength to withstand earth and hydrostatic loads. In addition, protect excavation from flooding until backfilling has begun. Water level shall be maintained below top of backfill at all times.
- D. The elevation of the bottom of footings shown shall be considered as approximate only and Design Associate may order such changes in dimensions and elevations as may be required to secure a satisfactory footing.
- E. When excavations are made below the required grades, without the written order of Design Associate, they shall be backfilled with compacted gravel or concrete, as directed by Design Associate at the expense of Contractor..
- F. Excavations shall be extended sufficiently on each side of structures, footings, etc., to permit setting of forms, installation of shoring or bracing or the safe sloping of banks.
- G. Subgrades for ramp sonotube piers and sidewalk base shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud, muck, and other soft or unsuitable materials; and shall remain firm and intact under all construction operations. Subgrades which are otherwise solid, but which become soft or mucky on top due to construction operations, shall be reinforced with



crushed stone or gravel. The finished elevation of stabilized subgrades shall not be above subgrade elevations shown.

- H. Material Storage: Stockpile satisfactory excavated materials in approved areas, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
  - 1. Locate and retain soil materials away from edge of excavations.
  - 2. Dispose of excess soil material and waste materials as specified hereinafter.
- I. Where Design Associate considers the existing material beneath the bedding material unsuitable, Contractor shall remove same and replace it with select backfill.

### **3.3 UNAUTHORIZED EXCAVATION**

- A. All excavation outside the lines and grades shown, and which is not approved by Design Associate, together with the removal and disposal of the associated material shall be at Contractor's expense. The unauthorized excavation shall be filled and compacted with select backfill by Contractor at his expense. Claims and damages resulting from Contractor's unauthorized excavation will be his sole

### **3.4 GENERAL REQUIREMENTS FOR BACKFILL, FILL AND COMPACTION**

- A. Furnish, place and compact all backfill required for structures and to provide the finished grades shown and specified. Unless otherwise specified fill may be obtained from on-site sources. Additional materials, if required, shall be furnished from off-site sources at no additional cost to Owner.
- B. Backfill excavations as promptly as Work permits, but not until completion of the following:
  - 1. Acceptance by Design Associate of construction below finish grade.
  - 2. Inspection, testing, approval, and recording of locations of underground utilities.
  - 3. Removal of concrete formwork.
  - 4. Removal of trash and debris.
- C. Keep excavations dry during backfilling operations. Bring backfill around structures and piping up evenly on all sides.
- D. Place all backfilling in horizontal layers not exceeding 6 inches in depth and thoroughly compact each before the next layer is placed.
- E. Unless otherwise specified or directed by Design Associate fill shall be placed in horizontal loose lifts not exceeding 12 inches in thickness and shall be mixed and spread in a manner assuring uniform lift thickness after placing.
- F. Control the water content of fill material during placement within the range necessary to obtain the compaction specified. In general, the moisture content of the fill shall be within 3 percent of the optimum moisture content for compaction as determined by laboratory tests. Perform all necessary work to adjust the water content of the material to within the range necessary to permit the compaction specified. Do not place fill material when free water is standing on the surface of the area where the fill is to be placed. No compaction of fill will be permitted with free water on any portion of the fill to be compacted.
- G. Provide equipment that is capable of the required compaction within restricted areas next to structures.

- H. The minimum density for backfill under structures shall be 95 percent of maximum density obtained in the laboratory in accordance with ASTM D 1557 Method C including Note 2. This percentage is of standard Proctor density. Fill that supports walks shall be 95 percent of maximum density.
- I. Contractor shall repair, at his own expense, any after settlement that occurs. He shall make all repairs and replacements necessary within thirty (30) days after notice from Architect or Owner.

