AAP-700 4mm Composite Male/Female

SECTION 07400
COMPOSITE METAL WALL PANELS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following rout and return exterior and interior wall panels:

1. Aluminum-faced composite wall panels.
2. Sealants of joints in wall panels.

B. Related Sections include the following:

1. Division 7 Section “Exterior Metal Wall Panels”.
2. Division 7 Section “Joint Sealants” for installation of joint sealants installed under this Section.
3. Division 9 Section “Non-Load-Bearing Steel Framing” for support framing for metal wall panels.
4. Division 9 Section “Gypsum Board” for exterior sheathing and felt.

1.3 DEFINITIONS

A. Metal Wall Panel Assembly: Metal wall panels, attachment system components, miscellaneous metal framing, and accessories necessary for a complete system.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide metal wall panel assemblies that comply with performance requirements specified as determined by testing manufacturers’ standard assemblies similar to those indicated for this Project, by a qualified testing and inspecting agency.

B. Air Infiltration: Air leakage through assembly of not more than 0.06 cfm/sq.ft. of wall area
when tested according to ASTM E 283 at a static-air-pressure difference of 6.24 lbf/sq.ft.

C. Water Penetration: No water penetration when tested according to ASTM E 331 at a differential pressure of 10 lbf/sq.ft.

1. Water leakage is acceptable only if all of the following conditions are satisfied: water is contained and drained to exterior; there is no wetting of a surface that would be visible to building occupants; there would not be staining or other damage to completed building or its furnishings. This definition of water leakage governs over other definitions.
2. Completed portions of the building are required to pass hose tests as specified in Part 3 of this Section. There shall be no unacceptable leakage as defined in this Section.

D. Provide internal gutters and weep system to collect and drain water to the exterior. Coordinate gutter and weep systems with other sections.

E. Wind Pressures: Design panel system for inward and outward cladding pressures from wind tunnel report. Do not reduce wind pressures based on tributary area, direction ability, or any other consideration.

F. Thermal Movement: Design panel system joints and connections for unrestrained movement of panel facings based on a material temperature increase of 80 Fahrenheit degrees and decrease of 80 Fahrenheit degrees relative to nominal condition. Assume exterior and interior facings have same temperature. Assume that temperature of supporting structure does not change.

G. Panels shall not experience partial or complete de-lamination of facings. Partial de-lamination is defined as any location where loss of bond between facing and core exceeds 4 square inches. De-laminated panels shall not be installed. Panels that delaminate after installation shall be replaced.

1.5 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal wall panel and accessory.

B. Shop Drawings: Show fabrication and installation layouts of metal wall panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, closures, and accessories; and special details. Provide elevations, floor plans and wall sections. Provide full size details. Show stud framing adjacent building structure.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Installer Qualifications: Fabricator of metal-faced composite wall panels.

1. Installer’s responsibilities include fabricating and installing metal wall panel assemblies and providing professional engineering services needed to assume engineering responsibility.

C. Fabricator Qualifications: Certified by metal-faced composite wall panel manufacturer to fabricate and install manufacturer’s wall panel system.

D. Source Limitations: Obtain each type of metal wall panel through one source from a single manufacturer.

E. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal wall panels and are based on the specific system indicated.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Construction Manager for review within fourteen (14) days after the Notice to Proceed.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver metal wall panels and other components so as not to be damaged or deformed. Package metal wall panels for protection during transportation and handling.

B. Unload, store and erect metal wall panels in a manner to prevent bending, warping, twisting and surface damage.

C. Stack metal wall panels horizontally on platforms or pallets, covered with suitable weather-tight and ventilated covering. Store metal wall panels to ensure dryness, with positive slope for drainage of water. Do not store metal wall panels in contact with other materials that might cause staining, denting or other surface damage.

D. Protect strippable protective covering on metal wall panels from exposure to sunlight and high humidity, except to extent necessary for period of metal wall panel installation.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before metal wall panel fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating metal wall panels without field measurements, or allow for field trimming of panels. Coordinate wall construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

1.9 COORDINATION

A. Coordinate metal wall panel assemblies with construction of supporting studs and other adjoining work to provide a leak-proof, secure and non-corrosive installation.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal wall panel assemblies that fail in materials or workmanship within specific warranty period.

1. Failures include, but 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.
c. De-Lamination as defined in this Section.

3. Warranty Period: Five years from the date of project's acceptance by the State.

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

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling or failure of pint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of project's acceptance by the State.

PART 2 – PRODUCTS

2.1 PANEL MATERIALS

A. Aluminum Sheet: Coil-coated sheet, ASTM B 209, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.

1. Surface: Smooth, flat finish.
2. Exposed Finishes: Apply the following coating, as specified or indicated on Drawings.

a. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pre-treat and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and floropolymer color topcoat, with the color

coat containing not less than 70 percent polyvinylidene fluoride resin weight, complying with AAMA 2605.

