

## SECTION 07417

### ALUMINUM COMPOSITE COLUMN COVERS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Aluminum-faced composite panel system used as interior curved column cover at Monumental Stair base.
  - 2. Related attachment clips, extrusions, joint sealants, and accessories.
- B. Related Sections:
  - 1. Section 05120 - Structural Steel: Structural steel members to receive column and beam covers.
  - 2. Section 05400 - Cold-Formed Metal Framing: Column cover supports.
  - 3. Section 07272 - Vapor Permeable, Fluid-Applied Membrane Air Barriers: Weather-resistant barrier installed over sheathing.
  - 4. Section 07415 - Composite Metal Panel System
  - 5. Section 07620 - Sheet Metal Flashing and Trim.
  - 6. Section 07812 - Cementitious Fireproofing.
  - 7. Section 07920 - Joint Sealants: Requirements for joint sealers used in column cover joints.
  - 8. Section 09255 - Exterior Sheathing

##### 1.2 PERFORMANCE REQUIREMENTS

- A. **Composite Building Panel System:** Provide a composite building panel system which has been pretested by an independent testing laboratory to provide specified resistance to air and water infiltration and structural deflection, when installed. Systems that are not pretested and certified by an independent laboratory prior to bid are unacceptable. The use of a panel manufacturer's generic tests reports are unacceptable; the tests must be for the specific system submitted by the panel system engineer and fabricator.
- B. **Structural Deflection: Normal to the Plane of the Wall:** The maximum deflection of panel perimeter and aluminum framing members shall be  $L/175$ . The maximum allowable deflection for the aluminum composite panel material only is  $L/60$ .
- C. **Performance Test Standards:**
  - 1. Static Air Infiltration: (ASTM E283-84) at 1.57 psf. Air infiltration shall not exceed .06 cfm per square foot for the fixed wall.
  - 2. Static Water Infiltration: (ASTM E331-83) at 6.24 psf with a water spray rate of five (5) gallons per hour per square foot minimum for 15 minutes, no uncontrolled water infiltration on roomside.
  - 3. Structural Performance: (ASTM E330) shall be tested in accordance with a design pressure of 40 psf. Deflection limitations as listed previously (1.2.B). After initial test, test at 150% of design pressure. No permanent deformation exceeding  $L/1000$  or failure to structural members allowed.
  - 4. Fire Performance Characteristics: Provide test report on the panel material in accordance with the following:

- a. ASTM-E84
- b. ASTM-E108, Modified
- c. ASTM-E162

### 1.3 FINISH PERFORMANCE

- A. **General:** Provide certified test results by a recognized testing laboratory or agency in accordance with specified test methods.

### 1.4 SUBMITTALS

- A. **Product Data:** Submit panel manufacturer's product data, consisting of complete product description and specification.
- B. **Shop Drawings:** Submit complete shop drawings of all work of this section through the general contractor for approval, including large scale details of construction and showing method of installation and attachment to the building's supporting structure. Show reveal moldings at top and bottom of column covers.
- C. **Samples:** Submit samples of typical aluminum composite panels, of type, thickness and finish specified.
- D. **Manufacturer's Installation Instructions:** Submit panel system fabricator's installation manual, indicating the procedures to be followed by the installer in forming, sealing and installing the attachment system.

### 1.5 QUALITY ASSURANCE

- A. **Composite Panel System Fabricator:** The panel system fabricator shall be approved by the panel manufacturer.
  - 1. The panel system fabricator shall prepare the shop drawings in accordance with their standard published product data and criteria established by others. The General Contractor and subcontractor shall be responsible to verify the information contained therein including all dimensions.
    - a. In the interest of maintaining job schedules, the panel system fabricator shall fabricate all of the materials from the approved set of shop drawings. If field verification of dimensions are required, the General Contractor/subcontractor shall be responsible to supply these dimensions to the panel system fabricator prior to engineering/fabricating of the materials. Discrepancies found during field verification shall be corrected by the general contractor at no cost to the panel system fabricator.
- B. **Panel System Installer:** The panel system installer shall have a minimum of 5 years experience of metal panel work similar in scope and size to this project and shall be responsible for a complete, sealed and weathertight installation. The panel system installer shall be approved by the panel system Fabricator.

