



# PROJECT SPECIFICATION MANUAL

for

University of South Florida Tampa  
MDC Building Reroof Project



Architects Project No:  
1702-02

April 20, 2017

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TO THE SPECIFICATIONS MANUAL

FOR

University of South Florida  
Tampa, FL

MDC Building Reroof Project

ARCHITECT'S PROJECT NUMBER #1702-02

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TO THE SPECIFICATIONS MANUAL

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ARCHITECT'S PROJECT NUMBER #1702-02

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The General Contractor shall be required to compare this Table of Contents with the bound Project Manual for legibility, omission or inclusion of any part of any section listed herein. It shall be the General Contractor's responsibility to request, in writing, clarification from the Office of the Architect. Clarifications shall be addressed by addenda to all who are registered with the Architect as having received Bidding documents. **All clarifications shall be received fourteen (14) calendar days prior to the date set for the receipt of Bids.**

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NO WORK IN THIS SECTION

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NO WORK IN THIS SECTION

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NO WORK IN THIS SECTION

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NO WORK IN THIS SECTION

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## **NOTICE**

University of South Florida intends to continue classes and occupy the construction area throughout this project. The General Contractor must be aware and anticipate that any work affecting the continuous occupancy or causing disruption / disturbance of any classes / spaces will not be permitted. This project shall be scheduled in a manner as to not disrupt classes or owner occupied spaces and the General Contractor shall prepare his proposal to allow for removal and replacement of the insulation and base sheet to occur during non-occupied hours of 9 PM to 7:30 AM Monday through Friday or all day Saturday or Sunday at no additional cost to the Owner. Installation of the cap sheet and flashings may occur during normal business hours.

\*\*\* END OF SECTION – CONSTRUCTION NOTICE \*\*\*

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**OWNER**

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Administrative Services/Physical Plant  
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\*\*\* END OF SECTION \*\*\*  
PROJECT DIRECTORY

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**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. The work of this contract shall generally include but not be limited to the following work:
  - 1. The work of this Contract comprises the construction and installation of items indicated on Drawings as Owner furnished and Contractor installed, including: unloading, unpacking, storing, transporting to point of installation, placing, anchoring and connecting to properly prepared utilities as required by manufacturer and codes, and all other work and materials required to provide for the complete installation of such items.
  - 2. Remove the existing roof system described in the Contract Documents for the MDC Building and replace with APP-Cold Applied Modified Bituminous Membrane Roofing. Remove and replace all curbs and flashing around all existing mechanical equipment, and related roof vents and accessories. Remove and replace all flashings.
- B. The work of this Contract shall be performed in full accordance with the Drawings and Project Manual as prepared by the Architect and consultants defined in Section 00003, Project Directory of this Project Manual.
- C. Documents affecting work of this section include, but is not necessarily limited to, Division 00 through Division 16 as enumerated in Section 00002, the Table of Contents.

**1.02 CONTRACT WORK**

- A. The work of this Contract shall be subdivided into reasonable segments and subcontracts as deemed appropriate by the General Contractor. The General Contractor shall be considered to be the prime General Contractor, and as such, shall be solely responsible for all subdivisions. Nothing shall be so construed as to limit the General Contractor's subdivision

**1.03 CONTRACT TIMES**

- A. All work of this Contract shall be Substantially Complete within 90 calendar days from Notice to Proceed and final completion 30 days after Substantial Completion on or before the dates as described in Invitation to Bid and Special Conditions.

**1.04 WORK BY OTHERS**

- A. Work on the project which will be executed prior to the start of work on this Contract and which is excluded from this Contract is as follows:
  - 1. None.
- B. Work on the Project, which may be executed during the course of work on this Contract by Owner's separate contractors but be coordinated and scheduled by this General Contractor, is as follows:
  - 1. Owner furnished - Owner installed equipment
  - 2. Owner systems (security, etc.)

**1.05 CONSTRUCTION MANAGER'S USE OF PREMISES**

- A. Coordinate use of premises under direction of Architect/ Engineer. Locate dumpster where directed by owner.
- B. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on site.
- C. Move any stored Products, under General Contractor's control, which interfere with operation of the Owner or any separate Contractor.
- D. Protect all existing site vegetation and improvements not specifically noted to be demolished.
- E. Parking for General Contractor and trades to be coordinated with Owner. Parking may not be next to

building.

#### **1.06 OWNER OCCUPANCY**

- A. General Contractor shall at all times conduct his operations as to insure the least inconvenience to the owner and public.
- B. Owner may take Beneficial Occupancy of any portion of the renovated space so agreed and arranged between Owner, General Contractor and Architect/Engineer.
- C. The Owner will occupy the existing portion of the building throughout construction. All utility shut downs will have to be approved and coordinated with the Owner with written 7 day notice.
- D. The General Contractor shall be responsible to protect all student and staff spaces adjacent to construction. The General Contractor shall coordinate the delivery of materials and disposal of waste with adjacent users to minimize impact on their operations. Limits on delivery of materials to specific times may be necessary.
- E. University of South Florida intends to continue classes and occupy the construction area throughout this project. The General Contractor must be aware and anticipate that any work affecting the continuous occupancy or causing disruption / disturbance of any classes / spaces will not be permitted. This project shall be scheduled in a manner as to not disrupt classes or owner occupied spaces and the General Contractor shall prepare his proposal to allow for removal and replacement of the insulation and base sheet to occur during non-occupied hours of 9 PM to 7:30 AM Monday through Friday or all day Saturday or Sunday at no additional cost to the Owner. Installation of the cap sheet and flashings may occur during normal business hours.

#### **1.07 OWNER-FURNISHED EQUIPMENT PRODUCTS**

- A. Owner-furnished equipment or products that are planned for installation as a part of this contract and shall be provided to the General Contractor upon sufficient days written notice. Owner-furnished items are as indicated on the drawings. Equipment is either coded 'OFOI': Owner Supplied, Owner Installed, 'OFCI': Owner Supplied, General Contractor Installed, or 'CFCI': General Contractor Furnished, General Contractor Installed.

#### **1.08 RIGHT OF ACCESS**

- A. The General Contractor agrees that representatives of the Owner and Architect/Engineer will have access to the work wherever it is in preparation or progress and that the General Contractor will provide facilities for such access. Provide key access.

#### **1.09 SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION**

- A. The General Contractor shall be solely responsible for all applicable obligations prescribed as employer obligations under any and all governmental regulations.

#### **1.10 PROTECTION OF EXISTING GROUNDS/BUILDINGS**

- A. Existing turf, irrigation systems, shrubbery, etc. impacted by construction vehicles and activities shall be protected from any and all damage. Should damage occur, the General Contractor shall be responsible for restoring same to equal or better condition.
- B. Existing Trees are a valuable natural resource and shall be protected to at least their drip lines with wood fencing acceptable to the Architect/Engineer. Construction vehicles and activities shall in no case, except as specifically shown on the Contract Documents, violate the drip lines of existing trees.
- C. The General Contractor's staging areas may or may not include existing trees and shrubs; these shall receive protection. All disturbed areas of the staging area shall be re-sodded and restored to same or better condition.

- D. In an effort to document existing grounds conditions, the General Contractor shall provide a video inventory and photographs (in DVD/CD format) prior to his commencing any on site Construction Activities. Such videos and photographs shall be delivered to the Owner/Architect upon request at the project commencement and/or completion in order to evaluate and direct the General Contractor as to restoration required.
- E. The contractor shall be responsible to protect the interior of the existing building from water infiltration during the reroofing work. Temporary drying shall be provided at the end of each day's work between new and existing surfaces.

**PART 2 – PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - SUMMARY OF THE WORK \*\*\*

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## **PART 1 - GENERAL**

### **1.01 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

### **1.02 SUMMARY**

- A. This Section specifies administrative and procedural requirements governing the General Contractor Application for payment.
- B. The General Contractor Schedule and Submittal Schedule are included in Section "Submittals".

### **1.03 SCHEDULE OF VALUES**

- A. Coordinate preparation of the Schedule of Values with preparation of the General Contractor's Construction Schedule.
  - 1. Correlate line item in the Schedule of Values with other required administrative schedules and forms, including:
    - a). General Contractor's construction schedule.
    - b). Application for Payment form.
    - c). List of subcontractors.
    - d). Schedule of alternates.
    - e). List of products.
    - f). List of principle suppliers and fabricators.
    - g). Schedule of submittals.
  - 2. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than seven (7) days before the date scheduled for submittal if the initial Application for Payment.
- B. Format and Content: Use the Project manual Table of Contents as a guide to establish the format for the Schedule of Values.
- C. Identification: Include the following Project identification on the Schedule of Values:
  - 1. Project name and location.
  - 2. Name of the Architect.
  - 3. Project number.
  - 4. General Contractor's name and address
  - 5. Date of submittal.
- D. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed.
  - 1. Generic name.
  - 2. Related Specification Section.
  - 3. Dollar value for labor.
  - 4. Dollar value for materials.
  - 5. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
- E. Provide breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Application for Payment and progress reports. Break principle subcontract amounts down into several line items.
- F. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
- G. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Application for Payment. Each item in the Schedule of Values and Application for Payment shall be complete including its cost and proportionate share of general overhead and profit margin.
  - 1. At the General Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or

distributed as general overhead expense.

- H. Schedule Updating: Show each change order as an additional line item.

#### **1.04 APPLICATION FOR PAYMENT**

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is the 30<sup>th</sup> day of each month. The period of construction Work covered by each Application for payment is the period ending the last day of the month before the date for each payment.
- C. Payment Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Application for Payment.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by the person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
1. Entries shall match data on the Schedule of Values and General Contractor's Construction Schedule. Use updated schedules if revisions have been made.
  2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours; one (1) copy shall be complete, including waivers of lien and similar attachments, when required.
1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.
- F. Initial Application for Payment: Administrative actions and submittals that must precede submittal of the first Application for Payment include the following:
1. List of subcontractors.
  2. List of principle suppliers and fabricators.
  3. Schedule of Values.
  4. General Contractor's Construction Schedule (preliminary if not final).
  5. Schedule of Principle products.
  6. Submittal Schedule (preliminary if not final).
  7. List of General Contractor's staff assignment.
  8. List of General Contractor's principal consultants.
  9. Copies of Building Permits.
  10. Copies of authorizations and licenses from governing authorities for performance of the Work.
  11. Initial progress report.
  12. Report of pre-construction meeting.
  13. Certificates of insurance and insurance policies.
- G. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificate of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- H. Administrative actions and submittals that shall proceed or coincide with this application include:
1. Occupancy permits and similar approvals.
  2. Warranties (guarantees) and maintenance agreements.
  3. Test/adjust/balance records.
  4. Maintenance instructions.
  5. Meter readings.
  6. Start-up performance reports.
  7. Change-over information related to Owner's company, use, operations and maintenance.

8. Final cleaning.
  9. Application for reduction of retainage, and consent of surety.
  10. Advice on shifting insurance coverage's.
  11. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- I. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for payment include the following:
1. Completion of project closeout requirements.
  2. Completion of items specified for completion after Substantial Completion.
  3. Assurance that unsettled claims will be settled.
  4. Assurance that Work not complete and accepted will be completed without undue delay.
  5. Transmittal of required Project construction records to owner.
  6. Proof that taxes, fees and similar obligations have been paid.
  7. Removal of temporary facilities and services.
  8. Removal of surplus materials, rubbish and similar elements.
  9. Change of door locks to Owner's access.

**PART 2 – PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION – APPLICATION FOR PAYMENT \*\*\*

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## **PART 1 - GENERAL**

### **1.01 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.

### **1.02 SUMMARY**

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications:
- B. Related Sections: The following Sections contain requirements that relate to this section:
  - 1. Division 01 Section "allowances" for procedural requirements governing the handling and processing of allowances.
  - 2. Division 01 Section "Submittals" for requirements for the General Contractor's Construction Schedule.
  - 3. Division 01 Section "Application for Payment" for administrative procedures governing applications for payment.

### **1.03 MINOR CHANGES IN THE WORK**

- A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect on AIA form G710, Architect's Supplemental Instructions.

### **1.04 CHANGE ORDER PROPOSAL REQUESTS**

- A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustments to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.
  - 1. Proposed requests issued by the Architect are for information only. Do not consider them an instruction either to stop work in progress, or to execute the proposed change.
  - 2. Unless otherwise indicated in the proposal request, within fourteen (14) days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.
    - a.) Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
    - b.) Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
    - c.) Include a statement indicating the effect the proposal change in the Work will have on the Contract Time.
- B. General Contractor-Initiated Change Order Proposal Requests: When latent or otherwise unforeseen conditions require modifications to the Contract, the General Contractor may propose changes by submitting a request for a change to the Architect.
  - 1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
  - 2. Include a list or quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Comply with requirements in Section "Materials and Equipment" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests.

### **1.05 CONSTRUCTION CHANGE DIRECTIVE**

- A. Construction Change Directive: When the Owner and General Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Architect may issue a Construction Change Directive on AIA Form G714, instructing the General Contractor to proceed with a change in the Work, the subsequent inclusion in a Change Order.
  - 1. The Construction Change Directive will contain a complete description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - 1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

### **1.06 CHANGE ORDER PROCEDURES**

- A. Upon the Owner's approval of a Change Order Proposal Request, the Architect will issue a Contingency Adjustment. Should the change order be outside the value of the contingency, a Change Order will be prepared for signatures of the Owner and General Contractor on AIA Form G701, as provided in the Conditions of the Contract.

### **PART 2 – PRODUCTS**

Not Used

### **PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION – MODIFICATION PROCEDURES \*\*\*

## **PART 1 - GENERAL**

### **1.01 WORK INCLUDED**

- A. General Contractor shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills as may be necessary to perform the work in accordance with the Contract Documents.
- B. General Contractor shall be solely responsible for all means, methods, techniques, sequences and procedures of construction, and for providing adequate safety precautions and coordinating all portions of the work under the Contract Documents.
- C. General Contractor shall be responsible to see that the finished work complies accurately with the Contract Documents.
- D. General Contractor shall be responsible for all project coordination.
- E. Full time superintendent must be provided to the job and at the job site while subcontractor work is occurring.

### **1.02 RELATED REQUIREMENTS**

- A. Invitation to Bid and Special Conditions

### **1.03 DESCRIPTION**

- A. Coordinate scheduling, submittals, and work of the various Sections of Project Manual to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.
  - 1. Maintain Reports and Records at Job Site
    - a) Daily log of progress of work and other pertinent data. Maintain log accessible to Owner, Architect/Engineer and his representative.
  - 2. Inspections and Testing
    - a) Inspect the work to assure that it is performed in accordance with the requirements of the Contract Documents.
    - b) Arrange with the Architect for special inspections or testing.
    - c) Reject work which does not conform to requirements of the Contract Documents.
- B. Coordinate sequence of work to insure proposed completion dates are met.
  - 1. Construction Schedule
    - a) Prepare detailed schedule of General Contractor's operations and for all subcontractors on the project.
    - b) Monitor schedules as work progresses.
      - 1) Identify potential variances between scheduled and probable completion date.
      - 2) Recommend to Architect/Engineer any adjustments in schedule to meet required completion date.
      - 3) Provide summary reports of schedule at each pay application.
    - c) Observe work to monitor compliance with schedule.
      - 1) Verify that labor and equipment are adequate to meet and maintain the schedule for the work.
      - 2) Verify that product deliveries are adequate to meet and maintain the schedule for the work.
      - 3) Report any non-compliance to Architect, with recommendations for remedy.
      - 4) Verify that adequate services are provided to comply with requirements for work and climatic conditions.
      - 5) Verify proper maintenance and operation of temporary facilities.
      - 6) Administer traffic and parking controls for construction workers. Construction traffic shall not interfere with surrounding traffic movement.

#### **1.04 MEETINGS**

- A. In addition to progress meetings specified in Section 01200 hold coordination meetings and pre-installation conferences with personnel and subcontractors to assure coordination of work.

#### **1.05 COORDINATION OF SUBMITTALS**

- A. Schedule review, submit and coordinate submittals as specified in Section 01340.
- B. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
  - 1. Coordinate Testing Laboratory Services
    - a) Notify laboratory of test schedule.
    - b) Verify that required personnel are present
    - c) Verify that specified tests are made as scheduled.
    - d) Verify compliance of the test results with specified criteria. Determine need for retesting and submit recommendations to Architect/Engineer. Administer and pay for required retesting.
  - 2. Coordinate with Sub-contractors as Required
    - a) Provide temporary utilities (electric, water, etc.) required by the subcontractors in the performance of their work.
    - b) Provide designated location where the subcontractors may place construction debris for removal by the General Contractor.
- C. Coordinate requests for changes to assure compatibility of space, of operating elements, and effect on work of other Sections.
  - 1. Recommend necessary changes to Architect.
  - 2. Review subcontractor's requests for information and changes. Submit to Architect.
  - 3. Process Change Orders in accord with General Conditions and Change Order Procedures.

#### **1.06 COORDINATION OF SPACE**

- A. Coordinate use of Project space and sequence of installation of subcontractor work which is indicated diagrammatically on Drawings. Follow routings shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- B. In finished areas, except as otherwise shown, conceal pipes, ducts and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

#### **1.07 INTERPRETATION OF CONTRACT DOCUMENTS.**

- A. To obtain interpretation or clarifications for any portions of the Contract Documents which are unclear or ambiguous. Transmit all requests for interpretation in writing, 7 business days prior to opening bid date, to Architect/Owner. Requests shall include suggested resolution(s).
- B. Assist in the answering of any questions which may arise.
- C. Prospective General Contractor is responsible for the transmitting of written interpretations to subcontractors, suppliers, and others whose work may be affected by the clarification.
- D. Interpretations shall be based on the Owners and/or Architect/Engineers review of the Contract Documents. In case of conflicting data, the item of greater quality, cost or quantity, shall be determined as bid by the General Contractor. All decisions made by the purchasing coordinator regarding this issue are final and binding on all parties.



**1.08 COORDINATION OF CONTRACT CLOSEOUT**

- A. Substantial Completion
  - 1. Coordinate completion and cleanup of work of separate Sections in preparation for Substantial Completion.
  - 2. Upon determination of Substantial Completion of work or portion thereof, prepare for the Architect a list of incomplete or unsatisfactory items.
- B. Final Completion
  - 1. Upon determination that work is Final Complete:
    - a) Submit written notice to Architect that the work is ready for final inspection.
    - b) Secure and transmit to Architect/Engineer required closeout submittals.
  - 2. Turn over to Architect:
    - a) Operations and maintenance data.
    - b) Spare parts and maintenance data.
    - c) Warranties and other data as required for these Specifications.
    - d) Owner file copies of all submittals, changes, etc.
    - e) Completed As-built drawings.
- C. After Owner occupancy of premises, coordinate access to site by various Sections for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- D. Assemble and coordinate closeout submittals specified.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION – COORDINATION \*\*\*

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## **PART 1 GENERAL**

### **1.01 DESCRIPTION OF WORK**

- A. "Cutting and patching" is hereby defined to include, but is not necessarily limited to, the cutting and patching of nominally completed and previously existing work in order to accommodate the coordination of work or the installation of other work or to uncover other work for access or inspection. Restoring or removing and replacing non-complying work is specified separately from cutting and patching, but may require cutting and patching operations as specified herein.
- B. Refer to other Sections of this Project Manual for specific cutting and patching requirements and limitations applicable to individual units of work.

### **1.02 QUALITY ASSURANCE**

- A. Requirements for Structural Work
  - 1. Do not cut and patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.
  - 2. Prior to cutting and patching the following categories of work, obtain Architect's written direction to proceed with cutting and patching as proposed in submittal by General Contractor:
    - a) Structural steel, concrete-bearing walls, miscellaneous structural metals, including beams, lintels, equipment supports, stair systems and similar categories of work.
- B. Operational and Safety Limitations
  - 1. Do not cut and patch operational elements and safety related components in a manner resulting in a reduction of capacities to perform in the manner intended, including energy performances, or resulting in decreased operational life, increased maintenance, decreased safety.
  - 2. Prior to cutting and patching the following categories of work and similar categories where directed, obtain Architect's written direction to proceed with cutting and patching as proposed in submittal by General Contractor:
    - a) Primary operational systems and equipment control, communication, conveying, and electrical wiring system.
- C. Visual Requirements:
  - 1. Do not cut and patch work which is exposed on exterior (or exposed in occupied spaces of the building) in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of cut and patch work both as judged solely by Architect. Remove and replace work judged by Architect to be cut and patched in a visually unsatisfactory manner.
  - 2. Engage recognized expert entities to perform cutting and patching of exposed work including, but not limited to, roofing, gypsum drywall plaster, acoustical ceilings, stucco, and concrete/steel.