3. 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 0.5 mil.
4. Nominal thickness of aluminum facings shall be 0.020 inch. Nominal overall thickness shall be 6 mm (0.236 inch).

B. Panel Sealants: Provide General Electric Silpruf NB or DOW Corning 756 SMS, color as selected by Architect. Provide sealants in joints of exterior panels. Install as specified in Section 07900.

2.2 METAL-FACED COMPOSITE WALL PANELS

A. General: Provide factory-formed and –assembled metal-faced composite wall panels fabricated from two metal facings bonded, using no glues or adhesives, to solid extruded thermoplastic core; formed into profile for installation method indicated. Include attachment system components and accessories required for weather-tight system.

1. Available Products:
   A. Reynobond by Alcoa
   B. Alucobond by 3A Composites
   C. Alpolic by Mitsubishi Chemicals

B. Aluminum-Faced Composite Wall Panels: Formed with 0.020-inch-thick coil-coated aluminum sheet facings.

1. Panel Thickness: 0.157 inch (4 mm).
2. Core: Polythylene thermoplastic compound.
3. Finish: Fluoropolymer two or three-coat system.
4. Attachment System Components: Formed from extruded aluminum. Where a panel is glazed into a curtain wall, provide edge extrusion so that overall panel thickness in glazing pocket matches glass thickness.
5. Trim: Same material, finish and color as facings of adjacent composite panels, unless otherwise indicated.
6. Stiffeners shall be aluminum extrusions, continuously attached to panels with structural silicone and ends fastened to panel flanges with screws.

2.3 FABRICATION

A. Abrams Architectural Products in Austell, GA. will fabricate and finish metal wall panels and accessories at the factory to greatest extent possible by manufacturer's standard procedures and processes, as necessary to fulfill indicated performances requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

1. Form panel lines, breaks and angles to be sharp and true, with surfaces free from warp and buckle.

2. Fabricate wall panels with panel stiffeners as required to maintain fabrication tolerances and to withstand design loads.
3. Tolerances of +/- 1/8” in width, length, & square acceptable due to manufacturer’s tolerances.

B. Provide panel profile for full length of panel.

C. Metal-Faced Composite Wall Panels: Factory form panels in a continuous process with no glues or adhesives between dissimilar materials. Trim and square edges of sheets with no displacement of face sheets or protrusion of core material.

1. Fabricate panels with stiffeners, as required to comply with deflection limits, attached to back of panels with structural silicone sealant.
2. Fabricate panels with sharply cut edges, with no displacement of face sheets or protrusion of core material.

2.4 FINISHES, GENERAL

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas and conditions with installer present for compliance with requirements for installation tolerances, metal wall panel supports and other conditions affecting performance of work.

1. Examine primary and secondary wall framing to verify that girts, angles, channels, studs and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
2. Examine solid wall sheathing to verify that sheathing joints are supported by framing or blocking, that joints are caulked and taped and that installation is within flatness tolerances required by metal wall panel manufacturer.

B. Examine roughing-in for components and systems penetrating metal wall panels to verify actual locations of penetrations relative to seam locations of metal wall panels before metal wall panel installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances that may be harmful to the proper installation.

B. Miscellaneous Framing: Install furring and other miscellaneous wall panel support members and anchorage according to metal wall panel manufacturer's written recommendations.

3.3 METAL WALL PANEL INSTALLATION, GENERAL

A. General: Install metal wall panels in orientation, sizes and locations indicated on Drawings. Install panels perpendicular to girts and subgirts, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cutting of metal wall panels by torch is not permitted.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. Locate and space fastenings in uniform vertical and horizontal alignment.
4. Seal joints between panels.

B. Fasteners:

1. Aluminum Wall Panels: Use aluminum or 300 Series stainless steel fasteners.

3.4 METAL-FACED COMPOSITE WALL PANEL INSTALLATION

A. General: Install attachment system required to support wall panels and to provide a complete weather-tight 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 joinery and panel-system joint seals.
2. Do not begin installation until weather barrier and flashings that will be concealed by composite panels are installed.

B. Continuous Extrusion Installation: Male/female extrusions attached to routed-and-returned flanges of wall panels.

C. Panel Installation: Fasten routed-and-returned flanges of panels to perimeter wall extrusions. Panel-to-panel joints silicone sealed.

3.5 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weather-tight mountings and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal wall panel assembly including trim, corners, flashings, sealants, gaskets, fillers, closure strips and similar items.

a. Install sealants in strict compliance with manufacturer's instructions

and approved shop drawings.

3.6 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as aluminum wall panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal wall panel installation, clean finished surfaces as recommended by metal wall panel manufacturer. Maintain in a clean condition during construction.

B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt and sealant.

C. Replace metal wall panels that have been damaged or have deteriorated beyond successful repair by finish touch-up or similar minor repair procedures.

END OF SECTION