

GUIDELINE SPECIFICATIONS

EXTERIOR ALUMINUM COMPOSITE WALL PANELS

- SERIES C-3000 -

SECTION 07410

PART 1 GENERAL

1.01 SUMMARY

- A. Work of this section included but not limited to the design, fabrication, finishing and erecting of the aluminum composite metal panel system.
- B. Related Sections: Sections related to this section include:
 - 1. Cold-Formed Metal Framing: Division 5 Cold-Formed Metal Framing Sections.
 - 2. Sheet Metal Flashing and Trim: Division 7 Flashing and Sheet Metal Sections.
 - 3. Joint Sealer: Division 7 Joint Sealer Sections.
 - 4. Aluminum Windows: Division 8 Window Sections.
 - 5. Glazing: Division 8 Glass and Glazing Section.
 - 6. Metal Framed Curtain Wall: Division 8 Glazed Curtain Wall Sections.

1.02 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to the extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
- B. ASTM International <http://www.astm.org>
 - 1. ASTM C297 Standard Test Method for tensile Strength on Flat Sandwich Constructions in Flatwise Plane.
 - 2. ASTM D1781 Standard Test Method for Climbing Drum Peel for Adhesives.
 - 3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 4. ASTM E108 Standard Test Method for Fire Tests of Roof Coverings
 - 5. ASTM E283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.
 - 6. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors By Uniform Static Air Pressure Difference.
 - 7. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors By Uniform Static Air Pressure Difference.
- C. American Architectural Manufacturers Association (AAMA) <http://www.aamanet.org>
 - 1. AAMA 2605 Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide composite metal panels, which have been manufactured, fabricated, and installed to withstand loads from deflection and thermal movement and to maintain performance criteria stated by manufacturer without defects, damage, or failure.
- B. Deflection and Thermal Movements:
 - 1. Normal Deflection: Deflection of perimeter framing members are not to exceed L/175 normal to plane of the wall; deflection of individual panels not to exceed L/60.
 - 2. Anchor Deflection at connection points of framing members to anchors, anchor deflection in any direction not to exceed 1/16" (1.6mm).

3. Thermal Movements: Allow for free horizontal and vertical movement, due to expansion and contraction of components.
 - a. Buckling, opening of joints, undue stress on fasteners, failure of sealant, or any other detrimental effects of thermal movement will not be permitted.
 - b. Fabrication, assembly, and erection procedures shall take into account the ambient temperature at the time of the respective operation.
- D. Water and Air Leakage: Provide systems that have been tested and certified to conform to the following criteria:
 1. Air Leakage: Not more than 0.06 (cfm) / sf of wall area (.003(L/s m²), when tested at 1.57 psf (.075kPa) in accordance with ASTM E283.
 2. Water Penetration: No water infiltration under static pressure when tested in accordance with ASTM E331 at a differential of 10% of inward acting design load, 10 psf minimum, after 15 minutes.
 - a. Water penetration is defined as the appearance of uncontrolled water in the wall.
 - b. Wall design shall feature provisions to drain to the exterior face of the wall any leakage at joints and any condensation that may occur within the construction.
- E. Structural: Provide systems that have been tested in accordance with ASTM E330 at 70 psf. Permanent deformation shall be less than 0.05”.

1.04 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: Submit shop drawings showing layout; details of edge conditions; joints; panel profiles; corners; and product components, including finish, color & texture, anchorage and attachment system. Distinguish between factory and field-assembled work. .
 1. Include details showing thickness and dimensions of the various system parts, fastening and anchoring methods, locations of joints and the location and configuration of joints necessary to accommodate thermal movement.
 2. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified Professional Engineer responsible for the preparation.
- C. Samples showing finish, color, and texture.
 1. Selected Samples: Manufacturer’s color chart or chips illustrating full range of colors, finishes and patterns available for composite metal panels with factory-applied finishes.
 2. Include separate sets of finish samples an aluminum substrate, not less than 3” x 3” (76 x 76 mm), of each color and finish selected, for color approval.
- D. Quality Assurance Submittals:
 1. Include test reports for air infiltration, water penetration and structural performance.
 2. Manufacturer’s installation instructions.
 3. Closeout Submittals: Submit warranties specified elsewhere in this section.

