

SECTION 07 42 13.01

METAL WALL PANELS

PART 1 GENERAL

1.1 REFERENCES

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 620	Voluntary Specification for High Performance Organic Coatings on Coil Coated Architectural aluminum Substrates
AAMA 621	Voluntary Specification for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) Zinc-Aluminum coated Steel Substrates.

ASTM INTERNATIONAL (ASTM)

ASTM A 653/A 653M	(2009a) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip process
ASTM A 666	(2003) Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate and Flat Bar
ASTM A 755/A 755M	(2003; R 2008) Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Pre-painted by the Coil-Coating Process for Exterior Exposed Building Products
ASTM A 792/A 792M	(2009a) Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM B 209 (2007)	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM C 1007	(2008a) Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories
ASTM E 72	(2005) Conducting Strength Tests of Panels for Building Construction
ASTM E 283	(2004) Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen Centria Conversion
ASTM E 331	(2000; R 2009) Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)

SMACNA 1793

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1.2 SYSTEM DESCRIPTION

Concealed fastener metal wall panels [and liner panels] as part of the assembly described below.

1.2.1 Metal Wall Panels over Insulated-Composite Backup Panel Wall System

Single-skin concealed fastener metal wall panels serving as the exterior rainscreen cladding component of a metal wall panel system that includes insulated composite metal wall backup panels specified in Division 07 Section "Insulated-Composite Metal Wall Panel Backup System." Metal wall backup panels provide thermal, air, water, and water vapor control. Metal wall panel installation specified in this Section includes secondary metal sub girt framing for panel attachment.

1.2.2 Metal Wall Panels and Metal Liner Panel Wall System

Single-skin concealed fastener metal wall panels applied as the exterior cladding over wall framing specified in [Division 05 Section "Cold-Formed Metal Framing"] [Division 13 Section "Metal Building Systems"] with board insulation and metal liner panels. Metal wall panel installation specified in this Section includes secondary metal sub girt framing for panel attachment and an interior sealed-joint metal liner panel that provides air and water vapor control.

Water-resistive barrier is provided under Division 07 Section "Weather Barriers."

1.2.3 Metal Wall Panels over Multi-Component Framed Wall System

Single-skin concealed fastener metal wall panels applied as exterior rainscreen cladding over wall framing specified in Division 05 Section "Cold-Formed Metal Framing" with exterior sheathing specified in Division 06 Section "Sheathing", an applied membrane that provides air, moisture, and water vapor control specified in Division 07 Section "Air Barriers", and insulation within the framing specified in Division 07 Section "Thermal Insulation". Metal wall panel installation specified in this Section includes [secondary metal sub girt framing and] mounting clips for panel attachment.

Air, moisture, and water vapor control membrane is provided under Division 07 Section "Air Barriers."

1.2.4 Metal Wall Panels over Outside-Insulated Framed Wall System

Single-skin concealed fastener metal wall panels applied as exterior rainscreen cladding over wall framing specified in Division 05

"Cold-Formed Metal Framing" with exterior sheathing specified in Division 06 Section "Sheathing", an applied membrane that provides air, moisture, and water vapor control specified in Division 07 Section "Air Barriers", and insulation [within the framing and] applied outboard of the sheathing specified in Division 07 Section "Thermal Insulation". Metal wall panel installation specified in this Section includes [secondary metal sub girt framing and] mounting clips for panel attachment.

1.2.5 Metal Wall Panels over Masonry Wall System

Single-skin concealed fastener metal wall panels applied as exterior rainscreen cladding over a masonry wall [and rigid board insulation] specified in Division 04 Section "Unit Masonry" and an applied membrane that provides air, moisture, and water vapor control specified in Division 07 Section "Air Barriers". Metal wall panel installation specified in this Section includes [secondary metal sub girt framing and] mounting clips for panel attachment.

1.2.6 Metal Wall Panels over Uninsulated Framed [Screen] Wall System

Single-skin concealed fastener vertical metal wall panels applied as exterior barrier cladding over wall framing specified in [Division 05 Section "Cold-Formed Metal Framing"] [Division 13 Section "Metal Building Systems"] [and water-resistive barrier specified in Division 07 Section "Weather Barriers"]. Metal wall panel installation specified in this Section includes [secondary metal sub girt framing and] mounting clips for panel attachment.