### **1.03 SUBMITTALS**

- A. Proposals for Cutting and Patching of structural elements defined in 1.02, A.2.
  - 1. Where prior written direction of cutting and patching is required, submit proposal well in advance of time work will be performed and request written direction to proceed. Include description of why cutting and patching cannot (reasonably) be avoided, how it will be performed, products to be used, firms and tradesmen to perform the work, approximate dates of the work, and anticipated results in terms of variations from work as originally completed (structural, operational, visual and other qualities of significance). Where applicable, include cost proposal, suggested alternatives to cutting and patching procedure proposed, and a description of circumstances which lead to need for cutting and patching.
  - 2. Written direction by Architect/Engineer to proceed with proposed cutting and patching does not waive right to later require complete removal and replacement of work found to be cut and patched in an unsatisfactory manner.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Provide materials for cutting and patching which will result in equal-or-better work than work being cut and patched, in terms of performance characteristics and including visual effect where applicable. Comply with requirements, and use materials identical with original materials where feasible and where recognized that satisfactory results can be produced thereby.

### **2.02 PREPARATION**

- A. Temporary Support
  - 1. Provide adequate temporary support for work to be cut to prevent failure. Do not endanger other work.

### **2.03 PROTECTION**

- A. Provide adequate protection of other work during cutting and patching, to prevent damage and provide protection of the work from adverse weather exposure.

## **PART 3 - EXECUTION**

### **3.01 MATERIALS**

- A. Employ skilled tradesmen to perform cutting and patching. Except as otherwise indicated, proceed with cutting and patching at earliest feasible time in each instance and complete work without delay.
- B. Cut work by methods least likely to damage work to be retained and work adjoining. Review proposed procedure with original installer where possible, and comply with recommendations therefrom.
  - 1. In general, where physical cutting action is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.
  - 2. Comply with requirements of applicable Sections of Division 02 where cutting and patching requires excavating and backfilling.
- C. Patch with seams which are durable and as invisible as possible. Where feasible, inspect and test patched areas to demonstrate integrity of work.
- D. Restore exposed finishes of patched areas and where necessary extend finish restoration onto retained work adjoining in a manner which will eliminate evidence of patching and refinishing.
- E. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch after patched area has received prime and base coats.

\*\*\* END OF SECTION - CUTTING AND PATCHING \*\*\*

## **PART 1 - GENERAL**

### **1.01 RELATED DOCUMENTS**

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

### **1.02 DEFINITIONS**

- A. General Explanation: A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in Contract Documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work to extent not stated more explicitly in another provision of Contract documents.
- B. General Requirements: The provision or requirements of Division 01 Sections. General Requirements apply to entire work of Contract and, where so indicated, to other elements which are included in project.
- C. Indicated: The term "indicated" is a cross reference to details, notes or schedules on drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown", "noted", "scheduled", it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.
- D. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by Architect/Engineer", "requested by "Architect/Engineer", etc. However, no such implied meaning will be interpreted to extend Architect's/Engineer's responsibility into General Contractor's area of construction supervision.
- E. Reviewed: Where used in conjunction with Architect's/ Engineer's response to submittals, requests, applications, inquiries, reports and claims by General Contractor, the meaning of term "reviewed" will be held to limitations of Architect's/ Engineer's Supplementary Conditions: In no case will "review" by Architect/Engineer be interpreted as a release of General Contractor from responsibilities to fulfill requirements of Contract Documents.
- F. Project Site: The space available to General Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on drawings, and may or may not be identical with description of land upon which project is to be built.
- G. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, storage, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
- H. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
- I. Installer: The entity (person or firm) engaged by General Contractor or its subcontractor or subcontractor for performance of a particular unit of work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (installers) be expert in operations they are engaged to perform
- J. Testing Laboratory: An independent entity engaged to perform specific inspections or tests of the work, either at project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.
- K. Owner Furnished: General Contractor Installed (OFCI): Equipment or components of a system that are purchased by the Owner and furnished to the General Contractor for installation in the project. The General Contractor shall receive, store, protect, install, connect and test each time unless otherwise indicated.
- L. Contract Furnished - General Contractor Installed (CFCI): Equipment or components of a system that are purchased, furnished, and installed by the General Contractor.

- M. Owner Furnished - Owner Installed (OFICI): Equipment or components of a system that is purchased, furnished and installed by the Owner or his vendors.

### 1.03 FORMAT AND SPECIFICATION EXPLANATIONS

- A. Specification Production: None of these explanations will be interpreted to modify substance of requirements. Portions of these Specifications have been produced by Architect's/Engineer's standard methods of editing master specifications, and may contain minor deviations from traditional writing formats. Such deviations are a normal result to this production technique, and no other meaning will be implied or permitted.
- B. Format Explanation: The format of principal portions of these Specifications can be described as follows, although other portions may not fully comply and no particular significance will be attached to such compliance or noncompliance.
1. Sections and Divisions: For convenience, basic unit of which is named and numbered. These are organized into related families of sections, and various families of sections are organized as the present industry consensus on uniform organization and sequencing of specifications. The section title is not intended to limit meaning or content of section, nor to be fully descriptive of requirements specified therein, nor to be an integral part of text.
    - a. Each Section of Specifications has been subdivided into three (3) or less "parts" for uniformity and convenience (Part 1 - General, Part 2 - Products, and Part 3 - Execution). These do not limit the meaning of and are not an integral part of text which specifies requirements.
  2. Underscoring: Used strictly to assist reader of specification text for key words in content (for quick recall). No emphasis on or relative importance of text is intended where underscoring is used.
  3. Imperative Language: Used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by General Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by General Contractor, or when so noted, by others.
  4. Section Numbering: Used to facilitate cross-references in Contract Documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not complete, and listing of sections at beginning of Project Manual must be consulted to determine numbers and names of specification section on Contract Documents.
  5. Page Numbering: Numbered independently for each Section recorded in listing of Sections (Index or Table of Contents) in Project Manual. Section number is shown with page number at top of each page, to facilitate location of text in Project Manual.
- C. Specification Content: Because of methods by which this project specification has been produced, certain general characteristics of content, and conventions in use of language are explained as follows:
1. Specifying Methods: The techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive", "open generic descriptive", "compliance with standards" "performance", "proprietary", or a combination of these. The method used for specifying one unit of work has no bearing on requirements for another unit of work.
  2. Overlapping and Conflicting Requirements: Where compliance with two (2) or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, most stringent requirement (which is generally recognized to be also most costly) is intended and will be enforced, unless specifically detailed language written into Contract Documents (not by way of reference to an industry standard) clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but-different requirements, and uncertainties as to which level of quality is more stringent, to Architect/Engineer for a decision before proceeding.
    - a) General Contractor's Options: Except for overlapping or conflicting requirements, where more than one set of requirements are specified for a particular unit of work, option is intended to be General Contractor's regardless of whether specifically indicated as such.

3. Minimum Quality/Quantity: In every instance, quality level or quantity shown or specified is intended as minimum for the work to be performed or provided. Except as otherwise specifically indicated, actual work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Architect/Engineer for decision before proceeding.
  4. Specialists; Assignments: In certain instances, specification text requires (or at least implies) that specific work be assigned to specialists or expert entities, who must be engaged for performance of those units of work. These must be recognized as special requirements over which General Contractor has no choice or option. These assignments must not be confused with (and are not intended to interfere with) normal application of regulations union jurisdictions and similar conventions. One purpose of such assignments is to establish which party or entity involved in a specified unit of work is recognized as "expert" for indicated construction processes or operations. Nevertheless, final responsibility for fulfillment of entire set of requirements remains with General Contractor.
  5. Trades: Except as otherwise indicated, the use of title such as "carpentry" in specification text, implies neither that the work must be performed by an accredited or unionized tradesperson of corresponding generic name (such as "carpenter") nor that specified requirements apply exclusively to work by tradespersons of that corresponding generic name.
  6. Abbreviations: The language of specifications and other contract documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted. Actual work abbreviations of a self-explanatory nature have been included in texts. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are frequently defined in section at first instance of use. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of the Contract Documents so indicates.
- D. Drawing Symbols
1. General: Except as otherwise indicated, graphic symbols used on drawings are those symbols recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., seventh edition.
    - a) M/E Drawings: Graphic symbols used on mechanical/electrical drawings are generally aligned with symbols recommended by ASHRAE, supplemented by more specific symbols where appropriate as recommended by other recognized technical associations including ASME, ASPE, IEEE and similar organizations. Refer instances of uncertainty to Architect/Engineer for clarification before proceeding.
- E. Industry Standards
1. General Applicability of Standards: Applicable Standards of construction industry have same force and effect (and are made a part of Contract Documents) as if published copies were bound herewith.
    - a) Referenced Standards: (referenced directly in Contract Documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.
    - b) Non-referenced standards are hereby defined to have no particular applicability to the work, except as a general measurement of whether work complies with standards recognized in construction industry.
  2. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with the latest edition of the standard in effect as of date of Contract Documents.
  3. Copies of Standards: Provide as needed for proper performance of the work; obtain directly from publication sources. Architect/Engineer may specifically require the General Contractor to obtain copies of certain standards.

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DEFINITIONS AND STANDARDS  
1702-02

4. Abbreviations and Names: The following acronyms or abbreviations as referenced in Contract Documents are defined to mean the associated names. Both names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents:

F. GOVERNING REGULATION/AUTHORITIES

1. General: The procedure followed by Architect/Engineer has been to contact governing authorities where necessary to obtain information needed for the purpose of preparing Contract Documents; recognizing that such information may or may not be of significance in relation to General Contractor's responsibilities for performing the work. Contact governing authorities directly for necessary information and decisions having a bearing on performance of the work.

G. SUBMITTALS

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

**PART 2 - PRODUCTS**

(Not Applicable)

**PART 3 - EXECUTION**

(Not Applicable)

\*\*\* END OF SECTION – DEFINITIONS AND STANDARDS \*\*\*



**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Request for information procedures:
  - 1. Requests for information shall be submitted in standardized format. The General Contractor shall submit a proposed form for approval by the Architect prior to the first request for information.
  - 2. Each request shall be submitted separately and shall be numbered sequentially starting with one (1).
  - 3. Each request shall be submitted to the Architect by the General Contractor. The Architect shall promptly copy each request to the Owner and Consultants.
- B. Request format:
  - 1. Each request shall identify the Project Name, Architects project Number, Owner's Name, Owner's project Number, General Contractor's Name, and Source of request if other than from the General Contractor, and the date of submission.
  - 2. Each request shall provide full written data required to describe the situation or question.
  - 3. Each request shall provide a list of attachments as necessary.
  - 4. Each request shall provide a written proposed solution.
  - 5. Each request shall provide a written statement as to whether the proposed solution is part of the contract.
  - 6. Each request shall provide an area for a written response by the architect.
- C. Responses and Clarifications provide to the General Contractor shall be incorporated into the General Contractor's record documents.
- D. The Architect's response to such requests will be made in writing within 15 calendar days.

\*\*\* END OF SECTION – REQUEST FOR INFORMATION PROCEDURES \*\*\*

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## **PART 1 - GENERAL**

### **1.01 REQUIREMENTS INCLUDED**

- A. General Contractor shall:
  - 1. Schedule and administer preconstruction meetings, biweekly progress meetings and specially called meetings throughout progress of work.
  - 2. Prepare agenda for meetings.
  - 3. Distribute written agenda of each meeting four (4) days in advance of meeting date.
  - 4. Make physical arrangements for meetings.
  - 5. Preside at meetings.
  - 6. Record the minutes; include significant proceedings and decisions.
  - 7. Reproduce and distribute copies of minutes within three (3) days after each meeting:
    - a) To participants in the meeting.
    - b) To parties affected by decisions made at the meetings.
    - c) Furnish three (3) copies of minutes to Architect.
- B. Representative of General Contractor's, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. Owner, Architect and Consultants may attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.
- D. Owner-Architect-General Contractor meetings shall be as scheduled.

### **1.02 RELATED REQUIREMENTS**

- A. Division 00
- B. Section 01010

### **1.03 PRECONSTRUCTION MEETING**

- A. General Contractor shall schedule within five (5) days after date of Notice to Proceed.
- B. Location: A central site convenient for all parties, designated by Owner.
- C. Attendance:
  - 1. Owner's Project Manager.
  - 2. Architect and his professional consultants.
  - 3. Project Representative.
  - 4. General Contractor's Superintendent.
- D. Suggested Agenda:
  - 1. Distribution and discussion of:
    - a) List of major subcontractors and suppliers.
    - b) Projected Construction Schedules.
  - 2. Critical work sequencing.
  - 3. Major equipment deliveries and priorities.
  - 4. Project Coordination:
    - a) Designation of responsible personnel.
  - 5. Procedures and processing of:
    - a) Field decisions.
    - b) Proposal requests.
    - c) Submittals.
    - d) Change orders.
    - e) Applications for Payment.
  - 6. Adequacy of distribution of Contract Documents.
  - 7. Procedures for maintaining Record Documents.
  - 8. Use of Premises:
    - a) Office, work and storage areas.

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CONSTRUCTION PROJECT MEETINGS  
1702-02

- b) Owner's requirements.
- 9. Construction facilities, controls and construction aids.
- 10. Temporary utilities.
- 11. Safety and first-aid procedures.
- 12. Security procedures.
- 13. Housekeeping procedures.

**1.04 PROGRESS MEETINGS**

- A. General Contractor shall schedule regular periodic meetings to review the progress of work at least monthly.
- B. Hold called meetings as required by progress of work.
- C. Location of the meetings: To be determined.
- D. Attendance:
  - 1. Owner and Architect/Engineer and his professional consultants as needed.
  - 2. Subcontractors as appropriate to the agenda.
  - 3. Suppliers as appropriate to the agenda.
  - 4. Others.
- E. Suggested Agenda
  - 1. Field observations, problems, conflicts.
  - 2. Problems which impede Construction Schedule.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - CONSTRUCTION PROJECT MEETINGS \*\*\*

**PART 1 - GENERAL**

**1.01 PROCEDURES**

- A. Observation: The Architect and his Consulting Engineers may review all the work including Architectural, Plumbing, Electrical and Mechanical on this project.
- B. Tests: Required tests on the project will be as may be deemed appropriate by the Architect/Engineer and Owner.

**PART 2 - PRODUCTS**

**1.01 PERFORMANCE**

- A. Measurements and Dimensions: Before ordering materials or doing work which is dependent for proper size, or installation upon coordination with building conditions, the General Contractor shall verify all dimensions by taking measurements at the building and shall be responsible for the correctness of same. No consideration will be given any claim based on the difference between the actual dimensions and those indicated on the drawings and/or the specifications and the existing conditions shall be referred to the Architect for adjustment before any work affected thereby is begun.
- B. General Contractor is solely responsible for their own measurements and **MUST** submit a firm price accordingly. There will be no adjustments, for increase or decrease of footage required to complete the job; therefore, the “total offer” must be based on accurate measurements by bidders during construction. Failure to do so is at the General Contractor’s risk.

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - PROCEDURES AND PERFORMANCES \*\*\*

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**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. The progress schedule required under the General Conditions shall be prepared using the critical path method as described herein.
  - 1. The planning, scheduling, management, and execution of the work are the sole responsibility of the General Contractor. The progress schedule requirement is established to allow Owner to review General Contractor's planning, scheduling, management and execution of the work; to assist Owner in evaluating work progress and make progress payments; and to allow other contractors to cooperate and coordinate their activities with those of the General Contractor.
- B. Detailed Schedule Submittal
  - 1. Submittal shall include a time-scaled (day after Notice to Proceed) graphic arrow diagram showing all contract activities, computer printout reports, and a supporting narrative. The initial detailed schedule submittal shall be delivered within ten (10) calendar days after the Notice to Proceed, and shall use the Notice to Proceed as the data date. The submittal shall be on time, complete, comply with all contract conditions, and represent a reasonable approach to the work. No progress payments shall be made for work performed until the detailed schedule submittal is submitted.
- C. Submissions
  - 1. Submit initial schedules within ten (10) days after award of contract.
    - a) Architect will review schedules and return review copy within two (2) days after receipt.
  - 2. Submit revised and/or updated progress schedules with each application for payment.
- D. Distribution
  - 1. Distribute copies of the reviewed schedules to:
    - a) Architect/Engineer
    - b) Owner's Representative
    - c) Job Site File
    - d) Subcontractors
    - e) Other Concerned Parties
  - 2. Instruct recipients to report promptly to the General Contractor, in writing, any problems anticipated by the projections shown in the schedule.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - CONSTRUCTION SCHEDULES AND PROGRESS REPORTS \*\*\*

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## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

### **1.02 RELATED DOCUMENTS**

- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section including, but not limited to, the following.
  - 1. Division 1 Section 01027 "Application for Payment" for submitting Applications for Payment and the Schedule of Values.
  - 2. Division 1 Section 01310 "Construction Schedules and Progress Reports" for submitting schedules and reports.
  - 3. Division 1 Section 01720 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 4. Division 1 Section 01730 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 5. Division 1 Section 01380 "Construction Photography and Video" for submitting electronic data photography / video recordings of existing conditions, demonstration of equipment and training of Owner's personnel, etc.

### **1.03 DEFINITIONS**

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

### **1.04 ACTION SUBMITTALS**

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

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
  - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
  - a. Scheduled date for first submittal.
  - b. Specification Section number and title.
  - c. Submittal category: Action, informational.
  - d. Name of subcontractor.
  - e. Description of the Work covered.
  - f. Scheduled date for Architect's final release or approval.
  - g. Scheduled dates for purchasing.
  - h. Scheduled dates for installation.
  - i. Activity or event number.

#### 1.05 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
  1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and **Project record drawings**.
    - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Digital Drawing Software Program: The Contract Drawings are available in AutoCad 2010.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. **Architect** reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow **14** days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect 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. Resubmittal Review: Allow **14** days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
    - a. **Division 15.**
    - b. **Division 16.**
  5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow **14** days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- D. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately **6 by 8 inches** on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of General Contractor.
    - e. Name of Contractor.
    - f. Name of subcontractor.
    - g. Name of supplier.
    - h. Name of manufacturer.
    - i. 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). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
    - j. Number and title of appropriate Specification Section.
    - k. Drawing number and detail references, as appropriate.
    - l. Location(s) where product is to be installed, as appropriate.
    - m. Other necessary identification.
- E. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.

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SUBMITTAL PROCEDURES  
1702-02

2. Name file with submittal number or other unique identifier, including revision identifier.
    - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-06100.01.A).
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect and General Contractor.
  4. Include the following information on an inserted cover sheet:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name of General Contractor.
    - e. Name of Contractor.
    - f. Name of firm or entity that prepared submittal.
    - g. Name of subcontractor.
    - h. Name of supplier.
    - i. Name of manufacturer.
    - j. Number and title of appropriate Specification Section.
    - k. Drawing number and detail references, as appropriate.
    - l. Location(s) where product is to be installed, as appropriate.
    - m. Related physical samples submitted directly.
    - n. Other necessary identification.
  5. Include the following information as keywords in the electronic file metadata:
    - a. Project name.
    - b. Number and title of appropriate Specification Section.
    - c. Manufacturer name.
    - d. Product name.
- F. Options: Identify options requiring selection by the Architect.
- G. Deviations: Identify deviations from the Contract Documents on submittals.
- H. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect and General Contractor.
- I. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: **Use form per Section 01341.**
  2. 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. Indication of full or partial submittal.
  - j. Drawing number and detail references, as appropriate.
  - k. Transmittal number.
  - l. Submittal and transmittal distribution record.
  - m. Remarks.
  - n. Signature of transmitter.
3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- L. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

## **PART 2 - PRODUCTS**

### **2.01 SUBMITTAL PROCEDURES**

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Post electronic submittals as PDF electronic files directly to **Project Web site** specifically established for Project.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  2. Submit electronic submittals via email as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  3. Action Submittals: Submit **5** paper copies of each submittal, unless otherwise indicated. Architect will return **4** copies.
  4. Informational Submittals: Submit **2** paper copies of each submittal, unless otherwise indicated. Architect will not return copies.