### 1.6 PRODUCT DELIVERY, STORAGE & HANDLING

- A. **Delivery:** All materials shall be packaged, boxed, wrapped, or otherwise protected to assure complete protection from damage during shipment.
- B. **Storage:** Store materials in interior spaces or above ground under protective and ventilated covers.

- C. **Handling:** Extra protective measures shall be taken to assure that panel edges are secured from damage at all times.

## 1.7 PROJECT CONDITIONS

- A. **Coordinate** the work of this Section with work of other trades affecting, or affected by, this work to assure the steady progress of all the work.
- B. **Project Conditions:** Before proceeding with installation, inspect all project conditions affecting the work of this Section to assure that all such conditions and work are suitable to satisfactorily receive the work of this Section.

## 1.8 WARRANTY

- A. **Panel System Fabricator:** The panel system fabricator will warrant that the system it supplies will be free from defects in materials, workmanship and defective performance for a period of three (3) years from the date of Substantial Completion.
- B. **Warranty:** Furnish written warranty signed jointly by the Manufacturer and Fabricator / Installer and the Contractor, agreeing to replace without cost to the Owner workmanship and materials which are discovered to have defects (including but not limited to leaks and failure to withstand specified wind conditions) within the warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures, including rupturing, cracking, or puncturing.
    - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 2. Warranty period: 5 years after the date of Substantial Completion
- C. **Special Warranty on Panel Finishes:** Manufacturer's standard form in which manufacturer agrees to repair finish or replace prefinished insulated metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. High-Performance Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
    - a. Falling below minimum standards defined in FINISH PERFORMANCE
    - b. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. **Approved Products/Manufacturers:**
  - 1. Alucobond; ALCAN COMPOSITES
  - 2. Reynobond; REYNOLDS METALS CO.
  - 3. Alpolic; MITSUBISHI CHEMICAL AMERICA, INC.

### 2.2 MATERIALS

- A. **Panel System Description:** Aluminum composite metal facing panels with non-progressive, mechanical/sealant type attachment method.

- B. **Panel Composition:** Two sheets of .020 aluminum sandwiching a core of extruded thermoplastic formed in a continuous process with no glues or adhesives between dissimilar materials. Preferred total thickness of panel shall be 6mm (approx.  $\frac{1}{8}$ ").
- C. **Panel Finish:** Fluoropolymer Resin Coating complying with AAMA 605.2.
  - 1. **Exposed Smooth Panel Finish:**
    - a. High-Performance PVDF Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coatings; Organic Coating: manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, barrier coat if required by manufacturer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear 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 2605 and with coating and resin manufacturers' written instructions.
    - b. Coating Thickness: 2.4 mils.
  - 2. **Concealed Finish:** Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.6 mil.
- D. **Panel Color:** As selected by Architect from Manufacturer's FULL range of colors (including metallic, mica colors).
- E. **Fasteners:** Fasteners exposed to atmosphere to be stainless steel.
- F. **Column collars:** Trim at top and bottom of columns to provide finished connection to adjacent building components. Architect shall select molding. Unless otherwise directed by Architect, provide manufacturer's standard extruded aluminum accessories of sizes indicated. Finish shall be selected by Architect to match Metal column.
  - 1. Different conditions shall require different moldings to be selected.
  - 2. Unless otherwise directed by Architect, the surface shall be coated with a protective film compatible with plaster, latex, polyurethane epoxy, enamel, etc. Trims are extruded aluminum, alloy 6063, temper T-5 tensile strength 31 KSI.
  - 3. Available Manufacturers: Subject to compliance with requirements, provide one of the following:
    - a. Fry Reglet Corp.
    - b. Gordon, Inc.
    - c. Pittcon Industries Inc.
    - d. Prior approved equal

## 2.3 FABRICATION

- A. **Panel System Performance Requirements:** The panel system is to be of a rout and return configuration utilizing a continuous aluminum extrusion attachment system.
  - 1. Attachment methods using clips attached with fasteners through the panel's return flange will not be allowed.
  - 2. The aluminum composite panel attachment system shall be thermally broken and incorporate the necessary thermal expansion and contraction movements within the confines of the attachment mechanism surrounding each panel without the use of any metal to metal sliding joints.
  - 3. The attachment system shall allow for removal of any individual panel within the erected system for damage replacement or access to structure behind the panel,

without disturbing adjacent panels. The removed panel must be put into the original tested attachment system.