1.3 DEFINITIONS

1.3.1 Cradle to Cradle Certification

The Cradle-to-Cradle Certification process, administered by McDonough Braungart Design Chemistry (MBDC), www.c2ccertified.com, that evaluates materials and product ingredients and the complete formulation for human and environmental health impacts throughout its lifecycle as well as its potential for being truly recycled or safely composted.

1.4 PERFORMANCE REQUIREMENTS

1.4.1 General

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

1.4.2 Air Infiltration

1.4.3 Water Penetration, Static Pressure

1.4.4 Structural Performance

Provide metal wall panel assemblies capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated, per ASTM E 72:

Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.

Limits of Deflection: Metal wall panel assembly shall withstand scheduled wind pressure with the following allowable deflection:

Maximum allowable deflection limited to L/180 deflection of panel perimeter normal to plane of wall with no evidence of failure.

Secondary Metal Framing: Design secondary metal framing for metal wall panel assembly according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."

1.4.5 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.

1.4.6 Insulation

Wall systems that incorporate foam plastic insulation must be tested by the foam plastic manufacturer in accordance with NFPA-285.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00

SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Qualification of Applicator

Buy American Act Certification

Submit documentation certifying that products comply with provisions of the Buy American Act 41 U.S.C 10a - 10d.

Miami-Dade County Building Code Compliance Office: Approval Notice of Acceptance (NOA).

SD-02 Shop Drawings

Provide shop drawings prepared by manufacturer or manufacturer's authorized Installer. Include full elevations showing openings and penetrations. Include details of each condition of installation and attachment. Provide details at a minimum scale of 1-1/2-inch per foot (1:8) of all required trim and extrusions needed for a complete installation.

Indicate points of supporting structure that must coordinate with metal wall panel assembly installation.

Indicate details of fastening, including clip spacing, supported by load span tables that include an evaluation of clip and panel side joint interaction.

SD-03 Product Data

For specified products

Include data indicating compliance with performance requirements.

LEED Submittals

Percentages by weight of post-consumer and pre-consumer recycled content.

Total weight of products provided.

Submit minimum of silver level Cradle to Cradle certification www.c2ccertified.com or a comparable independent sustainability audit acceptable to Owner that evaluates and validates materials, material reutilization/design for environment, energy use, water usage, and social responsibility of the product and manufacturing process.

SD-04 Samples

For each product specified. Provide representative color charts of manufacturer's full range of colors.

Provide (12-inch) (300 mm) section of panel(s) showing finishes.

Provide (12-inch) (300 mm) long pieces of trim pieces and other exposed components.

SD-06 Test Reports

Indicate compliance of products with requirements, from a qualified independent testing agency.

SD-11 Closeout Submittals

For Installer firm

1.6 QUALITY ASSURANCE

1.6.1 Single Source

Provide metal wall panel and panel accessories from a single manufacturer.

1.6.2 Manufacturer Qualifications

Approved manufacturer listed in this Section with minimum 10 years' experience in manufacture of similar products in successful use in similar applications.
Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

Product data, including certified independent test data indicating compliance with requirements.

Load span tables including evaluation of panel clip and panel side joint interaction.

Samples of each component.

Project references: Minimum of 5 installations not less than 5 years old, with Owner and Architect contact information.

Sample warranty.

Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.

Approved manufacturers must meet separate requirements of Submittals Article.

1.6.3 Installer Qualifications

Experienced Installer with minimum of 5 years' experience with successfully completed projects of a similar nature and scope.

1.7 ADMINISTRATIVE REQUIREMENTS

1.7.1 Preinstallation Meeting

Conduct preinstallation meeting at site attended by Owner, Architect, manufacturer's representative, and other trade contractors.

Coordinate building framing in relation to metal wall panel assembly.

Coordinate installation of building air and water barrier behind metal wall panel assembly.

Coordinate window, door and louver, and other openings and penetrations of metal wall panel assembly.

1.8 DELIVERY, STORAGE, AND HANDLING

Protect metal wall panel products during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage.