### **3.05 GRADING**

- A. General: Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth subgrade surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
  - 1. Turfed Areas or Areas Covered with Gravel: Finish areas to receive topsoil or special cover to within not more than 1 inch above or below the required subgrade elevations.
  - 2. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 1 inch above or below the required subgrade elevation.
- B. Grading Surface of Fill Under Concrete Walks: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2 inch when tested with a 10 foot straightedge.
- C. Compaction:
  - 1. After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

### **3.06 PAVEMENT SUBBASE COURSE**

- A. General: Place subbase material, in layers of specified thickness, over ground surface to support pavement base course.
- B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.
- D. Placing: Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.
  - 1. When a compacted subbase course is shown to be 6 inches thick or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

### **3.07 DISPOSAL OF EXCAVATED MATERIALS**

- A. Material removed from the excavations which does not conform to the requirements for fill or is in excess of that required for backfill shall be hauled away from the project site by the Contractor and disposed of in compliance with ordinances, codes, laws and regulations at no additional cost to the Owner.

### **3.08 TEMPORARY FENCING**

- A. Furnish and install a temporary fence surrounding his excavations and work area. Fence shall have openings only at equipment and worker access points.
- B. The fence shall be a snowfence type enclosure, 48 inches high. Posts shall be of steel, either U, Y,

T or channel section, and shall have corrugations, knobs, notches or studs placed and constructed to engage a substantial number of fence line.

**END OF SECTION**

## SECTION 32 9200

### GRASSES

#### 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. Seeding.

##### 1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- D. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.
- E. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- F. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

##### 1.4 SUBMITTALS

- A. Grass Seed: From seed vendor for each grass-seed as verified with Cole Services via Miami University's Project Manager.
- B. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required initial maintenance periods.

##### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
  - 1. Maintenance Proximity: Not more than one hours' normal travel time from Installer's place of business to Project site.

##### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

## 1.7 PROJECT CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.
  - 1. Fall Planting: August 15 to October 31.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

## PART 2 - PRODUCTS

### 2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: State-certified seed of grass species as verified with Cole Services personnel.

### 2.2 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:
  - 1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.
  - 2. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.
  - 3. Provide lime in form of ground dolomitic limestone.
- B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, and with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Aluminum Sulfate: Commercial grade, unadulterated.
- E. Perlite: Horticultural perlite, soil amendment grade.
- F. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 sieve.
- G. Sand: Clean, washed, natural or manufactured, and free of toxic materials.
- H. Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.
- I. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.

### 2.3 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  - 1. Organic Matter Content: 50 to 60 percent of dry weight.
  - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

- B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, with a pH range of 3.4 to 4.8.

## 2.4 FERTILIZERS

- A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
  - 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.
- C. Slow-Release Starter Fertilizer: Granular or pelleted fertilizer with 25% Meth-Ex 40® Nitrogen:
  - 1. Analysis: 16-25-12; apply at a rate of 4 lbs/1000sf. or as recommended in soil reports from a qualified soil-testing laboratory.

## 2.5 PLANTING SOILS:

- A. Planting Soil: Existing, in-place surface soil. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth. Mix surface soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:
  - 1. Ratio of Loose Compost to Surface Soil by Volume: 1:4.
  - 2. Ratio of Loose Sphagnum Peat to Surface Soil by Volume: 1:8.
  - 3. Weight of Slow-Release Fertilizer per 1000 Sq. Ft.: 4/lbs/1000 Sq.Ft.

## 2.6 EROSION-CONTROL MATERIALS

- A. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
  - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
  - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

### 3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.3 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
- B. Fill cells of erosion-control mat with planting soil and compact before planting.
- C. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- D. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

### 3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
  - 2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate of 8 lb/1000 sq. ft.
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets and 1:6 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with erosion-control mats where shown on Drawings; install and anchor according to manufacturer's written instructions.
- F. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
  - 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.
  - 2. Bond straw mulch by spraying with asphalt emulsion at a rate of 10 to 13 gal./1000 sq. ft.. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.
- G. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch, and roll surface smooth.
- H. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

### 3.5 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- C. Remove nondegradable erosion-control measures after grass establishment period.

**END OF SECTION**