

SECTION 07 42 13 - FORMED METAL WALL PANELS

1. GENERAL

1. SECTION INCLUDES

- A. Concealed fastener, post finished, rain-screen metal wall panels.

2. REFERENCE STANDARDS

- A. American Architectural Manufacturer's Association (AAMA):

- 1. AAMA 2605 - Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

- B. ASTM International (ASTM):

- 1. ASTM B 209 - Specification for Aluminum and Aluminum Alloy Sheet and Plate.
- 2. ASTM B 221 - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- 3. ASTM D 3359 - Standard Test Methods for Measuring Adhesion by Tape Tests.
- 4. ASTM E 329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.

3. PERFORMANCE REQUIREMENTS

- A. General: Provide metal wall panel system meeting performance requirements as determined by application of specified tests by a qualified testing agency on manufacturer's standard assemblies.

- B. Structural Performance: Design metal wall panel system fabricated to withstand the effects of wind loads under conditions indicated by structural engineer as required by the local building codes.

- 1. Wind Loads: Determine loads based on uniform pressure, building category, exposure category, and basic wind speed indicated by structural engineer as required by the local building codes.

- 2. Deflections Limits: For wind loads, no greater than 1/180 of the span.

- C. Air Infiltration: Per ASTM E283, panel system shall not exceed .06 CFM per square foot.

- D. Water Penetration under Static Pressure: Per ASTM E331, no uncontrolled water infiltration to the room side.

- E. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction.
4. QUALITY ASSURANCE
- A. Metal Wall Panel Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum 10 years' experience in manufacture of similar products.
 - B. Metal Wall Panel Installer Qualifications: Installer with minimum of 5 years' experience with completed projects of a similar type and scope.
 - C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
5. ACTION SUBMITTALS
- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finished for each type of panel and accessory.
 - B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Indicate points of supporting structure that must coordinate with modular metal panel system installation.
 - 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.
 - C. Field Measurements: It is the panel installer's responsibility to verify locations of structural members, adjoining construction and wall openings dimensions by field measurement before panel fabrication and indicate measurements on final shop drawings.
 - D. Samples for Verification: For each type of exposed finish, prepared on samples of size indicated below:
 - 1. Metal Panels: 12 inches long by actual panel width. Include fasteners, closures, and other metal panel accessories.
6. INFORMATIONAL SUBMITTALS
- A. Test Report: Indicating compliance of materials with project requirements, based on testing from a qualified independent testing agency.
 - B. Qualification Data: For Installer.
 - C. Manufacturer's warranty: Submit sample warranty.

7. CLOSEOUT SUBMITTALS

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

8. DELIVERY, STORAGE, AND HANDLING

- A. Protect products of metal wall panel during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage.
1. Deliver, unload, store, and erect metal wall panel system and accessory items without damage from weather or construction operations.

9. WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
1. Metal Wall Panel Warranty Period: Standard warranty is five years from date of Substantial Completion. Additional warranties available on a per project basis and review.
 2. Finish Warranty: 10 years from date of Substantial Completion.
 - a. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - 1) Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - 2) Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - 3) Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2.PRODUCTS

1. CONCEALED-FASTENER, RAINSCREEN METAL WALL PANELS

A. Metal Plate Wall Panels: Provide factory-formed, metal plate wall panels fabricated from single sheets of metal formed into profile for installation method indicated. Include attachment assembly components, and accessories required for complete system.

1. Products: Subject to compliance with requirements, provide panels manufactured by the following:

- a. Standard Sheet Metal
405 North Olive Street
Kansas City, MO 64120
(816) 221-5434

www.ssm-kc.com

b. Panel Depth: 1-1/4 inches nominal.

2.2 - MATERIALS

A. Aluminum Sheet: Tension-leveled, smooth aluminum sheet, ASTM B 209, not less than 0.090 inch thick.

1. Exterior Finish: High performance fluoropolymer powder coating.

a. Color: As selected by Architect from manufacturer's full range.

B. Exposed Trim, Flashings and Fastener Finish: Match panel finish unless otherwise noted.

1. Minimum Thickness: 0.040" nominal shop formed.

C. SECONDARY METAL FRAMING

1. Miscellaneous Framing Components, General: Cold-formed metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z180) hot-dip galvanized zinc coating.

D. PANEL ACCESSORIES- Provide components required for a complete panel system. Match panel finish unless otherwise noted.

1. Closures: Provide closures at eaves and rakes. Match panel finish. Nominal Thickness .040"

2.3 FABRICATION

A. General: Fabricate metal wall panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill performance requirements demonstrated by laboratory testing. Comply with indicated profiles and dimensional/structural requirements.

B. 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.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks that are true to line and levels indicated with exposed edges folded back to form hems.

C. Metal Wall Panels: Fabricate metal wall panels requiring no further fabrication or modification in field.

a. Horizontal Joints: 3/4"

b. Vertical Joints: 3/4"

c. Standard System Depth: 1-1/4"

2. Maximum panel size: 48" wide x 120" tall. Other sizes available on a project by project review.

3.EXECUTION

1. EXAMINATION

- A. Examine metal wall panel system substrate to verify that sheathing joints are supported by framing or blocking. Inspect for erection tolerances and other conditions that would affect installation of metal wall panel system.
 1. Examine wall framing that will support metal wall panel system to determine if support components are installed as indicated on approved shop drawings.
 2. Verify that adjacent are such as window, door, louver, electrical penetrations and other penetrations match layout on shop drawings.
- B. Advise General Contractor of out-of-tolerance work and other deficient conditions prior to proceeding with metal wall panel system installation.

2. METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 1. Shim or otherwise plumb substrates receiving metal panels.
 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air or water-resistive barriers and flashings that will be concealed by the metal panels are installed.
 3. Locate and space fastenings in uniform vertical and horizontal alignment.
 4. Install flashing and trim as metal panel work proceeds.
 5. Fasten flashing and trim around openings and similar elements with self-tapping screws.
 6. Provide weathertight escutcheons for pipe and conduit-penetrating panels.
- B. Fasteners
 1. Aluminum Panels: Use stainless steel fasteners for surfaces exposed to the exterior.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by wall panel manufacturer.
- D. Accessory Installation: Install accessories with positive anchorage to building and provide for thermal expansion. Coordinate installation of flashings and other components.

- E. Flashing and Trim: Comply with performance requirements, manufactures' written installation instructions and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible and set units true to line and level as necessary.
 - 1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated with exposed edges folded back to from hems. Install sheet metal flashing and trim to fit substrates and achieve watertight performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24" of corner or intersection.

3. FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a manufacturer's representative to inspect completed installation. Submit written report to owner.

4. CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films as metal wall panels are installed. Clean finished surfaces if required as recommended by metal wall panel manufacturer. Maintain in a clean condition during construction.
- B. Replace damaged panels and accessories that cannot be repaired by field repair.

END OF SECTION