Deliver, unload, store, and erect metal wall panel products and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.

1.9 WARRANTY

1.9.1 Special Manufacturer's Warranty

On manufacturer's standard form, in which manufacturer agrees to repair or replace components of metal wall panel assemblies that fail in materials and workmanship within [two] years from date of Substantial Completion.

1.9.2 Special Panel Finish Warranty

On manufacturer's standard form, in which manufacturer agrees to repair or replace metal wall panels that evidence deterioration of finish within the following periods from the date of substantial completion:

Warranty Period: 0 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

Basis of Design: Rollfab [Metal](#) Products, Rigidized Metal Wall Panels. Provide basis of design product [, or comparable product approved by Architect prior to bid].

ROLLFAB METAL PRODUCTS, 2529 West Jackson Street, Phx, AZ 85009.
Tel: (602) 275-1676. Fax: (602)275-1739.
Email: info@ROLLFABMETAL.com.
Web: www.ROLLFABMETAL.com.

2.2 METAL WALL PANEL MATERIALS

Metallic-Coated Steel Face Sheet: Coil-coated, ASTM A 755/A 755M.

Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Class Z275), structural steel quality.

Aluminum-zinc alloy-coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 Grade 50 (Class AZM150, Grade 275), structural steel quality.

Face Sheet: Minimum [(0.024 inch/24 gage) (0.60 mm)] [(0.032 inch/22 gage) (0.80 mm)], nominal uncoated thickness.

Surface: [Smooth] [Non-Directional Embossed].

Aluminum Face Sheet: Smooth surface coil-coated, ASTM B 209, 3003-H14 or 5052-H32 alloy.

Face Sheet: [(0.032 inch) (0.8 mm)] nominal thickness.

Surface: [Smooth] [Non-Directional Embossed].

Aluminum Products Recycled Content: Average of postconsumer recycled content plus one-half of pre-consumer recycled content not less than 50 percent.

2.3 CONCEALED FASTENER METAL WALL PANELS

Metal Wall Panels, General: Factory-formed, concealed fastener panels with interconnecting side joints, fastened to supports with concealed fasteners, with factory-applied sealant in the side laps when required to meet performance requirements.

Basis of Design Product: ROLLFAB, RIGIDIZED-16.

Panel Coverage: (16 inches) (406 mm).

Panel Height: (0.875 inch) (22 mm).

2.4 LINER PANELS

2.5 METAL WALL PANEL ACCESSORIES

2.5.1 Metal Wall Panel Backup System

Refer to Division 07 Section "Insulated-Composite Metal Wall Backup Panel."

2.5.2 Metal Wall Panel Accessories, General

Provide complete metal wall panel assembly incorporating trim, copings, fasciae, parapet caps, soffits, sills, inside and outside corners, and miscellaneous flashings. Provide manufacturer's factory-formed clips, shims, flashings, gaskets, lap tapes, closure strips, and caps for a complete installation. Fabricate and install accessories in accordance with SMACNA 1793.

2.5.3 Mitered Corners (option)

Structurally bonded horizontal interior and exterior trimless corners matching metal wall panel material, profile, and factory-applied finish, fabricated and finished by metal wall panel manufacturer. Welded, riveted, fastened, or field-fabricated corners do not meet the requirements of this specification.

Basis of Design: RIGIDIZED Corners.

2.5.4 Formed Flashing and Trim

Match material, thickness, and color of metal wall panel face sheets.

2.5.5 Sealants

Type recommended by metal wall panel manufacturer for application, meeting requirements of Division 07 Section "Joint Sealants."

2.5.6 Flashing Tape

4-inch-wide self-adhering butyl flashing tape

2.5.8 Fasteners, General

Self-tapping screws, bolts, nuts, and other acceptable fasteners recommended by panel manufacturer. Where exposed fasteners cannot be avoided for miscellaneous applications, supply corrosion-resistant fasteners with heads matching color of metal wall panels by means factory-applied coating.

2.5.7 Concealed Clips

Galvanized steel, (0.051 inch/16 ga.) (1.29 mm) thick, designed to allow unimpeded thermal movement of panel and configured to hold panel minimum (1/2 inch) (12.7 mm) from substrate.