1.05 QUALITY ASSURANCE

- A. Qualifications:
 1. Installers experienced in performing work of this section have specialized in the installation of work similar to that required for this project.
 2. Manufacturer capable of providing field service representation during construction.
 - a. Company with a minimum of five years of continuous experience manufacturing panel material or the type specified.
 - b. List of five other projects of similar size, including approximate date of installation and name of Architect for each.
- B. Conduct pre-installation meeting to verify project requirements, substrate conditions, installation instructions and warranty requirements. Field Quality Control: Comply with panel system manufacturer’s recommendations and guidelines.

1.06 DELIVERY, STORAGE, & HANDLING

- A. Comply with Division 1 Product Requirements Sections.

- B. Comply with manufacturer's ordering instructions and lead times requirements to avoid construction delays.
- C. All materials under this section shall be delivered with the identification label intact, and be packaged, boxed, wrapped in the manufacturer's original, unopened, undamaged containers or be otherwise protected to assure complete protection from reasonable damage during shipment, storage and handling.
 - 1. Protect finish of panels by applying PVC removable plastic film. This film must be removed immediately after installation to avoid prolonged exposure to direct sunlight.
 - 2. Protect composite wall panels against transportation damage. Provide marking to identify components consistently with drawings.
 - 3. Exercise care in unloading, storing, and installing panels to prevent bending, warping, twisting, and surface damage.
- D. Materials shall be stored in enclosed spaces, above ground, under protective covers. Extreme care shall be taken to avoid contact with moisture, condensation, or materials, which might cause staining, such as lime, cement, fresh concrete, or chemicals.
- E. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
 - 1. Store panels in well-ventilated space out of direct sunlight.
 - a. Protect panels from moisture and condensation with tarpaulins or other suitably ventilated weather tight covering.
 - b. Slope panels to insure positive drainage and prevent water accumulation.
 - c. Do not store panels in any enclosed space where ambient temperature can exceed 120°F (49°C).
 - 2. Avoid contact with any other material that might cause staining, denting, scratching or other surface damage.

IMPORTANT: To prevent adhesive transfer to finish, Exterior Aluminum Composite Wall Panels must not be stored for prolonged periods of time, be stored in direct sunlight or be subjected to high heat, prior to installation.

1.06 PROJECT CONDITIONS

- A. Field Measurements: Verify actual measurements and openings by field measurements before fabrication. Show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedules with construction team to avoid delays.

1.07 WARRANTY

- A. Project Warranty: Refer to Contract Documents for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.
 - 1. Warranty: 10 Years, ALPOLIC[®], ALUCOBOND[®] or REYNOBOND[®] Finish Warranty.

PART 2 PRODUCTS

2.01 COMPOSITE METAL PANEL SYSTEM.

- A. SAF Metal Fabrication SERIES C-3000 System.
 - 1. Contact: 8370 Hwy 78 E, Villa Rica, GA 30180; Phone 770-942-1207, Fax 877-949-4759 <http://www.saf.com>

2.02 COMPOSITE METAL PANEL MATERIALS

- A. Composite Metal Panels
 - 1. Core: Thermoplastic material that meets performance characteristics specified when fabricated into composite assembly.
 - 2. Face Sheets: Aluminum alloy .020" (.51mm) thick and as follows:
 - a. Coil coated with specified high performance finish.
 - b. Thermally bonded in continuous process without glues or adhesives to core material.