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SUBMITTAL PROCEDURES  
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5. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 1 Section "Closeout Procedures."
  6. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
    - a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
    - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
  7. Test and Inspection Reports Submittals: Comply with requirements specified in Division 1 Section "Quality Requirements."
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.
    - e. Testing by recognized testing agency.
    - f. Application of testing agency labels and seals.
    - g. Notation of coordination requirements.
    - h. Availability and delivery time information.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams showing factory-installed wiring.
    - b. Printed performance curves.
    - c. Operational range diagrams.
    - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
  5. Submit Product Data before or concurrent with Samples.
  6. Submit Product Data in the following format:
    - a. PDF electronic file.
- C. Shop Drawings: 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. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.

- d. Notation of coordination requirements.
  - e. Notation of dimensions established by field measurement.
  - f. Relationship and attachment to adjoining construction clearly indicated.
  - g. Seal and signature of professional engineer if specified.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least **8-1/2 by 11 inches** but no larger than **30 by 42 inches**.
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
  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 **3** full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product **indicated in the Contract Documents**.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
  5. Submit product schedule in the following format:
    - a. PDF electronic file.

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- F. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- G. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
- H. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. **Use CSI Form 1.5A.** Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.
  - 4. Submit subcontract list in the following format:
    - a. PDF electronic file.
- J. LEED Submittals: Comply with requirements specified in Division 1 Section "LEED Requirements."
  - 1. Submit LEED submittals in the following format:
    - a. PDF electronic file.
- K. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.



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

## **2.02 DELEGATED-DESIGN SERVICES**

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

- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit **digitally-signed PDF electronic file** and **5** paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

### **PART 3 - EXECUTION**

#### **3.01 CONTRACTOR'S REVIEW**

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 1 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### **3.02 ARCHITECT'S ACTION**

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Most architects (and construction managers) use a stamp to indicate action taken on submittals. Retain first paragraph below if such a stamp is used, or substitute another system to comply with office policy or Owner's requirements. AIA Document A201 states that "the Architect will review and approve or take other appropriate action upon the Contractor's submittals." AIA Document A201/CMA states that Construction Manager will review and approve submittals before transmitting those recommended for approval to Architect.
- C. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- D. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- E. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- F. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- G. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

\*\*\* END OF SECTION – SUBMITTAL PROCEDURES \*\*\*



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**PART 1 - GENERAL**

**1.01 REQUIREMENTS**

- A. Related requirements specified elsewhere.
- B. Contractual Conditions.
- C. Schedule of Values is required at the preconstruction conference.
- D. Upon request by Architect, support values given with data that will substantiate their correctness.
- E. Use Schedule of Values only as basis for General Contractor's Application for Payment.

**1.02 FORM OF SUBMITTAL**

- A. Submit typewritten Schedule of Values on University of South Florida required forms. Computer generated formats of this format are acceptable as back-up material.
- B. Use Table of Contents of this Specification as a minimum basis for format for listing costs of work. Additional breakdowns shall be as determined and required by the Architect and Owner. Work shall be broken into labor and material costs. Provide categories for stored materials current and previous prior to incorporation into the work. The schedule of values shall be broken down by each separate school.
- C. Identify each line item with number and title as listed in Table of Contents of this Specification.

**1.03 PREPARING SCHEDULE OF VALUES**

- A. Itemize separate line item cost for each of the following general cost items as applicable.
  - 1. Performance and Payment Bonds.
  - 2. Field Supervision and Layout.
  - 3. General Conditions.
  - 4. Temporary Facilities and Controls.
  - 5. Other items as deemed appropriate.
  - 6. Mobilization.
  - 7. De-Mobilization.
- B. Itemize separate line cost for labor and material work required by this Specification. Quantities shown for each item should be those developed in the estimate that served as the basis for the Bid Price. Quantities should be sufficiently detailed and subdivided as necessary to describe all of the labor and materials incorporated into the work to accurately measure the Contractor's progress for periodic payments.
- C. Round off figures to nearest dollar.
- D. Make sum of total cost of all items listed in each schedule equal in total Contract Sum.

**1.04 REVIEW AND RESUBMITTAL**

- A. After review by Owner and Architect, revise and resubmit Schedule of Values as required.
- B. Resubmit revised Schedule of Values in the same format.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION – SCHEDULE OF VALUES \*\*\*

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**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDE**

- A. Provide electronic (digital) photographs (jpeg format) prior to construction to document existing conditions.
- B. Provide video tape documenting the existing site conditions in the area of work prior to beginning work. Two (2) copies are to be provided to the Architect.
- C. Provide daily roof level electronic (digital) photographs (jpeg format) (minimum of 5 per day), to be supplied with drawings notating the exact locations referencing the photos for locations. Two (2) sets of digital photographs delivered to the Architect/Engineer/Owner each month.
- D. All digital information will be supplied on CD/DVD format.

**1.02 SUBMITTAL**

- A. Submit record photographs and video to document site to Architect/Engineer for Owner files.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - CONSTRUCTION PHOTOGRAPHY AND VIDEO \*\*\*

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**PART 1 – GENERAL**

**1.01 SCOPE OF WORK**

- A. General requirements for tests and inspections which may be required by Code Authorities, the Architect or by the Contract Documents. Specific test types and requirements are specified in other Sections of these Specifications.

**1.02 TESTING COSTS**

- A. Inspections and tests as may be required to establish compliance with the Contract Documents, except as otherwise provided in the Contract Documents, will be made by a pre-qualified, independent testing agency selected by the Owner. The cost of the initial services of such agency will be paid by the Owner. When the initial tests indicate non-compliance with the Contract Documents, any subsequent retesting occasioned by non-compliance shall be performed by the same agency and the cost thereof borne by the General Contractor.
- B. Inspections or Tests required by codes or ordinances, or by a plan approval authority, and made by a legally constituted authority shall be the responsibility of, and paid for by, the General Contractor.
- C. Inspections or Testing performed exclusively for the General Contractor's convenience shall be the sole responsibility of the General Contractor.

**1.03 AUTHORIZATION FOR TESTS**

- A. The Owner employed testing agency shall be directed by the Architect as to the type, quantity and location of testing. The General Contractor shall not obligate the Owner for tests without Architect's approval.

**1.04 NOTIFICATION**

- A. Unless specified otherwise, the General Contractor shall notify the Architect when work is ready for Specification required tests a minimum of 48 hours in advance.

**1.05 TEST REPORTS**

- A. The independent testing agency, employed by the Owner, shall prepare the Test reports, logs, and certificates applicable to the specific inspections and tests and promptly deliver the specified number of copies of same to the designated parties. Other required certificates of inspection, testing or approval shall be secured by the General Contractor and delivered by him to the Architect, in such time as to not delay progress of the work or payment therefore.
- B. Unless specified otherwise, the Owner employed testing agency shall provide 1 copy to Owner, 2 copies to Architect and 2 copies to General Contractor of all test results.

**1.06 COOPERATION**

- A. The General Contractor shall cooperate with the Testing Agency and shall:
  - 1. Coordinate and schedule onsite testing with Owner's Testing Agency and provide access at all times work is in progress.
  - 2. Deliver to the laboratory, without cost, adequate quantities of representative samples of the materials he proposes to use and which are required to be tested.
  - 3. Provide adequate facilities for safe storage and proper curing of concrete test samples on project site for the first twenty-four (24) hours and also for subsequent field curing as required by ASTM specifications.
  - 4. Furnish such nominal labor as is necessary to obtain and handle samples at the project site.

**1.07 AUTHORITY OF TESTING AGENCY**

- A. The Testing Agency shall gather samples and test the various materials as specified to be tested and shall report to the Architect the quality thereof. Also, when it appears that the materials furnished and work performed by the General Contractor fails to fulfill specification requirements, the Testing Agency shall direct the attention of the General Contractor to such failure or infringement and shall inform the Architect of the occurrence in writing.
- B. Representatives of the Testing Agency are not authorized to revoke, alter, relax, enlarge, or release any requirement of the specifications, nor to approve, accept or reject any portion of the work.
- C. Representatives of the Testing Agency shall not act as foreman or perform other duties for the General Contractor.

**PART 2 –PRODUCTS**

Not Used

**PART 3 – EXECUTION**

Not Used

\*\*\* END OF SECTION - QUALITY CONTROL \*\*\*

**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Furnish, install and maintain temporary utilities as required for construction, remove on completion of work.
  - 1. Temporary lighting and power for all construction activities.
  - 2. Temporary telephone.
  - 3. Temporary sanitary facilities for construction personnel.
  - 4. Provide and make available for use by Subcontractors temporary light, power and water required in the performance of their work as part of the work of this Section.

**1.02 RELATED REQUIREMENTS**

- A. Section 01010
- B. Section 01590

**1.03 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Comply with National Electric Code.
- B. Comply with Federal, State and local codes and regulations and with utility company requirements.

**PART 2 - PRODUCTS**

**2.01 MATERIALS, GENERAL**

- A. Materials shall be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions and must not violate requirements of applicable codes and standards.

**PART 3 - EXECUTION**

**3.01 GENERAL**

- A. Comply with applicable requirements specified in Division 15 - Mechanical, and in Division 16 - Electrical.
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.

**3.02 REMOVAL**

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore existing facilities used for temporary services to specified, or to original condition.
- D. Restore permanent facilities used for temporary services to specified condition.
- E. Prior to final inspection, remove temporary lamps and install new lamps.

\*\*\* END OF SECTION – TEMPORARY UTILITIES \*\*\*

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## **PART 1 - GENERAL**

### **1.01 REQUIREMENTS INCLUDED**

- A. Furnish, install and maintain required construction aids; remove on completion of work.

### **1.02 RELATED SECTIONS**

- A. Section 01010 - Summary of Work.
- B. Section 01600 - Material and Equipment.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS, GENERAL**

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

### **2.02 CONSTRUCTION AIDS**

- A. Provide construction aids and equipment required by personnel and to facilitate execution of the work, i.e., scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment.
  - 1. Refer to respective Sections for particular requirements for each trade.
- B. When permanent stair framing is in place, provide temporary treads, platforms, and railings for use by construction personnel.
- C. Maintain facilities and equipment in first-class condition. Repair any damage to new condition.

### **2.03 TEMPORARY ENCLOSURES**

- A. Provide temporary weathertight enclosure of exterior walls or roofs for successive areas of building as work progresses, as necessary to provide acceptable working conditions, provide weather protection for materials, allow for effective temporary heating or cooling, and to prevent entry of unauthorized persons.
  - 1. Other enclosures shall be removable as necessary for work and for handling of materials.
- B. Provide temporary enclosures to separate work areas from finished or existing areas of building to prevent penetration of dust or moisture into occupied or completed areas and to prevent damage to existing equipment.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Consult with Architect, review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of the work.

### **3.02 GENERAL**

- A. Comply with applicable requirements specified in Sections of Divisions 2 thru 16.
- B. Relocate construction aids as required by progress of construction, by storage or work requirements, and to accommodate legitimate requirements of Owner and other Contractors employed at the site.

**3.03 REMOVAL**

- A. Completely remove temporary materials, equipment and services:
  - 1. When construction needs can be met by use of permanent construction, if approved by Architect and Owner.
  - 2. When construction progresses sufficiently to eliminate the need or necessitates removal to continue construction.
  - 3. At completion of Project.
- B. Clean and repair damage caused by installation or by use of temporary facilities.
  - 1. Remove foundations and underground installations required for construction aids.
  - 2. Grade areas of site affected by temporary installations to required elevations and slopes, and clean the area.
- C. Restore permanent facilities used for temporary purposes to specified condition.

\*\*\* END OF SECTION – CONSTRUCTION AIDS \*\*\*

## **PART 1 - GENERAL**

### **1.01 REQUIREMENT INCLUDED**

- A. Furnish, install and maintain suitable barriers as required to prevent public entry and to protect the work, existing facilities, required exits, trees and plants from construction operations. Remove when no longer needed, or at completion of work.

### **1.02 RELATED SECTIONS**

- A. Section 01010 - Summary of Work.
- B. Section 01520 - Construction Aids.
- C. Section 01600 - Material and Equipment.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS, GENERAL**

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

### **2.02 FENCING**

- A. Materials to Contractor's option, minimum fence height 6 ft.
- B. Coordinate with Owner location for Contractor to set up facilities and fencing prior to erection.

### **2.03 BARRIERS**

- A. Materials to Contractor's option, as appropriate to serve required purpose.
- B. At areas adjacent to or visible from occupied areas, verify with Owner and Architect requirement for finish of exposed surface.

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by progress of construction.
- D. Maintain required exits through barriers where required at all times.

### **3.02 FENCES**

- A. Prior to start of work at the Project site, install enclosure fence with suitably locked entrance gates.
  - 1. Locate fence to enclose substantially entire Project site and construction facilities, or that portion the Contractor establishes as required to encompass entire Project construction operation, but not to impede Owner's use of adjacent properties or occupied areas.
  - 2. Locate vehicular entrance gates in suitable relation to construction facilities; and to avoid interference with traffic on public thoroughfares.
  - 3. Locate pedestrian entrance gates as required to provide controlled personnel entry, in suitable relation to construction parking facilities.

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BARRIERS  
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- B. Construct open mesh fence in accordance with industry standards.
- C. Maintain all fencing throughout project time period.

**3.03 REMOVAL**

- A. Completely remove barricades and fencing, including foundations, blocking, attachment, etc., when construction has progressed to the point that they are no longer needed, and when approved by Architect.
- B. Clean and repair damage caused by installation or removal, fill and grade areas of the site to required elevations and slopes, and clean the area. Patch and repair surfaces to remain to match existing or new surfaces.

\*\*\* END OF SECTION – BARRIERS \*\*\*



## **PART 1 - GENERAL**

### **1.01 REQUIREMENTS INCLUDED**

- A. Provide a project security program to:
  - 1. Protect work, stored products and construction equipment from theft and vandalism.
  - 2. Protect premises from entry by unauthorized persons.
- B. Protect Owner's operations at site from theft, vandalism or damage from Contractor's work or employees.

### **1.02 RELATED SECTIONS**

- A. Section 01511 - Temporary Utilities for Existing Facilities
- B. Section 01530 - Barriers

### **1.03 MAINTENANCE OF SECURITY**

- A. Initiate security when required to prevent theft of stored materials.
- B. Maintain security program throughout construction period, until Owner occupancy or Owner acceptance precludes the need for Contractor security.

### **1.04 PERSONNEL**

- A. Identification:
  - 1. Provide identification to each person authorized to enter the Project premises, showing:
    - a. Name of the individual and assigned number.
    - b. Name of employer.
  - 2. Maintain a current list of accredited persons, submit a copy of the list to Owner on request.
  - 3. Require that identification be displayed by all persons entering, and on the premises.
- B. Exclude from site personnel not properly identified.
- C. Noise: No unusually loud distracting noise shall be permitted to be heard in occupied areas. Radios, dropping of material, pneumatic hammers and loud voices shall be prohibited.
- D. Fraternalization: No fraternization, conversations, whistles or cat-calls shall be permitted from Contractor's personnel. Contractor and Sub-Contractor personnel shall be suitably clothed at all times. Violation of these terms shall require the removal of such offenders immediately and permanently from the site. The Contractor shall enforce the facilities or Architect's demands in this regard. Under authority given to the Project Architect/Engineer in paragraph 4.2.14 of Section 00710, General Conditions and Supplementary Conditions, the Project Architect/Engineer may order the permanent removal of any person from the Project site.

### **1.05 ENTRANCE CONTROL**

- A. Provide control of all persons and vehicles entering and leaving Project site.
  - 1. Require display of proper identification by each person.
  - 2. Allow no visitors except with issuance of temporary identification.
  - 3. Maintain log of visitors.
- B. Owner will control deliveries and vehicles related to his own operations.

\*\*\* END OF SECTION – SECURITY \*\*\*

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**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section shall apply to all situations in which the General Contractor and his representatives including, but not necessarily limited to, suppliers, subcontractors, employees, and field engineers enter upon the Owner's property. It also provides for Architect and Owner use of premises during construction.

**1.02 SUBMITTALS**

- A. Maintain an accurate record of the names and identification of all persons entering upon the Owner's property in connection with the work of this Contract.

**1.03 QUALITY ASSURANCE**

- A. Promptly upon award of the Contract, notify all pertinent personnel regarding requirements of this Section.
- B. Require that all personnel who will enter upon the Owner's property certify their awareness of and familiarity with the requirements of this Section.

**1.04 TRANSPORTATION FACILITIES**

- A. Truck and Equipment Access
  - 1. Avoid traffic conflict with vehicles of the Owner and others and avoid overloading of streets and driveways elsewhere on the Owner's property to the route agreed upon by owner and architect.
  - 2. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach the job site.
- B. General Contractor's Vehicles
  - 1. Require General Contractor's vehicles, vehicles belonging to employees of the General Contractor., and all other vehicles entering upon the Owner's property in performance of the work of the Contract, to park where agreed by owner.
  - 2. Do not permit such vehicles to park on any street or other area of the Owner's property except in the area previously agreed with the owner.

**1.05 SECURITY**

- A. Restrict the access of all persons entering upon the Owner's property in connection with the work to the Access Route and to the actual site of the work.

\*\*\* END OF SECTION - CONTRACTORS USE OF PREMISES \*\*\*

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**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. General Contractor's temporary field offices, sheds and on-site secured storage facilities with parking.
- B. Site Security.
- C. Site Utilization Plan.

**1.02 RELATED REQUIREMENTS**

- A. Division 00
- B. Section 01510

**1.03 OTHER REQUIREMENTS**

- A. Prior to installation of any and all construction facilities consult with Architect and Owner regarding location and access. Coordinate with Drawings which may provide layout of site usage limits.
- B. Obtain acceptance of Architect and Owner regarding location and access.

**1.04 SUBMITTALS**

- A. Submit site utilization plan showing layouts for General Contractor temporary field offices, sheds, storage facilities, and site security fencing layouts with access points. Staging areas shall be provided at each school with coordination of the specific location between the school staff, facilities staff and the architect.

**PART 2 - PRODUCTS**

- A. General Contractor temporary field offices, sheds and storage facilities shall be as follows:
  - 1. Trailer office module or other acceptable construction. The General Contractor's trailer and staging area, if needed by the General Contractor, shall be located in conjunction with the Owner and the Architect.

**PART 3 - EXECUTION**

**3.01 PREPARATION**

- A. Fill and grade sites for temporary structures to provide surface drainage.

**3.02 INSTALLATION**

- A. Construct temporary field offices and storage sheds on proper subgrade, provide connections for utility services.
  - 1. Secure portable or mobile buildings when used.
  - 2. Provide steps and landings with substantial railings at all entrance doors.

**3.03 REMOVAL**

- A. Remove temporary field offices, contents and services when no longer needed.
- B. Remove storage sheds when no longer needed.
- C. Remove foundations and debris; grade site to required elevations and clean the areas.

\*\*\* END OF SECTION - CONSTRUCTION FACILITIES \*\*\*

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**PART 1 - GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Materials and Equipment Incorporated into the Work
  - 1. Conform to the applicable specifications and standards.
  - 2. Comply with size, make, type and quality specified, or as specifically accepted in writing by the Architect and Owner.
  - 3. Manufactured and Fabricated Products:
    - a) Design, fabricate and assemble in accord with the best engineering and shop practices.
    - b) Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
    - c) Two or more items of the same kind shall be identical, by the same manufacturer.
    - d) Products shall be suitable for service conditions.
    - e) Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically accepted in writing.
  - 4. Unless otherwise noted or shown on drawings, do not use material or equipment for any purpose other than that for which it is designed or is specified.
  - 5. All shall be new unless otherwise noted, shown or specified.