2.6 SECONDARY METAL SUBGIRT FRAMING

2.6.1 Miscellaneous Framing Components, General

Cold-formed metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z180).

Hat Channels: (0.053 inch/16 ga.) (1.34 mm) minimum.

Sill Channels: (0.053 inch/16 ga.) (1.34 mm) minimum.

2.7 METAL WALL PANEL FINISHES

2.7.1 Exposed Coil-Coated Finish System

2.7.1.1 Fluoropolymer Two-Coat 0.2-mil primer with 0.8-mil 70 percent PVDF fluoropolymer color coat, [AAMA 620] [AAMA 621].

Basis of Design: PRO FINISH 500.

2.7.1.2 Fluoropolymer Two-Coat Metallic System 0.25-mil primer with 0.8-mil 70 percent PVDF fluoropolymer color coat providing a pearlescent appearance, [AAMA 620] [AAMA 621].

Basis of Design: Pro Finish 500 Metallic.

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Metal Wall Panel Substrate

Examine metal wall panel substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal wall panels.

3.1.2 Wall Substrate

Confirm that wall substrate is within tolerances acceptable to metal wall panel system manufacturer.

Maximum substrate and framing deviations from flat plane acceptable:

1/4-inch in 20 feet vertically or horizontally.

1/2-inch across building elevation.

1/8-inch in 5 feet.

3.1.3 Framing

Inspect framing that will support metal wall panels to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable framing members at recommended spacing to match installation requirements of metal wall panels.

3.1.4 Air/Moisture Barriers

Confirm that work has been completed, inspected, and tested as required.

3.1.5 Openings

Verify that window, door, louver and other penetrations match layout on shop drawings.

3.1.6 Out of Tolerance Work

Correct out-of-tolerance work and other deficient conditions prior to proceeding with metal wall panel system installation.

3.2 SECONDARY FRAMING INSTALLATION

Secondary Metal Sub girt Framing: Install secondary metal framing components to tolerances indicated, as shown on approved shop drawings. Install secondary metal framing and other metal panel supports per ASTM C 1007 and metal wall panel manufacturer's recommendations.

3.3 METAL WALL PANEL INSTALLATION

3.3.1 General

Install metal wall panels in accordance with approved shop drawings and manufacturer's recommendations. Install metal wall panels in orientation, sizes, and locations indicated. Anchor metal wall panels and other components securely in place. Provide for thermal and structural movement. Insulated-Composite Metal Wall Backup Panels: Install in accordance with requirements of Division 07 Section "Insulated-Composite Metal Wall Backup Panels."

3.3.2 Attaching Procedures

Attach panels to metal framing using recommended clips, screws, fasteners, sealants, and adhesives indicated on approved shop drawings. Fasteners for Steel Wall Panels: Stainless-steel for exterior locations and locations exposed to moisture; carbon steel for interior use only.

Fasten metal wall panels to supports with concealed clips at each joint at location, spacing, and with fasteners recommended by manufacturer. Install clips to supports with self-tapping fasteners.

Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

Dissimilar Materials: Where elements of metal wall panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.

3.3.3 Joint Sealers

Install joint sealants where indicated on approved shop drawings.

3.4 ACCESSORY INSTALLATION

3.4.1 General

Install metal wall panel accessories with positive anchorage to building and provide for thermal expansion. Coordinate installation with flashings and other components.

Install related flashings and sheet metal trim per requirements of Division 07 Section "Sheet Metal Flashing and Trim."

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

Comply with performance requirements and manufacturer's written installation instructions.

Provide concealed fasteners except where noted on approved shop drawings.

Set units true to line and level as indicated.

3.5 FIELD QUALITY CONTROL

Manufacturer's Field Service: Engage a service representative authorized by metal wall panel manufacturer to inspect completed installation. Submit written report.

Correct deficiencies noted in manufacturer's report.

3.6 CLEANING AND PROTECTION

Remove temporary protective films. Clean finished surfaces as recommended by metal wall panel manufacturer. Clear weep holes and drainage channels of obstructions, dirt, and sealant.

Maintain in a clean condition during construction.

Replace damaged panels and accessories that cannot be repaired by finish touch-up or minor repair.