3. Bond Integrity: Tested for resistance to delimitation as follow:
 - a. Bond Strength: 1,500 psi (10.3 Mpa) minimum, per ASTM C 297.
 - b. Peel Strength: 33.6 inch-lb./inch (.150 N-m/m) minimum, per ASTM D1781.
 - c. No change in bond performance after eight hours of submission in boiling water and after 21 days of immersion in water at 70°F.
 4. Fire Performance for both 4 and 6mm
 - a. Flame Spread: 0, when tested per ASTM E84.
 - b. Smoke Developed: 10 maximum, when tested per ASTM E84.
 - c. Surface Flammability: Pass when tested per modified ASTM E108.
 5. Production Tolerances:
 - a. Width: +/- 0.08"/3 ft (+/- 1 mm/m).
 - b. Length: +/- 0.08"/3 ft (+/- 1 mm/m).
 - c. Thickness: +/-0.008" (+/- 0.2mm) for 4mm panels; +/-0.012" (+/- 0.3mm) for 6mm panels.
 - d. Bow: Maximum 0.8% length or width.
 - e. Squareness: Maximum 0.2" (5.1mm).
 - f. Edges of sheet shall be square and trimmed with no displacement of aluminum sheet or protrusion of core material.
 6. Panel Thickness:
Material thickness shall be 3mm Standard PE Core, 4mm Standard PE Core, 6mm Standard PE Core or 4mm Fire-Rated (FR) Core, as specified based on application and core composition.
- B. Attachment Extrusions:
1. Alloy 6063 T5.
 2. Clips or Perimeter Extrusion, as required.
 3. Mechanically attached to panel.
- C. Stiffeners:
1. Alloy 6063 T5.
 2. Spaced as required for flatness
 3. Attached with VHB tape and silicone.

2.03 ACCESSORIES

- A. General: Installer is to supply standard accessories, including fasteners, clips, anchorage devices, attachments, backer-rods, and sealants.

2.04 RELATED MATERIALS

- A. General: Refer to other related section(s) regarding related materials, including cold-formed metal framing, flashing and trim, joint sealer, aluminum windows, glass and glazing and curtain walls.

2.05 FABRICATION

- A. General: Shop Fabricate to size and joint configurations indicated on the drawings.
1. Where final dimensions cannot be established by field measurements, provide allowance for field adjustment as recommended by the fabricator.
- B. Form panel lines, breaks and angles to be sharp and true, with a surface that is free from warp or buckle.
1. Fabricate with sharply formed edges, with no displacement of aluminum sheet or protrusion of core.
- C. Based on project requirements and location/type of panel requested, panels will have pre-attached perimeter extrusions and stiffeners at the manufacturer or they will be shipped loose.

2.06 FINISHES

- A. Factory Finish: Fluoropolymer resin-based coating that meets or exceeds performance values expressed in AAMA 2605 where relevant to coil coatings.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instruction drawings and product(s) carton instructions.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation.

3.03 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finished surfaces from damage during product installation.

3.04 INSTALLATION

- A. General:
 - 1. Install panels plumb, level and true, in compliance with manufacturer's recommendations.
 - 2. Anchor panels securely in place, in accordance with fabricator's approved shop drawings.
 - 3. Comply with provisions of Section 07900 for installation of joint sealers.
- B. Installation Tolerances: Maximum deviation from horizontal and vertical alignment of installed panels: 0.25" in 20' (6.4mm in 6.1 m), non-cumulative.

3.05 ADJUSTING

- A. Adjusting:
 - 1. Repair panels with minor damage so those repairs are not discernible at a distance of 120" (10' or 3.1m).
 - 2. Remove and replace panels damaged beyond repair.
 - 3. Remove protective film immediately after installation of panels to avoid prolonged exposure to sunlight. See IMPORTANT notice following Section 1.05.E.2
 - 4. Remove from project site damaged panels, protective film and other debris attributable to work of this section.

3.06 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

3.07 PROTECTION

- A. Protection: Protect the installed product's finished surface from damage during construction.
 - 1. Institute reasonable protective measures as required assuring that installed panels will not be damaged by work of other trades.

END OF SECTION
(Refer to the following System Drawings)

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