**1.02 RELATED REQUIREMENTS**

- A. Invitation to Bid and Special Conditions
- B. Section 01010
- C. Section 01340
- D. Section 01710

**1.03 MANUFACTURER'S INSTRUCTIONS**

- A. When and where Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two (2) copies each to Owner and Architect.
  - 1. Maintain one (1) set of complete instructions at the job site during installation and until complete.
- B. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
  - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Architect for further instructions.
  - 2. Do not proceed with work without clear instructions.
- C. Perform work in accord with manufacturer's instructions, unless otherwise specified. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

**1.04 TRANSPORTATION AND HANDLING**

- A. Arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
  - 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
  - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and submittals, and that Products are properly protected and undamaged.
- B. Provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

### **1.05 STORAGE AND PROTECTION**

- A. Store products in accord with manufacturer's instructions, with seals and labels intact and legible.
  - 1. Store products subject to damage by the elements in weathertight enclosures.
  - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- B. Exterior Storage
  - 1. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
  - 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
  - 3. All storage means and methods are subject to acceptance by the Owner and Architect/Engineer.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.
- D. Protection After Installation
  - 1. Provide substantial coverings as necessary, to protect installed products from damage from traffic, water and subsequent construction operations. Remove when no longer needed.
  - 2. All protection means and methods are subject to acceptance by the Owner and Architect/Engineer.

### **1.06 REUSE OF EXISTING MATERIALS AND EQUIPMENT**

- A. Except as specifically indicated or specified, materials and equipment removed from an existing structure shall not be used in the completed work.

### **1.07 PROTECTION**

- A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.
- B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.
- C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Architect and Owner.

### **1.08 REPAIRS AND REPLACEMENTS**

- A. In event of damage, promptly make replacements and repairs to the satisfaction and acceptance of the Architect and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Architect and Owner to justify an extension in the Contract Time of Completion. Unless specific written acceptance is requested by the General Contractor and granted by the Architect and Owner. Only unusual and extenuating circumstances, as deemed applicable by the Architect and Owner shall be considered in granting such.

\*\*\* END OF SECTION – MATERIALS AND EQUIPMENT \*\*\*



## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section describes the product options, basis for design and listed acceptable manufacturers, substitutions during bidding and substitutions after bidding/award of Contract/during construction.
- B. Related Work
  - 1. Division 00
  - 2. Section 01340

### **1.02 PRODUCT OPTIONS**

- A. For Products specified only by reference standard, select any product meeting that standard.
- B. For Products specified by "basis for design" and naming several acceptable manufacturers, select any one of the acceptable manufacturers named, which complies with the specification. This shall be construed that the other manufacturers products being provided are of equal and similar aesthetic value (judged solely by the Architect), cost range, dimension, weight, having similar specification, recommended usage and installation procedures recommended. Substitutions by manufacturers not listed may be submitted during bidding as per 1.02 D. below.
- C. For Products specified by naming only one Product and manufacturer, there is no option.
- D. Substitutions during bidding shall be submitted per 1.03 below.
- E. Substitutions after bidding shall be submitted per 1.04 below.

### **1.03 SUBSTITUTIONS DURING BIDDING**

- A. Substitutions of products shall be considered during bidding only under the following conditions:
  - 1. Submit a separate request for each Product, supported with complete data, with drawings and samples as appropriate, including:
    - a) Comparison of the qualities of the proposed substitution with that specified. Provide data of specified product for comparison.
    - b) Changes required in other elements of the work because of the substitution.
    - c) Effect on the construction schedule.
    - d) Cost data comparing the proposed substitution with the Product specified.
    - e) Any required license fees or royalties.
    - f) Availability of maintenance service, and source of replacement materials.
    - g) Submit a sample of the basis for design and the requested substitution; Samples will not be returned.
  - 2. Architect shall be the sole judge of the acceptability of the proposed substitution.
  - 3. Substitutions must be presented to the Architect fourteen (14) working days prior to the date set for the receipt of bids; telephone requests shall not be accepted. Persons requesting substitutions will be notified only by mail, whether request is acceptable; all bidders holding plans during bidding will receive addenda incorporating acceptable substitutions.

### **1.04 SUBSTITUTIONS AFTER BIDDING**

- A. Substitutions of products shall be considered after bids are opened only under the following conditions:
  - 1. The General Contractor shall place orders for specified materials and equipment promptly upon award of Contract. No excuse for proposed substitution will be considered for materials and equipment due to unavailability unless proof is submitted that firm orders were placed ten days after review by the Architect/Engineer of the item listed in the specifications.
  - 2. The reason for the unavailability is beyond the control of the General Contractor; unavailability will be

- construed as being due to strikes, lockouts, bankruptcy, discontinuance of the manufacture of a product, or acts of God.
3. Requests for such substitution shall be made in writing to the Architect after the award of Contract and within ten (10) days of the date that the General Contractor ascertains that he cannot obtain the material or equipment specified.
  4. Requests shall be accompanied by a complete description of the material or equipment which the General Contractor wishes to use as a substitute. Substitutions must be recommended by the Architect/Engineer to the Owner who must accept in writing.
  5. General Contractor's Representation: A request for substitution constitutes a representation that General Contractor:
    - a) Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.
    - b) Will provide the same warranties or bonds for the substitution as for the Product specified.
    - c) Will coordinate the installation of an accepted substitution into the work, and make such other changes as may be required to make the work complete in all respects.
    - d) Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.
  6. Architect/Engineer will review requests for substitutions with reasonable promptness and notify General Contractor, in writing, of the decision to accept or reject the requested substitution.
  7. Submit a separate request for each Product, supported with complete data, with drawings and samples as appropriate, including:
    - a) Comparison of the qualities of the proposed substitution with that specified. Provide data of specified product for comparison.
    - b) Changes required in other elements of the work because of the substitution.
    - c) Effect on the construction schedule.
    - d) Cost data comparing the proposed substitution with the Product specified.
    - e) Any required license fees or royalties.
    - f) Availability of maintenance service, and source of replacement materials.
    - g) Submit a sample of the basis for design and the requested substitution; samples will not be returned. Should basis for design not be available submit product by listed acceptable manufacturer.
  8. Architect shall be the sole judge of the acceptability of the proposed substitution.
  9. Review of substitutions shall be at General Contractor's expense. Architect shall charge the General Contractor his standard hourly rates.

#### **1.05 DELAYS**

- A. Delays in construction time arising out of non-availability of a specified or otherwise required material and/or method shall not be a justification of same.

#### **1.06 GENERAL CONTRACTOR RESPONSIBILITY**

- A. In agreeing to the terms and conditions of the Contract, the General Contractor and his subcontractors assume full responsibility that the specified product acceptable manufacturers and substitutions comply with the design intent of the basis for design.
- B. It is the responsibility of the General Contractor that he confirms that the acceptable manufacturers listed and substitutions offered comply with the design intent of the basis for design.
- C. The Architect shall endeavor to list acceptable manufacturers who offer products acceptable and comply with the design intent of the basis for design. The Architect may deem, upon submittal that a listed acceptable manufacturer or accepted substitute does not comply with the design intent of the basis for design. Should this occur, the General Contractor shall provide a product of a listed manufacturer or the basis for design at no increase in cost or construction time

**1.07 SEVERABILITY**

- A. Should the requirements of this section differ from those of any other section or division of the Project Manual, this Section shall prevail.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - PRODUCT OPTIONS AND SUBSTITUTIONS \*\*\*

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## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. Closeout is hereby defined to include general requirements near end of Contract Time in preparation for final acceptance, final payment, normal termination of Contract, occupancy by Owner and similar actions evidencing completion of the work. Time of contract closeout is directly related to "Substantial Completion" and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this Section.

### **1.02 RELATED REQUIREMENTS**

- A. Invitation to Bid and Special Conditions
- B. Division 01

### **1.03 PREREQUISITES TO SUBSTANTIAL COMPLETION**

- A. Prior to requesting Architect's observation and Certification of Substantial Completion for either entire work or portions thereof, complete the following and list known exceptions in request:
  - 1. In progress payment request, show either 100% completion for portion of work claimed as "Substantially Complete" or list incomplete items, value of incomplete items and reasons for being incomplete.
  - 2. Include supporting documentation for completion as indicated in these Contract Documents.
  - 3. Submit statement showing accounting of changes to the Contract Sum.
  - 4. Advise Owner of pending insurance change-over requirements.
  - 5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
  - 6. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) occupancy permits, operating certificates and similar releases.
  - 7. Deliver tools, spare parts, extra stocks of materials and similar physical items to Owner.
  - 8. Complete start-up testing of systems and instructions of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups and similar elements.
  - 9. Submit General Contractor's generated Punch List.
- B. Upon receipt of General Contractor's request, Architect will either proceed with observation or advise General Contractor of prerequisites not fulfilled. Following initial inspection Architect will either prepare certificate of Substantial Completion or advise General Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed observation will form initial "Punch-List" for final acceptance.

### **1.04 PREREQUISITES TO FINAL ACCEPTANCE**

- A. Prior to requesting Architect's Final Inspection for certification of final acceptance and final payment as required by General Conditions, complete the following and list known exceptions (if any) in request:
  - 1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
  - 2. Submit updated final statement accounting for additional (final) changes to Contract Sum.
  - 3. Submit certified copy of Architect's final Punch-List of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by

- Architect.
4. Submit final meter readings for utilities, measured record of stored fuel and similar data as of time of substantial completion or when Owner took possession of and responsibility for corresponding elements of the work.
  5. Submit original Consent of Surety.
  6. Submit final liquidated damages settlement statement, acceptable, to Owner.
  7. Submit Project Documents Record, maintenance manuals, final project photographs, damage or settlement survey, property survey and similar final record information.
  8. Complete final cleaning up requirements, including touch up of marred surfaces.
  9. Touch up and otherwise repair and restore marred exposed finishes.
  10. Revise and submit evidence for continuing insurance coverage complying with insurance requirements.
  11. Certificates of elevator inspection, if applicable.
  12. Mechanical:
    - a) Air System Test and Balance (prepared by Owner's independent agent).
    - b) Piping pressure tests and certifications.
    - c) Project certification.
  13. Electrical
    - a) System tests.
    - b) Project certification.
- B. Re-Inspection Procedure
1. Upon receipt of **General Contractor's** notice that work has been completed including punch-list items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances, Architect/Engineer will re-inspect work. Upon completion of re-inspection, Architect//Engineer will either prepare certificate of final acceptance or advise **General Contractor** of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.
  2. If re-inspections of above referenced items are required by the Architect/Engineer due to the failure of any of the work to comply with the claims made by the **General Contractor** as to the status of costs incurred by such re-inspections from the Contract amount, at the rate of One Hundred Dollars (\$150.00) per man hour, plus expenses.

#### 1.05 RECORD DOCUMENT SUBMITTAL

- A. Specific requirements for record documents are indicated in individual Sections of these Specifications. Other requirements are indicated in General Conditions. General submittal requirements are indicated in Section 01340. Do not use record documents for construction purposes; protect from deteriorations and loss in a secure, fire-resistive location; provide access to record documents for Architect/Engineer reference during normal working hours.
- B. At time of final acceptance, submit complete sets of all required record documents to the Architect/Engineer for Owner's records.
- C. Record Drawing
  1. Maintain a white-print set (blue-line or black-line) of contract drawings and shop drawings in clean, undamaged condition with markup of actual installations which vary substantially from the work as originally shown. Mark drawings most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on working drawings. Mark-up new information which is recognized to be of importance to Owner but was for some reason not shown on either Contract Drawings or Shop Drawings. Give particular attention to concealed work which would be difficult to measure and record at a later date. Note related change order numbers where applicable.
  2. Upon completion of the work, this data shall be recorded to scale, by competent draftsman in AutoCad format of the Contract Drawings. CADD files will be furnished to the **General Contractor** by the Architect, but cost shall be borne by the **General Contractor**. Where changes are to be recorded, the CADD files shall represent properly the work as installed. Where the work was installed exactly as

shown on the Contract Drawings, the CADD files shall not be disturbed. In showing the changes, the same legend shall be used to identify piping, etc., as was used on the Contract Drawings.

3. The **General Contractor** shall review the completed record drawings and ascertain that all data furnished on the CADD drawings are accurate and truly represent the work as actually installed. Information for reference data can be obtained from completion, the subcontractor involved shall date and sign the drawings, signifying compliance with the requirements set forth herein prior to submission of the sepias and prints required.
  4. The **General Contractor** shall sign all pages to certify completeness of the Record Set of Drawings. **General Contractor** shall submit the AutoCad files and two (2) sets of prints to the Architect/Engineer for the Owner.
- D. Record Specifications
1. Maintain one (1) copy of specifications including addenda, change orders and similar modifications issued in printed form during construction and markup variations (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data where applicable. Submit a .pdf record set on a CD of the specifications at project close out.
- E. Record Shop Drawings and Product Data
1. Maintain one (1) copy of each product data submittal and markup significant variations in actual work in comparison with submitted information. Include both variations in product as delivered to site and variations from manufacturer's instructions and recommendations for installation. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned at a later date by direct observation. Note related change orders and mark-up of record drawings and specifications on .pdf shop drawings and submit (1) record copy on CD at final completion of the project.
- F. Record Sample Submittal
1. Immediately prior to date(s) of substantial completion, Architect/Engineer (and including Owner's personnel where desired) will meet with **General Contractor** at site and will determine which (if any) of submitted samples maintained by **General Contractor** during progress of the work are to be transmitted to Owner for record purposes. Comply with Architect/Engineer instructions for packaging, identification marking and delivery to Owner's sample storage space.
- G. Miscellaneous Record Submittals
1. Refer to other sections of these specifications for requirements of miscellaneous recordkeeping and submittals in connection with actual performance of the work. Immediately prior to date(s) of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference.
- H. Operation and Maintenance Data
1. See Section 01730.
- I. Warranties and Bonds
1. See Section 01740.
- J. Spare Parts and Maintenance Materials
1. See Section 01750.

## **PART 2 - PRODUCTS**

Not Used

## **PART 3 - EXECUTION**

Not Used

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CONTRACT CLOSEOUT  
1702-02

\*\*\* END OF SECTION - CONTRACT CLOSEOUT \*\*\*



## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. Provide all labor, materials, tools, fabrications, reinforcement, equipment and services for final cleaning as specified herein and or as shown, detailed, scheduled, implied, required or otherwise indicated to provide a complete and proper installation.
- B. Completely coordinate with work of all other trades.
- C. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
- D. Related Work
  - 1. Division 00
  - 2. Division 01
  - 3. Contract Documents

### **1.02 FIRE PROTECTION**

- A. Store volatile waste in covered metal containers.
- B. Remove from premises daily
- C. Comply with NFPA 241.

### **1.03 POLLUTION CONTROL**

- A. Conduct clean-up and disposal operations to comply with local ordinances and anti-pollution laws.
- B. Do not burn or bury rubbish and waste on site.

## **PART 2 - PRODUCTS**

### **2.01 CLEANING MATERIALS**

- A. Use materials recommended by manufacturers of surfaces to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. Clean all items installed under or affected by work of this Contract.
  - 1. Leave free of stains, damage, or other defects prior to final acceptance.
  - 2. Include washing, sweeping, polishing of all finished wall surfaces, floors, windows, hardware, mirrors, lighting fixtures and items of equipment.
  - 3. Replace damaged or defaced items not acceptable to Architect, to his satisfaction at no additional expense to Owner.
- B. See technical sections for additional cleaning requirements.

### **3.02 DURING CONSTRUCTION**

- A. Clean up all waste materials, rubbish, and debris resulting from the work at such frequencies as required by Owner.
- B. Insure that building and grounds are maintained free from accumulations of debris.
- C. Sprinkle dusty debris with water.
- D. At reasonable intervals, minimum once a week, clean-up site and access and dispose of debris off site.

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FINAL CLEANING  
1702-02

- E. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces of fixtures, hardware, and equipment.
- F. Repair, patch, and touch up marred surfaces to match adjacent finishes damaged by his own operations.
- G. Comply with additional requirements defined in specifications.
- H. Vacuum interior areas when ready for painting.
- I. Schedule cleaning operations so that contaminants resulting from cleaning do not fall on wet painted surfaces.
- J. Clean all glass and aluminum surfaces.
- K. Leave the work "broom clean".

**3.03 FINAL CLEANING**

- A. Use experienced workmen or professional cleaners for final cleaning.
- B. At completion of construction, just prior to acceptance or occupancy, perform final cleaning.
- C. Remove dirt, stains, labels, and foreign materials.
- D. Repair and touch up marred areas.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds; vacuum, polish and mop floors.
- F. Replace air conditioning filters if units were operated during construction.
- G. Clean ducts, blowers, and coils if air conditioning units were operated without filters during construction.

\*\*\* END OF SECTION – FINAL CLEANING \*\*\*

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Provide all labor, materials, tools, fabrications, reinforcement, equipment and services for project record documents as specified herein and/or as shown, detailed, scheduled, implied, required or otherwise indicated to provide a complete and proper installation.
- B. Completely coordinate with work of all other trades.
- C. Related Work
  - 1. Division 00
  - 2. Division 01
  - 3. Contract Documents
- D. Definitions:
  - 1. Documents required for construction: Complete set of all documents required by Contract Documents, including but not limited to:
    - a) Contract Drawings
    - b) Project Manual/Specifications
    - c) Addenda
    - d) Shop Drawings
    - e) Product Data
    - f) Samples and Mock-ups
    - g) Change Orders
    - h) Modifications
    - i) Field Test Records
  - 2. Field documents: Complete set of all documents required for construction.
    - a) Used for construction of project.
    - b) Contract drawings in form of prints.
  - 3. Periodic Update Documents: Complete separate set of all documents required for construction with exception of samples and mock-ups.
    - a) Not used for construction of project.
    - b) Contract drawings in form of clean prints.
  - 4. Project Record Documents: Complete set of all documents required for construction with exception of samples and mock-ups.
    - a) Do not use for construction of project.
    - b) Provide contract drawings in form of correctable, reproducible sepia mylars.

**1.02 SUBMITTALS**

- A. Project Data
  - 1. Project Record Documents, at completion of project, to Owner with letter of transmittal.
    - a) Submit Project Record Documents in containers used for Periodic Update Documents.
    - b) Project record documents shall include but not be limited to:
      - i. Updated AutoCad drawings in CADD and PDF format
      - ii. Updated specifications in PDF format
      - iii. PDF copy of all shop drawings
      - iv. PDF copy of all warranties
      - v. PDF copy of all maintenance manuals.
  - 2. Provide transmittal letter containing:
    - a) Date
    - b) Project Title
    - c) General Contractor's name and address
    - d) Title and number of each Project Record Document

- e) Certification that the Project Record Documents submitted are complete and accurate.
3. Copy of transmittal letter to Architect.

## **PART 2 - PRODUCTS**

Not Used

## **PART 3 - EXECUTION**

### **3.01 POSTING PRIOR TO CONSTRUCTION**

- A. After Contract is executed, but prior to start of construction, obtain Contract Drawings and Project Manual/Specifications which will be used for Field Documents and Periodic Update Documents.
- B. Obtain copies of all addenda and post above documents.

### **3.02 MAINTENANCE OF FIELD DOCUMENTS**

- A. Maintain minimum of one (1) copy at project site.
- B. Label each document "Field".
- C. These documents will be used for construction of project.
- D. Make documents available at all times for review by Architect, Owner and Authorities having jurisdiction.

### **3.03 MAINTENANCE OF PERIODIC UPDATE DOCUMENTS**

- A. Maintain one (1) copy at project site.
- B. Label each document "PERIODIC UPDATE".
- C. Do not use these documents for construction purposes.
- D. Maintain in clean, dry, legible condition.
- E. Maintain contract drawings in stackable, enclosed cardboard file drawers designed to hold drawings horizontally.
  1. Provide index of contents of each file drawer on outside of drawer.
- F. Maintain all other Periodic Update Documents in stackable, enclosed file boxes designed to hold specific type of document.
  1. Provide index of contents of each box on outside of box.