4. Panel system shall be field sealed between panels with silicone materials as specified in the related specification.
  5. Detail and fabricate panels to the sizes, configurations and layouts as shown on the approved shop drawings. Panel system fabricator's shop drawings will provide for flat panel surfaces within the tolerances and performance requirements of the panel manufacturer.
- B. Fabricate** all materials in accordance with the approved shop drawings. However, if field measurements are required, they will be supplied to the panel fabricator by others at no expense to the panel fabricator. All schedules will be based on the later occurrence, shop drawing approval or approval of field measurements.
1. Grain pattern of anodized and metallic finished aluminum facing sheets to run in same direction, unless otherwise specified.
  2. Panels shall be marked to coordinate with the approved shop drawings.
  3. Provide protective film on exposed panel faces and leave in place during fabrication.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Preparation:** Installer shall examine all surfaces and conditions which the work of this section is to be applied and notify the general contractor, in writing, of any defects which would be detrimental to proper installation and alignment of the work.
1. No work shall be erected until all discrepancies have been resolved.
  2. Application of materials constitutes acceptance of subsurfaces and conditions.

#### **3.2 INSTALLATION**

- A. General:** Typically, all aluminum composite panels will be shipped flat with all sides completely fabricated and notched ready for field forming and installation.
- B. Install** composite metal column cover system in accordance with the panel system fabricator's approved shop drawings and as illustrated in the fabricator's panel system "Installation Instruction Manual".
- C. Erect and securely anchor** all panels plumb, level, square and true to line in accordance with approved shop drawings. Metal grain of panels to be installed in same direction on anodized and metallic finished material, unless otherwise noted on the approved shop drawings.
- D. Tolerances:** Maximum deviation from vertical and horizontal alignment of erected panels shall not exceed 1/8" inch per 12 foot length of any member, or 1/4" in any total run in any line.
- E. Use concealed fastening system** of non-corrosive type fasteners as recommended by the panel systems manufacturer. These fasteners to occur under all sealant joints. No exposed, visible fasteners are permitted.
- F. Provide for necessary structural movement** as indicated on the approved shop drawings.

- G. **Sealant:** Sealant shall be installed by the panel installer or independent caulking contractor. Sealant at all panel joints shall be installed in accordance with "Section 07920 - Joint Sealants":
  - 1. Prime metal surfaces as recommended by sealant manufacturer. Install sealant in accordance with sealant manufacturer's recommendations. Finished sealant joints to have clean edges.
- H. **Remove protective film** from panel faces immediately upon completion of panel installation.

### 3.3 PANEL ATTACHMENT SYSTEM

- A. Attachment system includes:
  - 1. Fabricated composite metal panels.
  - 2. Attachment System.
  - 3. Protective film one (1) side of panels.
- B. Attachment system does not include:
  - 1. Flashings.
  - 2. Stud framing members required for panel systems support.
  - 3. Insulation.
  - 4. Wood blocking, furring.
  - 5. Sheathing and gypsum drywall.
  - 6. Sealant and primers.
- C. **Thermal Movement:** Attachment system shall freely allow thermal movement of each panel.
  - 1. Fasteners into or attached to panels are not permitted.
  - 2. Metal to metal sliding joints are not permitted.
  - 3. Panels to use a continuous perimeter extrusion in a rout and return configuration.
- D. **Panel Removal:** Panels shall be removable from the exterior without disturbing adjacent panels and are to be reinstalled with the original installation method, so the tested performance is assured.
- E. **Sealant Joints:** All metal surfaces to be primed per recommendations of sealant manufacturer.
  - 1. Joint width: 3/8",  $\square$ " or 5/8" (+/-1/16").
- F. **Panel Protection:** Panels shall be covered with a protective film during fabrication and erection.
  - 1. Remove film immediately after panel installation. Final cleaning and protection then becomes the responsibility of the general contractor.

### 3.4 REMOVAL OF DEBRIS

- A. **All debris** caused by or incidental to the installation work shall be promptly removed from the jobsite as the work progresses.

### 3.5 CLEANING AND PROTECTION

- A. **Cleaning:** Remove protective coverings and strippable films at time in a project construction sequence which will afford greatest protection of work. Clean finished surfaces as recommended by panel manufacturer.
- B. **Protection:** Installer shall advise Contractor of protection and surveillance procedures, as required to ensure that work of this Section will be without damage or deterioration at time of Substantial Completion.

END OF SECTION