

SECTION 074213.23 – METAL COMPOSITE MATERIAL WALL PANELS

PART 1 – GENERAL

1.1 SUMMARY

- A. Exterior cladding consisting of formed metal composite material (MCM) sheet, secondary supports and anchors to structure, attached to solid backup.
- B. Matching flashings and trim.

1.2 PRE-INSTALLATION MEETINGS

- A. Pre-Installation Conference: Conduct conference at **[project site] <insert location>**.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal composite material panels; details of edge conditions, joints, panel profiles, grain direction (if applicable), corners, anchorages, attachment assembly, trim, flashings, closures and accessories; and special details.
- C. Samples: For each type of metal composite material panel indicated.
 - 1. Include similar samples of trim and accessories involving color selection.

1.4 INFORMATIONAL SUBMITTALS

- A. Fabricator's Qualification
 - 1. Minimum of 10 years' experience in fabricating and installing metal wall panel systems
- B. Product Test Reports: For each product, tests performed by a qualified testing agency.
- C. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal composite material panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by the panel manufacturer.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver components, metal composite material panels and other manufactured items so as not to be damaged or deformed.
- B. Unload, store, and erect metal composite material panels in a manner to prevent bending, warping, twisting, and surface damage.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal composite material panel systems that fails in materials or workmanship within specified warranty period.

- 1. Warranty Period: One year from date of Substantial Completion.

- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair, finish or replace metal composite material panels that show evidence of deterioration of factory-applied finished within specified warranty period.

- 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

- a) Color fading more than 5 hunter units when tested according to ASTM D 224.
 - b) Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c) Cracking, checking, peeling, or failure of paint to adhere to bare metal.

- 2. Finish Warranty Period: **[30] [20] [10] <insert number> years from date of Substantial Completion.**

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal composite material panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 330:
 - 1. Wind Loads: As indicated on drawings.
 - 2. Other Design Loads: As indicated on drawings.
 - 3. Deflection Limits: For wind loads, no greater than $[1/175]$ of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E 283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: $[1.57 \text{ lbf/sq. ft. (75 Pa)}]$.
- C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference.
 - 1. Test-Pressure Difference: $[6.24 \text{ lbf/sq. ft. (300 Pa)}]$.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperature 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.

2.2 MANUFACTURERS

- A. Metal Composite Material Sheet Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Reynobond; Alcoa Architectural Products (USA).
 - 2. Alpolic; Mitsubishi Plastics Composites America, Inc.
 - 3. ALUCOBOND; 3A Composites USA, Inc.
 - 4. Alucoil North America.

B. Wall Panel System Manufacturers:

1. Omni Glass & Paint, Inc.: OMNI RS™
2. Approved equals; submit alternate tested systems by other manufacturers/fabrications to architect not less than 15 days prior to bid

2.3 METAL COMPOSITE MATERIAL WALL PANELS

- A. Metal Composite Material Wall Panel Systems: Provide factory-formed and assembled, metal composite material wall panels fabricated from two metal facings that are bonded to a solid, extruded thermoplastic core; formed into profile for installation method indicated. Include attachment assembly components, panel stiffeners, and accessories required for weathertight system.
- B. Aluminum-Faced Composite Wall Panels: Formed with 0.020-inch- (0.50-mm-) thick, [coil-coated] aluminum sheet facings.
1. Panel Thickness: 4mm [0.157 inch]
 2. Core: **[Standard] [Fire retardant]**
 3. Exterior Finish: **[Two-coat fluoropolymer] [Three-coat fluoropolymer] [Mica fluoropolymer] [Metallic fluoropolymer] [FEVE fluoropolymer]**
 - a) Color: **[As selected by Architect from manufacturer's full range] [Match Architect's samples]**
- C. Attachment Assembly Components: Formed from extruded aluminum.
- D. Attachment Assembly: Pressure Equalized Rainscreen System

2.4 MISCELLANEOUS MATERIAL

- A. Miscellaneous Metal Subframing and Furring: ASTM C 645, cold-formed, metallic-coated steel sheet ASTM A 653/A 653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A 792/A 792M, Class AZ50 (Class ASM150) aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal composite material panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, faciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal composite material panels unless otherwise indicated.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal composite material panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal composite material panels.

- D. Panel Fasteners: Self-tapping screws designed to withstand design loads, Provide exposed fasteners with heads matching color of metal composite material panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.
- E. Panel Sealants: ASTM C 920: As recommended in writing by metal composite material panel manufacturer.

2.5 FABRICATION

- A. General: Fabricate and finish metal composite material panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Fabricate metal composite material panel joints with factory-installed separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal and other characteristics of item indicated.

2.6 FINISHES

- A. Aluminum Panels and Accessories:
 - 1. **[Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat and apply coating to exposed metal surfaces to comply with coating and resin manufacture's written instructions.]**
 - 2. **[Three-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resign by weight in both color coat and clear topcoat. Prepare, pretreat and apply coating to exposed metal surfaces to comply with coating and resign manufacturer's written instructions.]**
 - 3. **[Mica Fluoropolymer: AAMA 2605. Tow-coat fluoropolymer finish with suspended mica flakes containing not less than 70 percent PVDF resign by weight in color coat. Prepare, pretreat and apply coating to exposed metal surfaces to comply with coating and resign manufacturer's written instructions.]**
 - 4. **[Metallic Fluoropolymer: AAMA 2605. Three-coat fluoropolymer finish with suspended metallic flakes containing not less than 70 percent PVDF resign by weight in both color coat and clear topcoat. Prepare, pretreat and apply coating to exposed metal surfaces to comply with coating and resign manufacturer's written instructions.]**
 - 5. **[FEVE Fluoropolymer: AAMA 2605. Two-coat fluoropolymer finish containing 100 percent fluorinated ethylene vinyl either resign in color coat. Prepare, pretreat and apply coating to exposed metal surfaces to comply with coating and resign manufacturer's written instructions.]**

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas and conditions, with Installer present, for compliance with requirements for installation tolerances, metal composite material panel supports, and other conditions affecting performance of the Work.

3.2 PREPARATION

- A. Miscellaneous Supports: Install sub-framing, furring and others miscellaneous panel support members and anchorages according to ASTM C 754 and metal composite material panel manufacturer's written recommendations.

3.3 METAL COMPOSITE MATERIAL PANEL INSTALLATION

- A. Attachment Assembly, General: Install attachment assembly required to supports metal composite material wall panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips and anchor channels.
 - 1. Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material
- B. Installation: Attach metal composite material wall panels to supports locations, spacings and fasteners recommended by manufacturer to achieve performance requirements specified.
 - 1. Rainscreen Systems: Do not apply sealants to joints unless otherwise indicated.
- C. Rainscreen-Principle Installation: Install using manufacturer's standard assembly with vertical channel that provides supports and secondary drainage assembly, drainings at base of wall.
- D. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
- E. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated.

3.6 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal composite material panels are installed, unless otherwise indicated in manufacturer's written installation instructions.