### **3.04 POSTING AND UPDATING OF PERIODIC UPDATE DOCUMENTS**

- A. Post and update on weekly basis.
- B. Contract Drawings: Mark legibly to record actual construction including but not limited to:
  1. Depths of various elements of foundations in relation to first floor level.
  2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
  3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
  4. Field changes of dimension and detail.
  5. Changes made by Change Order or Field Order.
- C. Project Manual/Specifications: Type on each section to record all changes including but not limited to:
  1. Addenda.
  2. Change Order or Field Order.
  3. Modifications to Contract.
  4. Bind added sections into Project Manual/Specifications.
  5. Indicate Manufacturer.

- D. Do not conceal work for which information must be recorded until all required information is recorded on Periodic Update Documents.
- E. Any work concealed prior to recording of required information will be exposed. Once all required information is recorded on Periodic Update Documents, work will be restored at General Contractor's expense.

### **3.05 PRODUCTION OF PROJECT RECORD DOCUMENTS**

- A. At substantial completion, obtain at cost of reproduction and handling for Architect one (1) complete set of correctable, reproducible mylars and provide electronic as-builts for each contract drawing.
- B. Label each document "PROJECT RECORD"
- C. Have skilled draftsman transfer all changes, corrections, entries, etc., from Periodic Update Documents to Project Record Documents. Architect will then update Autocad file for Owner's record.
- D. All other Periodic Update Documents may be used for Project Record Documents provided they are in satisfactory condition.
- E. Replace any Periodic Update Document found to be in unsatisfactory condition. Transfer all recorded changes from original to replacement copy.

\*\*\* END OF SECTION - PROJECT RECORD DOCUMENTS \*\*\*

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## **PART 1 - GENERAL**

### **1.01 REQUIREMENTS INCLUDED**

- A. Format and content of manuals.
- B. Instruction of Owner's personnel.
- C. Schedule of submittals.

### **1.02 RELATED REQUIREMENTS**

- A. Shop Drawings, Product Data, and Samples
- B. Testing, Adjusting and Balancing of Systems: Test and Balance Reports
- C. Section 01700
- D. Warranties and Bonds
- E. Individual Specification on Sections: Specific requirements for operation and maintenance data

### **1.03 FORMAT**

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8-1/2x 11, 3-ring binders with hardback, cleanable, vinyl covers.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project; Use volumes as needed.
- D. Arrange content by systems, process flow, under Section Numbers and sequence of Table of Contents of this Project Manual.
- E. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data.
- G. Drawings: Provide with reinforced pocket folders. Bind in with text; fold drawings; insert into pocket folders.

### **1.04 CONTENTS, EACH VOLUME**

- A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer and General Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- E. Warranties and Bonds: Bind in copy of each.

### **1.05 MANUAL FOR MATERIALS AND FINISHES**

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture-protection and Weather-exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections,

maintenance, and repair.

- D. Additional Requirements: As Specified in individual Specifications Sections.

### **1.06 MANUAL FOR EQUIPMENT AND SYSTEMS**

- A. Each Item of Equipment and Each System: Included description of unit or system, and component parts. Give function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.
- C. Operating Procedures: Include startup, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.
- D. Maintenance Requirements: Include routine procedures and guide for trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- E. Include manufacturer's printed operation and maintenance instructions.
- F. Include sequence of operation by control diagrams by controls manufacturer.
- G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- H. Provide as-installed control diagrams by controls manufacturer.
- I. Include test and balancing reports as specified.
- J. Additional Requirements: As specified individual Specifications Sections.

### **1.05 INSTRUCTION OF OWNER PERSONNEL**

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. Use operation and maintenance manuals as basis of instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- C. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

### **1.06 SUBMITTALS**

- A. Submit one (1) copy of completed volumes in final form fifteen (15) days prior to final inspection. Copy will be returned after final inspection, with Architect/Engineer comments. Revise content of documents as required prior to final submittal.
- B. Submit three (3) copies of revised volumes of data in final form within ten days after final inspection.

### **PART 2 - PRODUCTS**

Not Used

### **PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - OPERATION AND MAINTENANCE DATA \*\*\*



**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section pertains to the preparation and submittal of warranties and bonds and the schedule of such submittals.

**1.02 RELATED SECTIONS**

- A. Section 01700 – Contract Closeout
- B. Requirements of individual specifications sections apply to warranties and bonds required for specific products, manufacturer's or installers' work.

**1.03 FORM OF SUBMITTALS**

- A. Bind with operation and maintenance manuals specified in Section 01730.

**1.04 PREPARATION OF SUBMITTALS**

- A. Obtain warranties and bonds, **executed in triplicate** by responsible subcontractors, suppliers and manufacturers within ten (10) days after completion of the applicable item of work. The General Contractor shall be responsible for the accuracy of data thereon to comply with the specifications, and receipt to proper entities.
- B. Except for items put into use with Owner's permission, leave date of beginning of time of warranty to the Date of Substantial Completion as determined by the Architect/Engineer.
- C. Verify that documents are in proper form, contain full information and are notarized.
- D. Co-execute submittals when required.
- E. Retain warranties and bonds until time specified for submittal.

**1.05 TIME OF SUBMITTALS**

- A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten (10) days after acceptance.
- B. Make other submittals within ten (10) days after Date of Substantial Completion, prior to final Application for Payment.
- C. For items of work when acceptance is delayed beyond Date of Substantial Completion, submit within ten (10) days after acceptance, listing the date of acceptance as the beginning of the warranty period.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - WARRANTIES AND BONDS \*\*\*

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**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Provide a written listing to Architect and Owner as to quantity of products, spare parts, maintenance tools and maintenance materials provided to Owner in accord with individual specification requirements, in addition to that required for completion work.
- B. Provide data pertaining to products identical to those installed in the work, including product numbers, special paint color blend data, and any material safety hazard sheets, when applicable. Include quantities in original purchase from supplier or manufacturer to avoid variations in manufacture.
- C. Provide information as to manufacturer's recommended storage of products and materials for future use.
- D. Provide manufacturer's recommended maintenance schedule and instructions, when applicable.

**1.02 RELATED REQUIREMENTS**

- A. Materials and Equipment: Storage and protection.
- B. Contract Closeout Documents as per Section 01700.
- C. Individual Specifications Sections: Comply with individual specifications as to data and quantities for specific spare parts and materials required.

**1.03 STORAGE, MAINTENANCE**

- A. Store products with products to be installed in the work, under provisions of Section 01610.
- B. Maintain spare products in original containers with labels intact and legible, until delivery to Owner.

**1.04 DELIVERY**

- A. Coordinate with Owner: Deliver and unload spare products to Owner at Project site and obtain receipt prior to final payment.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

\*\*\* END OF SECTION - SPARE PARTS AND MAINTENANCE MATERIALS \*\*\*

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**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Provide all labor, materials, tools, equipment and services for demolition as specified herein and/or as shown, detailed, scheduled, implied, required or otherwise indicated to provide selective demolition as noted on the drawings or otherwise required.
- B. Completely coordinate with work of all other trades.
- C. Review all Division 1 sections of the specifications for requirements which may pertain to this Section of the Work.

**1.02 DESCRIPTION OF WORK**

- A. The work of the Section shall include the careful removal of all designated salvage or waste materials and debris from the building area and property. This also includes, but may not be limited to, the following items:
  - 1. The removal and salvage or disposal of sections of roofing, insulation, metal flashing, etc.
  - 2. Protect against damage and nuisances, both on site and off site. Protect and hold the Owner harmless from all suits and legal costs arising from this work.
  - 3. Provide, erect and maintain barricades, temporary walls, lights and warning signs as necessary for the protection of persons and rooms adjoining the project work area.

**1.03 JOB CONDITIONS**

- A. This General Contractor shall inspect job conditions prior to starting work and his starting constitutes approval of conditions.
- B. The Owner assumes no responsibility for actual condition of items or structures affected by demolition work.

**1.04 SALVAGE**

- A. Items of specific notation shown on the drawings shall be salvaged.
- B. Removal of such salvage shall be in a fashion and method so as to preserve the item in the condition prior to commencement of work.

**1.05 RELATED WORK SPECIFIED IN OTHER SECTION**

- A. Relocation of existing pipes, conduits, ducts or other mechanical, plumbing and electrical work shall be by the respective trades and divisions.

**1.06 PROTECTION**

- A. Provide temporary barricades and other forms of protection as required to protect the general public from injury due to demolition work.

**1.07 DAMAGES**

- A. Promptly repair damages caused to adjacent facilities by demolition Work at no cost to Owner.

**1.08 TRAFFIC**

- A. Conduct all demolition operations and debris removal in a manner to ensure minimum interference with drives, walks, and other adjacent occupied or used facilities.

### **1.09 UTILITY SERVICES**

- A. Maintain existing utilities unless specifically indicated to be abandoned, keep in service, and protect against damage during demolition operations.

### **1.10 PROHIBITIONS**

- A. No burning shall be permitted.
- B. No on-site sale of removed items shall be permitted. Removed items may be sold by the General Contractor as long as the full credit for sold items and materials is passed on to the Owner.
- C. Do not use campus receptacles to deposit debris.

### **PART 2 - PRODUCTS**

Not Applicable

### **PART 3 - EXECUTION**

#### **3.01 NOTICES**

- A. The General Contractor shall secure all necessary permits and pay all applicable fees.
- B. Any abandoned utilities shall be left capped in a legal manner.

#### **3.02 DEMOLITION**

- A. Perform demolition work in a systematic manner.

#### **3.03 SALVAGE ITEMS**

- A. Where indicated on Drawings as "Salvage", carefully remove indicated items, clean, store and turn over to Owner and obtain receipt.

#### **3.04 DISPOSAL**

- A. Remove debris, rubbish and other materials from demolition operations from building site. Transport and legally dispose of materials off site.
  - 1. If hazardous materials are encountered during demolition operations, contact Mr. Joe Halle, USF Environmental Health and Safety at (813) 974-0323. Comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.
  - 2. Burning of removed materials is not permitted on project site.
- B. The Contractor shall be responsible for the lawful disposal of all demolition materials in an area or areas away from the University property without incurring, now or ever, any liability against the Owner.
- C. The Contractor shall not use owner's facilities for disposal of any materials from construction project.

#### **3.05 POLLUTION CONTROLS**

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations, as directed by Architect or governing authorities. Return adjacent areas to condition existing prior to the start of work.

**3.06 ADJUST AND CLEAN**

- A. Upon completion of the work, the General Contractor shall remove all barricades, materials, debris, rubbish, tools and equipment, leaving the grounds clean and in a condition acceptable to the Owner. Remove protections and leave interior areas broom clean.

\*\*\* END OF SECTION - SELECTIVE DEMOLITION \*\*\*

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Roof deck.
- B. Related Sections include the following:
  - 1. Division 9 painting Sections for painting of deck.

### 1.3 SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.
- C. Product Certificates: For each type of steel deck, signed by product manufacturer.
- D. Welding certificates.
- E. Field quality-control test and inspection reports.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that each of the following complies with requirements:
  - 1. Power-actuated mechanical fasteners.
  - 2. Acoustical roof deck.
- G. Research/Evaluation Reports: For steel deck.

#### LEED Submittals:

- H. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.

SECTION 053100 - 2  
STEEL DECK  
#1702-02

1.4 QUALITY ASSURANCE

- I. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated.
- J. Source Limitations for Electrified Cellular Floor Deck: Obtain cellular floor-deck units and compatible electrical components, such as preset inserts, activation kits, afterset inserts, service fittings, header ducts, and trench header ducts, from same manufacturer.
- K. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."
- L. Fire-Test-Response Characteristics: Where indicated, provide steel deck units identical to those tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Fire-Resistance Ratings: Indicated by design designations of applicable testing and inspecting agency.
  - 2. Steel deck units shall be identified with appropriate markings of applicable testing and inspecting agency.
- M. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.
  - 1. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

1.5 COORDINATION

- A. Coordinate installation of sound-absorbing insulation strips in topside ribs of acoustical deck with roofing installation to ensure protection of insulation strips against damage from effects of weather and other causes.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Steel Deck:
    - a. ASC Profiles, Inc.
    - b. Canam Steel Corp.;The Canam Manac Group.
    - c. Consolidated Systems, Inc.
    - d. DACS, Inc.
    - e. D-Mac Industries Inc.
    - f. Epic Metals Corporation.
    - g. Marlyn Steel Decks, Inc.
    - h. New Millennium Building Systems, LLC.
    - i. Nucor Corp.; Vulcraft Division.
    - j. Roof Deck, Inc.
    - k. United Steel Deck, Inc.
    - l. Valley Joist; Division of EBSCO Industries, Inc.
    - m. Verco Manufacturing Co.
    - n. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.

### 2.2 ROOF DECK

- A. Steel Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 30, and with the following:
  - 1. Galvanized Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 or higher, G90 zinc coating.
  - 2. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 or higher, G60 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.
    - a. Color: Coordinate with Architect.
  - 3. Deck Profile: As indicated.

### 2.3 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

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STEEL DECK  
#1702-02

- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.
- D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi , not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0747 inch thick, with factory-punched hole of 3/8-inch minimum diameter.
- G. Galvanizing Repair Paint: ASTM A 780, with dry film containing a minimum of 94 percent zinc dust by weight.
- H. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 30, manufacturer's written instructions, and requirements in this Section.
- B. Install temporary shoring before placing deck panels, if required to meet deflection limitations.
- C. Locate deck bundles to prevent overloading of supporting members.
- D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
- G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
- I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

### 3.3 ROOF-DECK INSTALLATION

- A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated.
  - 1. Weld Diameter: 5/8 inch, nominal.
  - 2. Weld Spacing: as indicated.
  - 3. Weld Washers: Install weld washers, if required, at each weld location.
- B. Side-Lap Fastening: Fasten side laps, at 12 inches, and as follows:
  - 1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon-steel screws.
  - 2. Mechanically clinch or button punch is not allowed.
- C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:
  - 1. End Joints: Lapped 2 inches minimum or butted at Contractor's option.
- D. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.
  - 1. Weld cover plates at changes in direction of roof-deck panels, unless otherwise indicated.
- E. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

### 3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field welds will be subject to inspection.
- C. Testing agency will report inspection results promptly and in writing to Contractor and Architect.
- D. Remove and replace work that does not comply with specified requirements.

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STEEL DECK  
#1702-02

- E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.5 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.
  - 1. Apply repair paint, of same color as adjacent shop-primed deck, to bottom surfaces of deck exposed to view.
- C. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05310

## **SECTION 054000 - COLD-FORMED METAL FRAMING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Exterior non-load-bearing framing.
- B. Related Sections include the following:
  - 1. Division 5 Section "Metal Fabrications" for masonry shelf angles and connections.
  - 2. Division 9 Section "Gypsum Board Assemblies" for interior non-load-bearing, metal-stud framing and ceiling-suspension assemblies.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
  - 1. Design Loads: Florida Building Code, 2014 Edition
    - a. Dead Loads: Weights of materials and construction.
    - b. Live Loads: Roof LL = 20 psf
    - c. Wind Loads: 145 mph, I=1.00, Exposure B
  - 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
    - a. Exterior Load-Bearing Wall Framing: Horizontal deflection of 1/360 of the wall height.
    - b. Interior Load-Bearing Wall Framing: Horizontal deflection of 1/360 of the wall height under a horizontal load of **5 lbf/sq. ft.**
    - c. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/360 of the wall height.
    - d. Ceiling Joist Framing: Vertical deflection of 1/240 of the span.

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COLD-FORMED METAL FRAMING  
#1702-02

3. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.
  4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
    - a. Upward and downward movement of 1/2 inch.
- B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."
1. Headers: Design according to AISI's "Standard for Cold-Formed Steel Framing - Header Design."
  2. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
  3. Roof Trusses: Design according to AISI's "Standard for Cold-Formed Steel Framing - Truss Design."

#### 1.4 SUBMITTALS

- A. Product Data: For each type of cold-formed metal framing product and accessory indicated.
- B. LEED Submittal:
  1. Product Data for Credit MR 4.1: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
    - a. Include statement indicating costs for each product having recycled content.
- C. Shop Drawings: Show layout, spacings, sizes, thicknesses, and types of cold-formed metal framing; fabrication; and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
  1. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- D. Welding certificates.
- E. Product Test Reports: From a qualified testing agency, unless otherwise stated, indicating that each of the following complies with requirements, based on evaluation of comprehensive tests for current products:
  1. Steel sheet.
  2. Expansion anchors.



3. Power-actuated anchors.
  4. Mechanical fasteners.
  5. Vertical deflection clips.
  6. Horizontal drift deflection clips
  7. Miscellaneous structural clips and accessories.
- F. Research/Evaluation Reports: For cold-formed metal framing.

## **1.5 QUALITY ASSURANCE**

- A. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer. Submit Signed & Sealed calculations with the shop drawings.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the State of Florida jurisdiction and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of cold-formed metal framing that are similar to those indicated for this Project in material, design, and extent.
- C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated.
- D. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, ductility, and metallic-coating thickness.
- E. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."
- F. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
- G. AISI Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing - General Provisions."
1. Comply with AISI's "Standard for Cold-Formed Steel Framing - Truss Design."
  2. Comply with AISI's "Standard for Cold-Formed Steel Framing - Header Design."
- H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering cold-formed metal framing that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide cold-formed metal framing by one of the following:
  - 1. Consolidated Fabricators Corp.; Building Products Division.
  - 2. Dale/Incor.
  - 3. Dietrich Metal Framing; a Worthington Industries Company.
  - 4. MarinoWare; a division of Ware Industries.
  - 5. SCAFCO Corporation.
  - 6. Southeastern Stud & Components, Inc.
  - 7. Steel Construction Systems.
  - 8. United Metal Products, Inc.

### 2.2 MATERIALS

- A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- B. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
  - 1. Grade: **ST33H, ST50H** As required by structural performance.
  - 2. Coating: **G60**.
- C. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
  - 1. Grade: **50**, Class 1 or 2.
  - 2. Coating: **G90**.

### 2.3 EXTERIOR NON-LOAD-BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: **0.0428 inch.**
  2. Flange Width: **1-5/8 inches.**
  3. Section Properties: to meet windload requirements
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: **0.0428 inch** Matching steel studs.
  2. Flange Width: **1-1/4 inches.**
- C. Vertical Deflection Clips: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Dietrich Metal Framing; a Worthington Industries Company.
    - b. MarinoWare, a division of Ware Industries.
    - c. SCAFCO Corporation
    - d. The Steel Network, Inc.
- D. Double Deflection Tracks: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.
1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure, and as follows:
    - a. Minimum Base-Metal Thickness: **0.0538 inch.**
    - b. Flange Width: **1 inch.**
  2. Inner Track: Of web depth indicated, and as follows:
    - a. Minimum Base-Metal Thickness: **0.0538 inch.**
    - b. Flange Width: dimension equal to sum of outer deflection track flange width plus **1 inch.**
- E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure.

#### **2.4 FRAMING ACCESSORIES**

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
  - 1. Supplementary framing.
  - 2. Bracing, bridging, and solid blocking.
  - 3. Web stiffeners.
  - 4. Anchor clips.
  - 5. End clips.
  - 6. Foundation clips.
  - 7. Gusset plates.
  - 8. Stud kickers, knee braces, and girts.
  - 9. Joist hangers and end closures.
  - 10. Hole reinforcing plates.
  - 11. Backer plates.

#### **2.5 ANCHORS, CLIPS, AND FASTENERS**

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- C. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
- D. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
  - 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
- E. Welding Electrodes: Comply with AWS standards.

#### **2.6 MISCELLANEOUS MATERIALS**

- A. Galvanizing Repair Paint: SSPC-Paint 20.

- B. Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.
- C. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents, complying with ASTM C 1107, with fluid consistency and 30-minute working time.
- D. Shims: Load bearing, high-density multimonomer plastic, nonleaching.
- E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

## 2.7 FABRICATION

- A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
  - 1. Fabricate framing assemblies using jigs or templates.
  - 2. Cut framing members by sawing or shearing; do not torch cut.
  - 3. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    - b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
  - 4. Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.
- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
  - 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
  - 2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

- A. Install load bearing shims or grout between the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations to ensure a uniform bearing surface on supporting concrete or masonry construction.
- B. Install sealer gaskets to isolate the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations.

#### **3.3 INSTALLATION, GENERAL**

- A. Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
  - 1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding **1/16 inch**.
- D. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
  - 1. Cut framing members by sawing or shearing; do not torch cut.
  - 2. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    - b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.

- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
- H. Install insulation, specified in Division 7 Section "Building Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
- J. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of **1/8 inch in 10 feet** and as follows:
  - 1. Space individual framing members no more than plus or minus **1/8 inch** from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

### **3.4 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION**

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
- B. Fasten both flanges of studs to top and bottom track, unless otherwise indicated. Space studs as follows:
  - 1. Stud Spacing: **16 inches**.
- C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.
- D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
  - 1. Install single-leg deflection tracks and anchor to building structure.
  - 2. Install double deep-leg deflection tracks and anchor outer track to building structure.
  - 3. Connect vertical deflection clips to infill studs and anchor to building structure.
  - 4. Connect drift clips to cold formed metal framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced in rows indicated on Shop Drawings but not more than **48 inches** apart. Fasten at each stud intersection.

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1. Top Bridging for Single Deflection Track: Install row of horizontal bridging within **12 inches** of single deflection track. Install a combination of flat, taut, steel sheet straps of width and thickness indicated and stud or stud-track solid blocking of width and thickness matching studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
    - a. Install solid blocking at **96-inch** centers.
  2. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
  3. Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
  4. Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.
- F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable wall-framing system.

### **3.5 FIELD QUALITY CONTROL**

- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field and shop welds will be subject to testing and inspecting.
- C. Testing agency will report test results promptly and in writing to Contractor and Architect.
- D. Remove and replace work where test results indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### **3.6 REPAIRS AND PROTECTION**

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION



## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. Furnish all labor, materials, tools, equipment, and services for all rough carpentry not specifically indicated as work of other Sections, as indicated, in accord with provisions of Contract Documents.
- B. Work shall include, but not be specifically limited to, grounds, nailers, blocking, miscellaneous framing plywood sheathing, plywood backing panels plywood mounting panels, etc. including preservative treatments and all necessary accessories and/or mounting hardware.
- C. Completely coordinate with work of all other trades.
- D. Related Work
  - 1. Division 00
  - 2. Division 01
  - 3. Division 06
  - 4. Division 07
  - 5. Division 16

### **1.02 QUALITY STANDARDS**

- A. Lumber Grading Rules and Species
  - 1. U.S. Department of Commerce, PS-20.
  - 2. Western Wood Products Association (WWPA).
  - 3. Southern Forest Products Association (SFPA)
  - 4. Northern Hardwood and Pine Manufacturers Association (NHPMA).
- B. Plywood Grading Rules and Recommendations
  - 1. For softwood plywood: U. S. Department of Commerce PS 1-83.
  - 2. For hardwood plywood: U. S. Department of Commerce PS 51-71.
  - 3. American Plywood Association (APA).
- C. Factory Marking
  - 1. Identify type, grade, moisture content, inspection service, producing mill, and other qualities.
  - 2. Marking shall be provided and certificate of inspection is required for each shipment.
- D. Standards for fire hazard classification for fire-retardant treated material: Underwriters' Laboratories, (U/L) and American Wood Preservers Institute (AWPI).
  - 1. Test method: ASTM E-84.
- E. Preservative and pressure treatment standards: American Wood Preservers Association (AWPA).

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

- A. Comply with Section 01610.
- B. Store in dry, weathertight, ventilated spaces.
- C. Stack to provide air circulation.
- D. Store and protect materials in areas where moisture content can be maintained.
- E. Time delivery and installation to avoid delaying progress of other work.
- F. Handle treated material and repair damage in accord with AWPA M-4.

### **1.04 JOB CONDITIONS**

- A. This Contractor shall inspect the job conditions as he finds them and commencement of work constitutes his acceptance.
- B. If variations for arrangement or profile indicated are required, notify Architect.
- C. Make such variations at no added expense to Owner.
- D. Contractor is responsible for fitting to all recesses, including all trim pieces, fillers and closures.

### **1.05 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Lumber (for framing, blocking, nailers, furring, cant strips, grounds, and similar members): Comply with dry size requirements of PS-20, Douglas Fir WWPA No. 3, or SFPA No. 2.
  - 1. Thoroughly seasoned, well fabricated materials of longest practical lengths and sizes.
  - 2. Free of non-correctable warp.
  - 3. Discard material which would impair quality of work.
- B. Preservative-Treated Material
  - 1. Provide preservative-treated material for all material used outside building, in roof, and below grade.
  - 2. Treated lumber standard: AWPA C-2.
  - 3. Treated plywood standard: AWPA C-9.
  - 4. Preservative-treatment standard: AWPA P-5.
  - 5. Kiln dry treated material to fifteen percent (15%) moisture content.
  - 6. Where possible, precut material before treatment.
  - 7. Use preservative treatment on material used in conjunction with roofing which is acceptable to the specified system.
- C. Fire-Retardant-Treated Plywood
  - 1. All plywood shall be pressure-treated in accordance with American Wood Preservers Association standard AWPA C27.
    - a) Approved (low hygroscopic, high temperature interior type A-HT) (exterior type) fire retardant.
    - b) Each panel shall be labeled or marked by an approved independent testing agency.
    - c) After treatment, plywood shall be dried to an average moisture content of 15 percent or less.
    - d) Plywood shall be all veneer APA Rated Sheathing EXP-1 or EXT.
- D. Anchorage and fastening materials: Proper type, size, material and finish for application.
- E. Fire-Retardant-Treated Wood (structural)
  - 1. Structural lumber, fire-retardant lumber shall be pressure treated in accordance with American Wood Preservers Association standard AWPA C20.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION - ROUGH CARPENTRY**

- A. Verify measurements, dimensions and shop drawing details before proceeding.
- B. Coordinate location of furring, nailers, blocking, grounds and similar supports for attached work.
- C. Examine conditions under which work is to be installed.
- D. Correct unsatisfactory conditions.

### **3.02 INSTALLATION - ROUGH CARPENTRY**

- A. Attach work securely by anchoring and fastening as indicated or required to support applied loading.
  - 1. Provide washers under bolt heads and nuts.
  - 2. Nail plywood in accord with APA recommendations.
  - 3. Countersink nail heads, fill holes with matching filler.
- B. Set work to required levels and lines, plumb, true.
  - 1. Anchors and bolts shall be installed to anchor carpentry to masonry and/or concrete.

2. Defects which render any piece unable to be satisfactorily installed, or otherwise defective, shall be replaced, even if within the limits of the grade specified.
  3. Install in manner acceptable for the intended use.
  4. Contractor shall provide any and all miscellaneous blockings and backings required by any and all other trades.
- C. Cut and fit accurately.
- D. Make connections tight.
1. Use common wire nails or screws for general work.
  2. Use finishing nails for finish work.
  3. Use fasteners of size that will not penetrate members where opposite side will be exposed to view or receive finish materials.
  4. Install fasteners without splitting wood; pre-drill as required.
  5. Do not drive threaded friction type fasteners.
  6. Tighten bolts and lag screws at installation and retighten as required.
  7. Use galvanized nails and fasteners.
- E. Provide wood grounds, nailers, or blocking where required for attachment of other work and surface applied items.
- F. Form to shapes indicated.
- G. In all metal stud partitions provide fire retardant wood blocking between studs at height of door stop, behind stop, at all door openings.
- H. Grounds: Dressed, key bevelled lumber minimum 1-1/2" (38mm) wide of thickness required to bring face of ground even with finish material.
- I. Remove temporary grounds when no longer required.
- J. Install wood furring plumb and level with closure strips at all edges and openings.
- K. Shim as required.
- L. Field treat cuts and holes in preservative and fire- retardant treated material in accord with AWPA Standard M-4.

### **3.03 INSPECTION**

- A. Examine areas to receive work.
- B. Correct unsatisfactory conditions.
- C. Start of work constitutes acceptance of responsibility for performance.

### **3.04 PREPARATION FOR FINISH**

- A. Set all nails.
- B. Fill holes.
- C. Sand smooth before application of finishes.
- D. Leave ready for finishing.

### **3.05 ADJUST AND CLEAN**

- A. Promptly remove all debris, dirt and rubbish.
- B. Remove and replace rejected work.
- C. Install temporary coverings as required to protect installed work.

\*\*\* END OF SECTION – ROUGH CARPENTRY \*\*\*

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## **PART 1 – GENERAL**

### **1.01 SUMMARY**

- A. Provide all labor, materials, tools, equipment and services for the APP-Cold Applied Modified Bituminous Membrane Roofing as specified herein and/or as shown, detailed, scheduled, implied, required or otherwise indicated to provide a complete and satisfactory installation.
- B. The Drawings, Specifications and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work of this Section.

### **1.02 REFERENCE**

- A. ASTM D 4586: Asphalt flashing cement.
- B. ASTM D 6509: Test methods for modified bitumen sheet membranes.
- C. ASTM D 6223-98: Standard specifications for APP modified bitumen sheet materials using a combination of polyester and fiberglass reinforcements.
- D. Fed. Spec. # HH-I-1972: Faced polyisocyanurate roof insulation board.
- E. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- F. SMACNA Architectural Sheet Metal Manual, Fifth Edition
- G. Membrane Immersion Test: Modified bitumen membrane, asphaltic impregnation evaluation, by PRS, Inc.
- H. Design Uplift Pressure: The uplift pressure, calculated according to ASCE 7, current edition. Ultimate uplift factored for roof coverings.

### **1.03 SYSTEM PERFORMANCE REQUIREMENTS**

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE, current edition, ultimate uplift factored for roof coverings.
- D. Modified Bitumen Membrane: Provide a multiple ply modified bitumen roof membrane system, complying with the physical properties as specified in Part Two of these specifications.
  - 1. System Specification: Derbicolor Specification # 0I2G-FRDC.
  - 2. Base Ply: Derbigum GP dual reinforced, smooth surfaced APP modified bitumen membrane.
  - 3. Top ply: Derbicolor GP-FR, dual reinforced, white granular surfaced, APP modified bitumen membrane
- E. Roof Insulation: Provide Derbiboard roof insulation, 2 layers of 2" insulation and tapered roof insulation to provide ¼" per foot primary slope as required. Provide 3/8" Securock roof insulation as overlay board. Where required, install crickets, saddles or other secondary slope from tapered roof insulation units to provide ¼" finished slope and positive drainage.
- F. Manufacturer's Guaranty: Provide 20 Year Derbigum Roof System Guaranty manufacturer's guaranty with unlimited dollar liability, covering leaks due to defective materials or workmanship as specified.

#### 1.04 SUBMITTALS

- A. Submit product data for each component of system to be installed. Include documentation showing compliance with all physical properties specified for the completed system, as well as individual components.
- B. Maintenance Data: For roofing system to include in maintenance manuals.
- C. Submit two samples of membrane, cold adhesive, and roof insulation materials to be used.
- D. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.
- E. Submit current edition of manufacturer's published specifications, base flashing details, and installation instructions for the specified system.
- F. Submit Material Safety Data Sheets on all roofing materials to be used.
- G. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
  - 1. Submit evidence of meeting system performance requirements.
- H. Warranties: Special warranties specified in this Section Warranties.
- I. Submit shop drawings showing sequence of placement of modified bitumen roof system, set-up locations of equipment, and traffic patterns. Installation sequence shall be arranged so traffic across finished roof system is minimized.
- J. Shop Drawings: For roofing system. Include plans, elevations, sections, details in conformance with above and below referenced standards, and attachments to other Work.
  - 1. Base flashings, cants, and membrane terminations.
  - 2. Tapered insulation, including slopes.
  - 3. Crickets, saddles, and tapered edge strips, including slopes.
  - 4. Insulation fastening patterns.
  - 5. Nailer thickness, attachment devices and fastening patterns.

#### 1.05 QUALITY ASSURANCE

- A. Manufacturer: Obtain primary products, including roof membrane, base plies, base flashings, membrane adhesives, roof insulation boards, roof insulation fasteners and adhesives products from a single manufacturer. Provide secondary products recommended by the manufacturer of primary products for use with roofing system provided.
  - 1. ISO 9001:2000 Certification: The manufacturer must provide documentation showing the manufacturer has current ISO 9001:2000 certification for the specific manufacturing plant where the modified bitumen membrane products are produced.
- B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's NDL warranty.
- C. Manufacturer Qualifications: A qualified manufacturer that has roofing system identical to that used for this Project.
- D. Source Limitations: Obtain components for roofing system approved by roofing system manufacturer.
- E. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
  - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
- F. Work in this section to conform to recommendations of the NRCA Roofing and Waterproofing Manual.

### **1.06 REGULATORY REQUIREMENTS**

- A. Underwriter's Laboratories: All products must be UL listed and labeled, and the system must be approved and listed by UL as a Class A fire rated system.
- B. Wind Uplift: The roof system must be approved with a wind uplift resistance specified by designer.
- C. Roofing system shall comply with the following.
  - a. FM 4450 and FM 4470 as part of th roofing system for class 1 or noncombustible construction.
  - b. Fire/Windstorm Classification: FM Class 1A-90.
  - c. FM 1-49 Loss prevention Data sheet for perimeter Flashing.
  - d. FM 1-29 Loss Prevention Data sheet for above Deck Roof Components.

### **1.07 PRE-INSTALLATION CONFERENCE**

- A. Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, penetrations, curbs, and any work performed by other trades.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review temporary protection requirements for roofing system during and after installation.
  - 9. Review roof observation and repair procedures after roofing installation.
  - 10. Review forecasted weather conditions and procedures for coping with unfavorable conditions, and maintaining the water tightness of the roof system.
  - 11. Review inspection and quality control procedures to be used.
  - 12. Record discussions of conference, including decisions and agreements reached. Furnish copy of record to each party attending. If disagreements exist at the conclusion of the conference, determine how disagreements will be resolved, and set a date for reconvening conference.

### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle materials in accordance with manufacturer's printed instructions. Deliver materials in manufacturer's original wrappers, dry, and undamaged with seals and labels intact. If inside storage is not available at the job site, protect materials in a dry trailer covering with breathable tarpaulins. Polyethylene covers are not acceptable field storage coverings.
- B. Store rolled goods on end on raised platforms, and protected from the weather in a dry trailer or inside a building until installed in the roofing system.
- C. Store insulation materials on raised platforms, protected from the weather in a dry trailer or inside a

- building, and handled in a manner to avoid edge damage.
- D. Adhesives, flashing cements, and pail goods must be stored in original containers with lids tightly in place and protected from weather exposure under a tarpulin.
  - E. Remove products from job site that show indications of moisture damage and replace with undamaged materials.
  - F. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
    - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
  - G. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

### **1.09 ENVIRONMENTAL REQUIREMENTS**

- A. Do not apply roofing materials during inclement weather.
- B. Proceed with roofing work only when existing and forecasted weather conditions will permit the roof system to be installed in accordance with manufacturer's recommendations and guaranty requirements.
- C. Work shall be stopped if moisture is present in any form (snow, water, and dew), or if conditions do not allow the proper application rates of adhesives.
- D. Follow manufacturer's instructions for cold weather installation when applicable.

### **1.10 WARRANTY**

- A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
  - 1. Special warranty includes roofing membrane, base flashings, roof insulation, fasteners cover boards, substrate board, walkway products and other components of roofing system.
  - 2. Warranty Period: 20 years from date of Substantial Completion.
  - 3. The guaranty must clearly show procedures for the owner to follow for immediate repairs if leaks occur. The owner also must have the authority to have emergency repairs performed, by the roofing contractor.
  - 4. In the event of disputes between the building owner and the manufacturer, the guaranty shall require both parties to resolve the dispute through third party arbitration. The guaranty must clearly describe the process of selecting an arbitrator, and the obligation of each party under the arbitration process.
- B. Special Project 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 roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards and walkway products, for the following warranty period:
  - 1. Warranty Period: Two years from date of Substantial Completion

## **PART 2 – PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. APP-Modified Bituminous Membrane Roofing:
    - a) Performance Roof Systems, Inc. (BASIS OF DESIGN)
    - b) Johns Manville International, Inc.
    - c) Tremco
- B. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:



1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

## **2.02 MODIFIED BITUMEN ROOFING SYSTEM**

- A. General: Provide a multiple ply, modified bitumen membrane system. The base ply and cap sheets shall be installed in Permastic adhesive.
- B. Cold Adhesive: Permastic, as manufactured by Performance Roof Systems.
- C. APP Modified Bitumen Sheet Membranes: Cap sheets must comply with the physical property standards as published in ASTM D 6223-98. Top Ply: Derbicolor GP-FR, as manufactured by Performance Roof Systems. Granules to be white.
- D. Base Ply: Derbigum GP as manufactured by Performance Roof Systems.
- E. Base Flashing Membrane: Minimum two plies, consisting of one ply of Derbigum GP, and one ply of Derbicolor GP. Both plies shall be applied with Perflash adhesive with heat welded laps, or by full heat welding.
- F. Asphalt Flashing Cement: Perflash, as manufactured by Performance Roof Systems, Inc.
- G. Cants: ASTM C208. DerbiCant.
- H. Asphalt Primer: ASTM D41, for concrete and metal surfaces.

## **2.03 ROOF INSULATION**

- A. Polyisocyanurate Roof Insulation: Derbiboard by Performance Roof Systems, with black, fiber reinforced facers. Rigid polyisocyanurate foam insulation boards, 4' x 4'. Provide R-Value per specified thickness of insulation or unless otherwise indicated by owner. Follow roof insulation manufacturer's published recommendations for installation over lightweight concrete roof deck.

## **2.04 RECOVERY BOARD**

- A. Description: Homogenous high density board, composed of gypsum fiber, blended with selected binders and fibers intended as a general purpose cover board for use over closed cell foam insulation boards in roofing applications.
  1. Size/Type: 4-ft. x 4-ft. boards, 3/8-inch thickness.

## **2.05 ACCESSORY PRODUCTS:** As recommended by primary roof system manufacturer.

- A. Wood Nailers & Curbs: Shall be #2 wolmanized pressure treated wood.
- B. Flashing Nails: For wood nailers and curbs, flashing nails shall be 11 gauge, barbed galvanized with 1" diameter heads and of sufficient length to penetrate the full depth of the nailer. For concrete and masonry substrates, case hardened nails for concrete shall be used. Tin caps must be used with all flashing nails. Large head Simplex nails may be used without tin caps.
- C. Stack Vent & Drain Lead: Shall be minimum 4 pound lead.
- D. Sheet Metal Flashing and Trim: New sheet metal flashings shall be minimum 24 gauge, and conform to NRCA and SMACNA recommendations for fabrication, attachment, and installation, subject to compliance with ES-1, TAS-111 and RAS-111. All metal will be Perlok Metal.
  1. New edge metal at roof perimeters shall be pre-finished metal. Submit samples to the building owner prior to fabrication for approval of finish and color. All edge metal must meet ES-1 standard or Florida TAS-111 and be installed accordingly.
- E. Sealant: One part urethane sealant, Sonneborn NP-1, or approved equal. For use in sealing sheet metal joints, or junctures between sheet metal and masonry.
- F. Walkway Pads: Shall be additional layer of Derbicolor GP, color to be gray to contrast with field membrane cap sheet.

### **PART 3 EXECUTION**

#### **3.01 GENERAL INSTALLATION REQUIREMENTS**

- A. Comply with primary roof system manufacturer's published recommendations for installation of modified bitumen roof system and roof insulation. The manufacturer's current published catalog will be considered a part of this specification.
- B. At the end of each day's work, install watertight night seals to protect the new roof system from moisture and to prevent water leaks into the building. Remove night seals prior to starting the next day's work.
- C. Plan the flow of work, equipment, materials, and personnel to eliminate traffic across the completed new roof system. Provide plywood walkways for the movement of personnel, equipment, and materials to avoid damage to the roof system.
- D. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
  - 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
  - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  - 3. Verify that deck is sound, smooth with no sharp projections and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.
- E. Proceed with installation only after unsatisfactory conditions have been corrected

#### **3.02 PREPARATION**

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

#### **3.03 ROOF INSULATION APPLICATION**

- A. Follow roof insulation manufacturer's published recommendations for installation over the concrete roof deck and metal roof deck where it occurs.
- B. Treated wood insulation stops, the same thickness as the insulation, shall be mechanically fastened at the edges of the deck at perimeters and around all projections and extensions through the deck. These stops shall be approximately 6 inches wide or 1 inch wider than flanges being nailed to them.
- C. Concrete Deck: Base layer of Derbiboard 2" attach roof insulation boards with ribbons of plastic foam adhesive at the spacing required to meet design uplift resistance values, Derbibond adhesive or equal as tested and approved by the primary roof system manufacturer.
- D. Second Layer of Roof Insulation - Install second layer of roof insulation over the base layer. Offset joints of top layer from bottom layer a minimum of six (6) inches. Successive layers of insulation shall be adhered with plastic foam adhesive at spacing required to meet design uplift resistance values, Derbibond adhesive or equal as tested and approved by the primary roof system manufacturer.
- E. Roof insulation end joints must be staggered a minimum of 6 inches.
- F. No more insulation shall be installed than can be completely covered with the specified roof membrane system the same day.
- G. Securerock Roof Insulation: Install 3/8" recovery roof insulation over the tapered insulation with plastic foam adhesive at spacing required to meet design uplift resistance values, Derbibond adhesive or equal as tested and approved by the primary roof system manufacturer. Offset joints of top layer from bottom layer a minimum of six (6) inches.

### 3.04 MODIFIED BITUMEN ROOF SYSTEM

- A. Apply roof system in strict accordance with manufacturer's published recommendations.
- B. Install preformed modified bitumen cant strips at junctures of vertical and horizontal surfaces. Where necessary to accommodate differential movement between the wall and roof deck, vertical wood nailers, of sufficient height to provide a minimum 8" base flashing height, shall be mechanically fastened to the insulation stops in accordance with NRCA recommendations and the manufacturer's published details.
- C. Derbigum GP and Derbicolor GP membranes shall be unrolled and allowed to relax prior to application. Application of sheet materials directly from the factory roll may increase the incidence of wrinkling during or subsequent to application.
- D. Derbigum GP Base Ply Application, Permastic: Starting at the low point of the roof area, rolls of the base ply shall be unrolled into position with 3 inch side laps and end laps staggered a minimum of 12 inches. After positioning the rolls, mark the area to which the cold adhesive is to be applied. Pull the end of each sheet straight back onto itself so that the sheet is folded approximately in half, maintaining alignment of the individual sheets and uniformity of the side laps. Apply adhesive uniformly over the previously marked area with a 1/4 inch notched squeegee at the minimum rate of 2 to 2 ½ gallons per 100 SF, keeping the adhesive from the side and end lap areas of adjacent rolls. Roll the sheet into the adhesive commencing with the first roll in the gang, maintaining alignment of the roll and uniformity of the side laps. Broom the membrane as necessary to insure embedment of the membrane into the adhesive. Repeat the procedure on the opposite end of the rolls of the membrane. Side and end laps must be left clean and free of adhesive. Plan work and foot traffic so adhesive is not tracked across the top of the finished base ply membrane.
- E. Side and end laps of the Derbigum GP base ply shall be heat welded using hot air welding equipment and rolled with a 20 pound steel roller while the bitumen is still warm. The edge of the lap shall be left untooled, with a continuous bead of bitumen visible at the seam.
- F. Install the Derbicolor GP top ply membrane starting at the low point of the roof area. The Derbibrute shall be installed parallel to the base ply, offsetting the side laps of the top ply a minimum of 6 inches from the side laps of the base ply. End laps in the Derbicolor GP shall be staggered a minimum of 12 inches. Side laps shall be a minimum of 3 inches and end laps a minimum of 4 inches.
- G. Derbicolor GP Top Ply Application, Permastic: Starting at the low point of the roof area, rolls of modified cap sheet shall be unrolled into position with 3 inch side laps and end laps staggered a minimum of 12 inches. After positioning the modified cap sheet rolls, mark the area to which the cold adhesive is to be applied. Pull the end of each sheet straight back onto itself so that the sheet is folded approximately in half, maintaining alignment of the individual sheets and uniformity of the side laps. Apply adhesive uniformly over the previously marked area with a 1/4 inch notched squeegee at the minimum rate of 1-1/2 gallons per 100 SF, keeping the adhesive from the side and end lap areas of adjacent rolls. Roll the modified cap sheet into the adhesive commencing with the first roll in the gang, maintaining alignment of the roll and uniformity of the side laps. Broom the membrane as necessary to insure embedment of the membrane into the adhesive. Repeat the procedure on the opposite end of the rolls of the membrane. Side and end laps must be left clean and free of adhesive. Plan work and foot traffic so adhesive is not tracked across the top of the finished modified cap sheet membrane. Side and end laps of the Derbicolor GP shall be heat welded using hot air welding equipment, and rolled with a 20 pound steel roller while the bitumen is still warm. The edge of the lap shall be left untooled, with a continuous bead of bitumen visible at the seam.
- H. Treatment of Bleed-Out: Apply manufacturer provided granules into the bleed-out of asphalt at all side and end laps to provide a continuous appearance.

### 3.05 MEMBRANE BASE FLASHING

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- A. Base flashing membrane will consist of Derbigum GP and Derbicolor GP, both plies applied in Perflash adhesive with heat welded laps, or by full heat welding.
- B. Application Sequence of Base Flashing Membrane: Install the first base flashing ply at the conclusion of completing the field base ply. Protect the top edge of the base flashing base ply with a three course of Perflash flashing cement and fabric. At the conclusion of the field top ply of Derbicolor GP, install the second ply of base flashing membrane Derbicolor GP This will result in “lacing” of the field and base flashing membranes.
- C. Application Sequence of Stripping Plies: At metal flanges, the Derbigum stripping ply shall be installed over the field base ply, with the stripping ply extending a minimum of four (4) inches beyond the flange of the metal. The metal flange shall then be set over the stripping ply in a bed of Perflash flashing cement and mechanically anchored. The Derbicolor GP field top ply is then applied over the primed metal flange.
- D. Sealant at Edge of Stripping Plies: Where the edge of stripping plies meets the metal detail (i.e., outside edge of perimeter metal or against vent pipes), a bead of Perflash® flashing cement shall be applied to provide a continuous seal and fill in any gaps that may allow standing water at this point.
- E. Cant Strips: DerbiCant strips are required at the transition of vertical intersections of roof deck and wall/curb surfaces in all membrane flashing applications.
- F. Tapered Strips: Tapered strips fabricated from perlite roof insulation should be used for transition to drains or to provide positive slope at perimeter or penetration flashings.
- G. When flashing vertical surfaces above 14” high, it is required that the membrane be installed the width of the roll and pre-cut to the desired height required. The maximum flashing length is 10 ft. when the membrane flashings are between 8” and 14” high.
- H. The top edges of all base flashings shall be sealed with asphalt flashing cement and reinforcing fabric to provide protection until metal counter flashing is installed.
- I. Curb and Corner Flashings: All corners, inside and out, require a boot to provide positive weather protection at the lap joint. Boot size must be a minimum of 2 inches radius beyond all intersecting surfaces, and have a minimum of ¼ inch follow of modified bitumen beyond all edges.
- J. Priming: All metal surfaces shall be primed with asphalt primer and allowed to dry prior to application of the Derbigum GP flashing membrane.
- K. Metal Counter Flashing: All vertical base flashings shall be covered by metal counter flashing to form a continuous watershed over the top of membrane flashing. Metal counter flashing shall extend a minimum of 3 inches over the top of the membrane flashing.
- L. Mechanically fasten the top of all vertical base flashing membranes. Fasteners shall be installed at a spacing of 8 inches on center. Choose fasteners appropriate for the substrate, based on the General Guide to Fasteners in the current edition of the NRCA Roofing & Waterproofing Manual.
- M. Metal Face Securement: Hook strips (cleats) shall be installed on all metal extending over roof edges (coping metal, gravel stop/eave strip, perimeter curb metal, etc.) in accordance with recommendations in the NRCA Roofing & Waterproofing Manual. Appropriate provision shall be made in accessory metal to allow for expansion and contraction of the metal sections without interrupting the integrity of the waterproofing assembly.
- N. Roof Drains: The roof drain sump shall be clean and free of all rust and dirt. Install the base ply and cut so that the base ply stops short of the clamping ring. Install a 36 inch square piece of smooth Derbigum membrane, heat fused or set in Perflash, over the drain opening, and cut a hole to the inside edge of the drain base. The drain bowl flange is to be thoroughly cleaned, wire brushed (if necessary), and primed to receive the Derbigum membrane. Apply Perflash to the clamping ring area. Install a 30-inch square, 4-lb. lead flashing over the Derbigum membrane into a bed of Perflash cement. Then install the top layer of Derbicolor GP field membrane extending to the inside edge of the drain bowl. The Derbicolor GP field membrane, the new drain lead, and the Derbigum stripping membrane are to extend under the properly secured and tightened compression clamping ring assembly. Cut holes in the membrane to align with the clamping bolts, install the clamping ring and tighten the bolts to provide uniform compression of the flashing membrane at the drain.
- O. Pitch Pockets: Fabricate and install new pitch pockets from galvanized steel per NRCA

recommendations. Fill the pocket halfway to the top with non-shrink grout. Fill the remainder of the pocket with pourable sealer or Perflash, sloping the fill away from the penetration to the edge of the pocket. Install metal rain collars with drawbands that cover and overlap the entire pocket. Caulk the top of the drawband with sealant. Strip in the metal flanges of the pitch pocket per the sequence described above for stripping plies.

### **3.06 INSPECTION AND QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Test Cuts: Test specimens will be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:
  - 1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
  - 2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
  - 1. Notify Architect or Owner 72 hours in advance of date and time of inspection.
- D. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### **3.07 PROTECTION AND CLEANING**

- A. Protect new roof system during remainder of construction period. Plan work so traffic over new roof system is kept to a minimum. Where traffic must continue over new roof system, provide protection for the finished roof.
- B. Provide protection for masonry and other building surfaces against damage of staining from roofing operations. Any surfaces damaged or stained as a result of roofing operations shall be cleaned, repaired or replaced as necessary by the roofing contractor. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
- C. Job site shall be maintained in a clean, orderly fashion, and free of debris. Store materials and equipment so operations of building are not interrupted.
- D. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

\*\*\* END OF SECTION - APP-COLD APPLIED MODIFIED BITUMINOUS MEMBRANE ROOFING \*\*\*

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## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section includes the following sheet metal flashing and trim:
  - 1. Metal flashing.
  - 2. Metal reglets.
  - 3. Exposed trim, gravel stops and fascias.

### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Sections include the following:
  - 1. Division 4
  - 2. Division 6
  - 3. Division 7

### **1.03 PERFORMANCE REQUIREMENTS**

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Fabricate and install roof edge flashing and copings capable of resisting the following forces according to recommendations in FMG Lose Prevention Data Sheet 1-49:
  - 1. Basic Wind Speed: 145 MPH (3 second gust). Based on ASCE 7-10
  - 2. Importance Factor: 1.0
  - 3. Building Category: 11
  - 4. Exposure: B
  - 5. Enclosed Building Internal Pressure Coefficient,  $GC_{pi}$  = .18
  - 6. Wind Zone Uplifts:
    - a.) Refer to individual drawings
- C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.
  - 1. Temperature Change (Range): 120 deg. F (67 deg. C), ambient; 180 deg. F (100 deg. C), material surfaces.
- D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

### **1.04 SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop and field assembled work. Include the following:
  - 1. Identify material, thickness, weight, and finish for each item and location in Project.
  - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.

3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fastening, clips, cleats, and attachments to adjoining work.
4. Details of expansion joint covers, including showing direction of expansion and contraction.
- C. Samples for verification: For each type of exposed finish required, prepare on samples of size indicated below:
  1. Sheet Metal Flashing: 12 inches (300 mm) long. Include fasteners, cleats, clips, closures, and other attachments.
  2. Trim: 12 inches (300 mm) long. Include fasteners and other exposed accessories.
  3. Accessories: Full size samples.

#### **1.04 QUALITY ASSURANCE**

- A. Installer qualifications: Engage an experienced Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in service performance.
- B. Sheet metal flashing and trim standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- C. Mockups: Prior to installing sheet metal flashing and trim, construct mockups indicated to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  1. Locate mockups on site in the location and of the size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect seven (7) days in advance of the dates and times when mockups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Construct mockups for the following type of sheet metal flashing and trim:
    - a) Scuppers.
    - b) Exposed trim, gravel stops, and fascias.
    - c) Copings.
  5. Obtain Architect's approval of mockups before start of final unit of Work.
  6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D. Pre-installation conference: Conduct conference at project site to comply with requirements in Division 1.
  1. Meet with Owner, Architect, Owner's insurer if applicable, installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof mounted equipment.
  2. Review methods and procedures related to sheet metal flashing and trim.
  3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
  4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

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

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.
- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with suitable weather tight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.



## **1.07 COORDINATION**

- A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leak proof, secure, and non-corrosive installation.

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
  - 2. Available manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but not limited to, manufacturer's specified.

### **2.02 SHEET METAL**

- A. Aluminum sheet: ASTM B 209 (ASTM B 209M), alloy 3003, 3004, or 5005, temper suitable for forming and structural performance required, but not less than H14, finished as follows:
  - 1. Anodized finish: Apply the following coil anodized finish:
    - a) Class I, clear anodic finish: AA-M12C22A41 (mechanical finish: non-specular as fabricated; chemical finish: etched, medium matte; anodic coating: Architectural class I, clear coating 0.018 mm or thicker) complying with AAMA 611.
- B. Stainless steel sheet: ASTM A 240/A 240M, type 304.
  - 1. Finish: No. 2B (bright).

### **2.03 UNDERLAYMENT MATERIALS**

- A. Felts: ASTM D 226, type II (no. 30), asphalt saturated organic felt, non-perforated.
- B. Slip sheet: Rosin sized paper, minimum 3 lb/100 sq. ft. (0.16 kg/sq. m.).

### **2.04 MISCELLANEOUS MATERIALS**

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. Fasteners: Wood screws, annular threaded nails, self tapping screws, self locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
  - 1. Exposed fasteners: Heads matching color of sheet metal by means of factory applied coating.
  - 2. Fasteners for flashing and trim: Blind fasteners or self drilling screws, gasketed with hex washer heads.
  - 3. Blind fasteners: Stainless steel.
- C. Solder for stainless steel: ASTM B 32, grade Sn60, with acid flux of type recommended by stainless steel sheet manufacturer.
- D. Elastomeric sealant: Generic type recommended by sheet metal manufacturer or fabricator of components being sealed and complying with requirements for joint sealants is specified in Division 7.
- E. Mastic sealant: Polyisobutylene nonhardening, nonskinning, nondrying, nonmigrating sealant between moving joints, otherwise one part polymethal.
- F. Bituminous coating: Cold applied asphalt mastic, SSPC-Paint 12, compounded for 15 mil (0.4 mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur compounds, and other deleterious impurities.
- G. Epoxy seam sealer: 2 part noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.

- H. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather resistant seaming and adhesive application of flashing sheet metal.
- I. Paper slip sheet: 5 lb/square (0.244 kg/sq. m.) red rosin, sized building paper conforming to FS UU-B790, type I, style 1b.
- J. Polyethylene underlayment: ASTM D 4397, minimum 6 mil (0.15 mm) thick black polyethylene film, resistant decay when tested according to ASTM E 154.
- K. Metal accessories: Provide metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.
- L. Roofing cement: ASTM D 4586, asbestos free, of consistency required for application.

## 2.05 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendation in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.
- B. 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.
- C. Fabricate sheet metal flashing and trim without excessive oil canning buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
  - 1. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  - 2. Seams: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- D. Sealed joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- E. Expansion provisions: Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 MM) of corner or intersection. Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.
- F. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.
- G. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.
- H. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
  - 1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and FMG Loss Prevention Data Sheet 1-49 for application but not less than thickness of metal being secured.

## 2.06 SHEET METAL FABRICATION

- A. Roof edge flashing (gravel stop) and fascia caps: Fabricate in minimum 96 inch (2400 mm) long, but not exceeding 10 foot (3-m) long, sections. Furnish with 6 inch (150 mm) wide joint cover plates.
- B. Base flashing: Fabricate from the following material:
  - 1. Stainless steel: 0.0187 inch (0.5 mm) thick.
- C. Counterflashing: Fabricate from the following material:
  - 1. Stainless Steel: 0.0187 inch (0.5 mm) thick.
- D. Flashing Receivers: Fabricate from the following material:
  - 1. Stainless Steel: 0.0156 inch (0.4 mm) thick.
- E. Roof penetration flashing: Fabricate from the following material:
  - 1. Stainless Steel: 0.0187 inch (0.5 mm) thick.
- F. Roof penetration soil stack: Fabricate from the following material:
  - 1. Lead: 4.0/lb/sq.ft. (1.6 mm thick), hard tempered.

- G. Roof-Drain Flashing: Fabricate from the following material:
  - 1. Lead: 4.0/lb/sq.ft. (1.6 mm thick), hard tempered.
- H. Equipment Support Flashing: Fabricate from the following material:
  - 1. Stainless Steel: 0.0187 inch (0.5 mm) thick.

## **2.07 FINISHES**

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of finished work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.
  - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
  - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION, GENERAL**

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Torch cutting of sheet metal flashing and trim is not permitted.
- B. Metal protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
  - 1. Coat side of stainless-steel and lead sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
  - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.
  - 3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.
- C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
- D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and elastomeric sealant.
- E. 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.
  - 1. Space cleats not more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
- F. Expansion provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.

- G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4" inches (32 mm) for nails not less than 3/4 inch (19 mm) for wood screws.
  - 1. Galvanized or prepainted, metallic-coated steel: use stainless steel fasteners.
  - 2. Aluminum: Use aluminum or stainless steel fasteners.
  - 3. Copper: Use copper or stainless steel fasteners.
  - 4. Stainless steel: Use stainless steel fasteners.
- H. Seal joints with elastomeric sealant as required for watertight construction.
  - 1. Where sealant-filled joints are used, 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 moderate, between 40 and 70 degrees F (4 and 21 degrees C) set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant type joints at temperatures below 40 degrees F (4 degrees C).
  - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants".
- I. Soldered Joints: clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches except where pretinned surface would show in finish work.
  - 1. **Do not solder prepainted, metallic coated steel and aluminum sheet.**
  - 2. Stainless steel soldering: pretin edges of uncoated sheets to be soldered using solder recommended for stainless steel and phosphoric acid flux. Promptly wash off acid flux residue from metal after soldering.
  - 3. **Do not use open flame torches for soldering.** Heat surfaces to receive solder and slow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.
- J. Aluminum flashing: Rivet or weld joints in uncoated aluminum where necessary for strength.

### 3.03 ROOF DRAINAGE SYSTEM

- A. General: Install sheet metal roof drainage items to produce complete roof drainage according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Parapet Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
  - 1. Anchor scupper closure trim flanges to exterior wall and seal or solder to scupper.
- C. Expansion joint covers: Install expansion joint covers at locations and of configuration indicated. Lap joints a minimum of 4 inches in direction of water flow.
- D. Splash pans: Install where downspouts discharge on low-sloped roofs. Set in asphalt roofing cement compatible with roofing membrane.

### 3.04 FLASHING INSTALLATION

- A. General: Install sheet metal roof flashing and trim to comply with performance requirements, sheet metal manufacturer's written instructions, and SMACNA's "Architectural Sheet Metal Manual". Provide concealed fasteners where possible, set units true to line and level as indicated. Install work with laps, joints and seams that will be permanently watertight.
- B. Roof edge flashing: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
  - 1. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at 16 inch centers.
- C. Copings: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
  - 1. Interlock exterior bottom edge of coping with continuous cleats anchored to substrate at 16 inch (400 mm) centers.
  - 2. Anchor interior log of coping with S.S. screw fasteners and washers at 18 inch (450 mm) centers.

- D. Pipe or post counterflashing: Install counterflashing umbrella with close fitting collar with top edge flared for elastomeric sealant, extending a 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. Extend counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with elastomeric sealant.
  - 1. Secure in a waterproof manner by means of snap in installation and sealant or lead wedges and sealant, interlocking folded seam or blind rivets and sealant.
- F. Roof penetration flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:
  - 1. Turn lead flashing down inside vent piping, being careful not to block roof except for lead flashing on vent piping with flashing.
  - 2. Seal with elastomeric sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent pipe.
- G. Overhead piping safety pans: Suspend pans from pipe and install drain line to plumbing waste or drain line.

### **3.05 WALL FLASHING INSTALLATION**

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

### **3.06 CLEANING AND PROTECTION**

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touch-up or similar minor repair procedures.

\*\*\* END OF SECTION - SHEET METAL FLASHING AND TRIM \*\*\*

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## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section includes the following:
  - 1. Roof curbs.
  - 2. Equipment supports
  - 3. Roof hatches
  - 4. Gravity ventilators
- B. Related Sections include the following:
  - 1. Division 6
  - 2. Division 7
  - 3. Division 15
  - 4. Division 16

### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

### **1.03 SUBMITTALS**

- A. Product data: For each type of roof accessory indicated. Include construction details, material description, dimensions of individual components and profiles, and finishes.
- B. Shop drawings: Show fabrication and installation details for roof accessories. Show layouts of roof accessories including plans and elevations. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other work.
- C. Coordination drawings: Roof plans, drawn to scale, and coordinating penetrations and roof mounted items. Show the following:
  - 1. Size and location of roof accessories specified in this Section.
  - 2. Method of attaching roof accessories to roof or building structure.
  - 3. Other roof mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
- D. Samples: For each type of exposed factory-applied finish required and for each type of roof accessory indicated, prepared on samples of size to adequately show color.
- E. Warranty: Special warranty specified in this section.

### **1.04 QUALITY ASSURANCE**

- A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

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

- D. Pack, handle, and ship roof accessories properly labeled in heavy duty packaging to prevent damage.

### **1.06 PROJECT CONDITIONS**

- A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on shop drawings.

### 1.07 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leak proof, weather tight, secure, and noncorrosive installation.
  - 1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes.

## **PART 2 - PRODUCTS**

### 2.01 MANUFACTURERS

- 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into Work include, but not limited to, manufacturers listed in other Part 2 articles.

### 2.02 METAL MATERIALS

- A. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coated.
- B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 (AZM150) coated.
- C. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy and temper recommended by manufacturer for type of use and mill finish. Coil-coat finish from one of the following:
  - 1. High Performance Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: Cleaned with inhibited chemicals; Chemical Finish: Conversion coating; Organic Coating: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2604 and with coating and resin manufacturer's written instructions.
    - a) Color and Gloss: As selected by Architect from manufacturer's full range.
  - 2. Powder Coat Finish: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard baked polymer thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.
    - a) Color and Gloss: As selected by Architect from manufacturer's full range.
- D. Aluminum Extrusions and Tubes: ASTM B 221 (ASTM B 221M), alloy and temper recommended by manufacturer for type of use, mill finished.
- E. Stainless Steel Shapes or Sheet: ASTM A240/A 240M or ASTM A 666, type 304 or type 316, No. 2B finish.

### 2.03 MISCELLANEOUS MATERIALS

- A. Glass Fiber Board Insulation: ASTM C 726, 1 inch (25 mm) thick.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, 1 inch (25 mm) thick.
- C. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, complying with AWPA C2; not less than 1-1/2 inches (38 mm) thick.
- D. Bituminous Coating: Cold applied asphalt mastic, SSPC Paint 12, compound for 15 mil (0.4 mm) dry film thickness per coat. Provide inert type noncorrosive compound free of asbestos fibers, sulfur compounds, and other deleterious impurities.
- E. Felt: ASTM D226, Type II (No. 30), asphalt saturated organic felt, nonperforated.
  - 1. Slip Sheet: Rosin sized paper, minimum 3 lb/100 sq. ft. (0.16 kg/sq. m).
- F. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.
- G. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.



- H. Elastomeric Sealant: Generic type recommended by unit manufacturer that is compatible with joint surfaces; ASTM C 920, Type S, Grade NS, Class 25, and uses NT, G, A, and as applicable to joint substrates indicated, O.
- I. Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

## 2.04 ROOF CURBS

- A. Roof Curbs: Provide metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints. Coordinate dimensions and anchoring method for lightweight insulating concrete deck. Coordinate with existing equipment and openings. Provide roof curbs that work on insulating concrete deck and supports existing equipment being used. Show equipment to be supported on shop drawings and anchoring method/opening size in deck.
  - 1. Available Manufacturers:
    - a) Curbs Plus, Inc.
    - b) Custom Curb, Inc.
    - c) Pate Company (The).
    - d) Roof Products and Systems Corporation.
    - e) Roof Products, Inc.
    - f) Thaler Metal Industries, Ltd.
    - g) ThyCurb; Division of Thybar Corporation.
  - 2. Load Requirements: As required by equipment to be relocated.
  - 3. Material: Galvanized or aluminum zinc alloy coated steel sheet, 0.079 inch (2.0 mm) thick.
  - 4. Liner: Same material a curb, of manufacturer's standard thickness and finish.
  - 5. Provide and install preservative treated wood nailers at top of curbs.
  - 6. Provide preformed cants and base profile coordinated with roof insulation thickness.
  - 7. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
  - 8. Factory insulate curbs with manufacturer's standard insulation.
  - 9. Curb height may be determined by adding thickness of roof insulation and minimum base flashing height recommended by roofing manufacturer. Fabricate units to minimum height of 8 inches above adjacent roof (200 mm), unless otherwise indicated.
  - 10. Sloping roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

## 2.05 EQUIPMENT SUPPORTS

- A. Equipment Supports: Provide metal equipment supports, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Fabricate with welded or seamed mechanical corner joints, with integral metal cant and integral formed mounting flange at perimeter bottom. Coordinate on shop drawings dimensions, weight and anchoring with rough-in information of existing equipment to be reinstalled/supported .
  - 1. Available Manufacturers:
    - a) Curbs Plus, Inc.
    - b) Custom Curb, Inc.
    - c) Pate Company (The).
    - d) Roof Products and Systems Corporation.
    - e) Roof Products, Inc.
    - f) Thaler Metal Industries, Ltd.
    - g) ThyCurb; Division of Thybar Corporation.
  - 2. Load Requirements: As required by equipment to be relocated.
  - 3. Material: Galvanized or aluminum zinc alloy coated steel sheet 0.079 inch (2.0 mm) thick.
  - 4. Provide and install preservative treated wood nailers at top of curbs.
  - 5. Provide preformed cants and base profile coordinate with roof insulation thickness.

6. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
11. Curb height recommended by adding thickness of roof insulation and minimum base flashing height recommended by roofing membrane manufacturer. Fabricate units to minimum height of 8 inches above adjacent roof (200 mm), unless otherwise indicated.
7. Sloping roofs: Where slope of roof exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

## 2.06 RELIEF VENTS

- A. Low profile, louvered penthouse style gravity ventilators: Manufacturer's standard unit fabricated from the following materials, with manufacturer's standard welded or sealed mechanical joints:
  1. Available Manufacturers:
    - a) Active ventilation products.
    - b) Bristolite Skylights.
    - c) Commodity Products Company, Inc.
    - d) Loren Cook Company.
    - e) Metallic Products Corporation.
    - f) Solar Group (The).
    - g) Thaler Metal Industries Ltd.
    - h) ThyCurb; Division of Thybar Corporation.
    - i) Western Canwell.
  2. Provide integral frame with base flange, weather tight cap, louver bird screen, and weather tight sidewall louvers.
  3. Dimensions: As indicated.
  4. Style: As indicated.
  5. Bird screens: Manufacturer's standard mesh with rewirable frame.
  6. Insect screens: Manufacturer's standard mesh with rewirable frame.
  7. Integral frame, base flange, weather tight cap, and louver material: Aluminum sheet, of manufacturer's standard thickness.
    - a) Finish: Clear anodic, baked enamel or powder coat.

## 2.07 ROOF HATCH

- A. Roof Hatches: Metal roof-hatch units with lids and insulated single-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, stepped integral metal cant raised the thickness of roof insulation, and integrally formed deck-mounting flange at perimeter bottom.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Bilco Company (The).
    - b. Bristolite Skylights.
    - c. Precision Ladders, LLC.
- B. Type and Size: Single-leaf lid, **30 by 36 inches**. (confirm size with existing opening.).
- C. Loads: Minimum **40-lbf/sq. ft.** external live load and **20-lbf/sq. ft.** internal uplift load.
- D. Hatch Material: Aluminum sheet, **0.090 inch** thick.
  1. Finish: Clear anodic.

- E. Construction:
1. Insulation: Glass-fiber board.
  2. Hatch Lid: Opaque, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
  3. Hatch Lid: Glazed, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
  4. Curb Liner: Manufacturer's standard, of same material and finish as metal curb.
  5. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
  6. Fabricate curbs to minimum height of **12 inches** unless otherwise indicated.
  7. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate curb with perimeter curb height that is tapered to accommodate roof slope so that top surfaces of perimeter curb are level. Equip hatch with water diverter or cricket on side that obstructs water flow.  
Hardware: Galvanized-steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine substrates, areas, conditions, with installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
  2. Verify dimensions of roof openings for roof accessories.
  3. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.02 INSTALLATION**

- A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather failing, rattling, leaking, and fastener disengagement.
- B. Install roof accessories to fit substrates and to result in watertight performance.
- C. Metal protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
1. Coat concealed side of uncoated aluminum or stainless steel roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
  2. Underlayment: Where installing exposed to view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene underlayment.
  3. Bed flanges in thick coat of asphalt roofing where required by roof accessory manufacturers for waterproof performance.
- D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.
- E. Roof curb installation:
1. Set roof curb so top surface of roof curb is level.
  2. Provide clearance under equipment per FBC table 1509.6.5.
- F. Equipment support installation:
1. Set equipment support so top surface of equipment support is level.
  2. Provide clearance under equipment per FBC table 1509.6.5.
- G. Roof hatch installation:

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1. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.
- H. Gravity ventilator installation:
  1. Check relief vents for proper operation and unrestricted airflow.
- I. Seal joints as required by manufacturer of roof accessories.

**3.03 TOUCH UP**

- A. Touch up factory primed surfaces with compatible primer ready for field painting in accordance with Division 9.
- B. Galvanized surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanized to comply with ASTM A 780.

**3.04 CLEANING**

- A. Clean exposed surfaces according to manufacturer's written instructions.

\*\*\* END OF SECTION - ROOF ACCESSORIES \*\*\*

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. Provide all labor, materials, tools, equipment, services, etc. for joint sealers (caulking, sealant, backer rod, primer, etc.) throughout the work as specified herein and/or as shown, detailed, implied, required or otherwise indicated as required to provide a positive barrier against the passage of air and/or moisture or to join dissimilar or similar materials to form a seam.
- B. Completely coordinate with work of all other trades.
- C. Related Work
  - 1. Division 00
  - 2. Division 01
  - 3. Contract Documents
- D. Seal all joints which will permit penetration of moisture unless sealing work is specifically required under other Sections. Work included: provide and install sealants as follows:
  - 1. Flooring joints.
  - 2. Isolation joints.
  - 3. Joints at penetrations of walls, floors and decks by piping and other services and equipment.
  - 4. Exterior and interior perimeters of all exterior and interior door and window frames, louvers, grilles, etc.
  - 5. Solidly bed all thresholds at interior and exterior doors.
  - 6. Joints around door frames, window frames, through-wall penetrations, louvers, fans, casework, countertops and the like.
  - 7. Other joints where caulking, sealant or compressible sealant is indicated, implied, detailed, or required for a proper installation acceptable to the Architect.

### **1.02 SUBMITTALS**

- A. Comply with Section 01340.
- B. Product Data
  - 1. Materials List.
  - 2. Manufacturers specifications.
  - 3. Manufacturers instructions.
- C. Samples
  - 1. Submit only two (2) samples (item, tube, container, etc.) of each sealant primer, etc.
  - 2. Submit remaining items such as backer rod, etc., four (4) linear feet of each.
  - 3. Cured sample of each color of each material for color selection.
- D. Acoustical sealant at gypsum board shall be provided by other Sections.

### **1.03 JOB CONDITIONS**

- A. Perform sealant work only when ambient air temperature is 40 degrees Fahrenheit (5 degrees Centigrade) or higher.
- B. Apply only to joints which are free of material which will inhibit bond.
- C. Apply to cementitious materials only when thoroughly cured and dry.

### **1.04 WARRANTY**

- A. Warranty that sealant work will be free of defects for a period of three (3) years from date of final acceptance.
  - 1. Failure of weather integrity and/or watertightness constitutes defect.
  - 2. Remove any defective work or materials and replace with new work and materials and repair or replace any or all other work damaged as a result of defective sealant work or materials at no

- additional expense to Owner at the direction of the Architect.
3. Warranty signed by applicator.

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

- A. Deliver all materials to job site in manufacturer's original sealed containers.
- B. Store all materials under environmental conditions such as ventilation temperature and humidity in accord with manufacturers recommended storage procedures. Expiration dates for all materials stored shall be no less than one (1) year from date of anticipated final completion.
- C. No material shall be incorporated into the work once its package labeled expiration date is passed.
- D. Since some joint sealers and their primers are volatile, use no materials specified herein except in total compliance with the directions of the manufacturer.
- E. Notify all workmen, Owner, Architect, staff, etc. of any and all requirements of the manufacturers regarding the use of the specific products.
- F. Allow all materials specified herein to cure in total compliance with the directions of the manufacturer.

### **1.06 GENERIC REQUIREMENTS**

- A. Provide colors matching materials being sealed.
- B. Where compound is not exposed to view in finished work, provide manufacturer's color which has best performance.
- C. Provide non-sagging sealant for vertical joints.
- D. Sealants for horizontal joints shall be self leveling.
- E. Before use of any sealant, investigate its compatibility with joint surfaces, fillers and other materials in joint system.
- F. Use only compatible materials.
- G. Obtain sealing compounds from manufacturers who will provide manufacturers field service representatives at project site for purpose of advising and instructing installers in proper procedures. Provide such services, at no expense to Owner.
- H. Use compressible sealant backer rod where indicated or otherwise required by the specific location.

## **PART 2 - PRODUCTS**

### **2.01 ACCEPTABLE MANUFACTURERS**

- A. Sealant basis for design as specified herein shall be Tremco or General Electric as specified below.
- B. Acceptable manufacturers, subject to compliance with the specifications, including, but not limited to, characteristics, limitations, adhesions, color selection and life expectancy of the basis for design include General Electric, Dow Corning, Ohio Sealants, and Vulkem.

### **2.02 MATERIALS**

- A. Exterior, non-traffic, integral color: Tremco, "Spectrem I; TT-S-0023OC, (COM-NBS) Type II, Class A; TT-S-001543A, (COM-NBS) Class A; ASTM C-920, Type S, Grade NS, Class 25. Use NT,M,G,A and O; color as selected.
- B. Multi-Component Urethane: ASTM C920, Type M, Grade NS; Uses T, M, A, and O; two component, chemical curing, nonstaining, nonbleeding, color as selected.
  1. Dymeric 240/240FC
  2. Vulkem 227
- H. Single Component Urethane: ASTM C920, Type S, Grade NS. Uses NT, M, A, O; single component, moisture curing, nonstaining, nonbleeding, color as selected.
  1. Dymonic FC
  2. Dymonic
  3. Vulkem 116

4. Vulkem 921

### **2.03 RELATED MATERIALS**

- A. Primer release tape, spacers, gaskets, foam tape, joint cleaner, bond breaker etc. shall be as recommended and required by sealant material manufacturer.
- B. Backer rod shall be rod stock, closed cell, flexible, non-absorbent, non-bituminous material recommended and required by sealant material manufacturer which will:
  1. Control joint depth to be acceptable relative to its width;
  2. Break bond of sealant at bottom of joint; and
  3. Provide proper shape of sealant bead.

### **PART 3 - EXECUTION**

#### **3.01 SURFACE CONDITIONS**

- A. Inspect and examine the areas and conditions under which the work of this Section will be performed.
- B. Notify General Contractor of conditions which are detrimental to the timely and proper execution of this work.
- C. Do not proceed with the work until all unsatisfactory conditions have been corrected in an acceptable manner to provide proper conditions.
- D. Perform sealant work only when both the ambient air temperature and surfaces temperature exceeds 40 degrees Fahrenheit.
- E. Apply only to joints which have been properly prepared and are free of deleterious material which would inhibit bond.
- F. Apply to cementitious materials only when thoroughly cured and dry.

#### **3.02 PREPARATION**

- A. Surfaces shall be cleaned; prepared and primed materials shall be mixed, applied, and installed in strict accord with the accepted manufacturer's published directions.
  1. Joints shall be thoroughly cleaned of oil, dust, release agents, curing compounds, old sealants, water repellents or other foreign materials.
  2. Prime surfaces to receive joint sealant..
- B. Where finish coating or covering is to be applied to adjacent surface, wait until such coating or covering has been applied before installing sealant; e.g., paint, wallcovering, glazed coating, etc.
- C. Ceramic tile shall be installed prior to sealant work.

#### **3.03 SCHEDULE – SEALANT JOINTS**

- A. Exterior Sealant Joint
  1. Applications:
    - a. Joints between different materials.
    - b. Other exterior joints in vertical surfaces and non-traffic horizontal surfaces for which no other sealant is specified.
  2. Multi-Component Urethane Sealants:
    - a. Dymeric 240/240FC
    - b. Vulkem 227

#### **3.04 INSTALLATION**

- A. Make all joints water and airtight.

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- B. Where required by manufacturer, prime joint surfaces.
  - 1. Limit application to surfaces to receive joint sealer.
  - 2. Mask off adjacent surfaces.
- C. Joint Depths and Fillers
  - 1. Govern depth of joints to receive sealant or caulking by width of joint and achieve by proper placement of joint filler-gaskets.
    - a) Joints 1/2" and less in width: 1/4" deep.
    - b) Joints between 1/2" and 1" in width: Depth equal to 1/2 the width.
    - c) Joints 1" and over in width: 1/2" deep.
    - d) As recommended by manufacturer.
  - 2. Joint fillers shall be polyethylene or butyl foam cord.
  - 3. Avoid lengthwise stretching of filler materials.
  - 4. Install bond breaker tape at back of joints over joint fillers other than polyethylene type.
  - 5. Make depth of sealing compounds not more than 1/2 width of joint, but in no case less than 1/4" (6mm).
  - 6. Subcaulk joints that are deep, or joints without suitable backstop, to proper depth.
  - 7. Use correctly sized backer rods.
  - 8. Apply bond breaker where required.
- D. Masking:
  - 1. Apply suitable masking material and or tape where required to protect adjacent surfaces.
  - 2. Adhere tape in continuous strips in alignment with joint edge and remove immediately after joints have been sealed and tooled.
- E. Mixing:
  - 1. Mix two (2) component or multi-component sealants as recommended by manufacturer's published directions.
  - 2. Adhere to recommended "Pot Life" requirements.
- F. Sealant and Caulking Finish and Cleanup
  - 1. Force sealant or caulking into joints with gun having a nozzle which fits properly into joints.
  - 2. Fill joints solidly, tool to compress and smooth joints without thin edges and leave free from tool marks flush with adjoining surfaces.
  - 3. Tool sealants using sufficient pressure to fill all voids.
  - 4. Upon completion, leave joint sealer with smooth even finish.
  - 5. Remove excess compound, smears, droppings and misplaced compound before it has cured using suitable tools and non-staining oil-free solvent recommended by sealant or caulking manufacturer.
  - 6. Leave finished work in a neat, clean condition.

\*\*\* END OF SECTION - JOINT SEALERS \*\*\*