

SECTION 07 40 00
SIDING PANELS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies uninsulated metal wall panels as shown on contract documents.

1.2 RELATED WORK

- A. Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS: Sustainable Design Requirements.
- B. Section 07 21 13, THERMAL INSULATION: Rigid Insulation
- C. Section 07 25 00, WEATHER BARRIERS: Sheet waterproofing.
- D. Section 07 92 00, JOINT SEALANTS: Sealant.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Provide metal wall panels products of a manufacturer regularly engaged for not less than five (5) years in the fabrication of metal panels of the type and design indicated.
- B. Installer: A firm with three (3) years of successful experience with installation of roofing and siding panels of type and scope equivalent to Work of this Section. Submit installer qualifications.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Sustainable Design Submittals, as described below:
 - 1. Postconsumer recycled content as specified in PART 2 - PRODUCTS.
- C. Samples: Metal panel, 152 mm (6 inch) square, showing finish, each color and texture.
- D. Shop Drawings: Wall panels, showing details of construction and installation. Thickness and kind of material, closures, flashing, fastenings and related components and accessories. Show interfaces and relationships to work at other trades and continuity with adjacent thermal, weather, air and vapor barriers.
- E. Manufacturer's Literature and Data: Wall panels
- F. Fire Test Report: Report of fire test by recognized testing laboratory for fire rating specified, showing details of construction.
- G. Manufacturer's Certificates: Indicating manufacturer's qualifications specified.

- H. Installer qualifications.
- I. Manufacturer warranty.

1.5 QUALITY ASSURANCE

- A. Approval by Contracting Officer Representative (COR) is required of products of proposed manufacturer.
- B. Certify manufacturer has five (5) years continuous documented experience in fabrication of metal roofing and siding panels.
- C. Source: For each material type required for work of this section, provide primary materials, which are products of one manufacturer. Provide secondary or accessory materials, which are acceptable to manufacturers of primary materials.
- D. Installer: A firm with a minimum of three (3) years' experience in type of work required by this section and which is acceptable to manufacturers of primary materials.

1.6 WARRANTY

- A. Construction Warranty: Comply with FAR clause 52.246-21 "Warranty of Construction".
- B. Manufacturer Warranty: Manufacturer shall warranty their metal wall panels for a minimum of ten (5) years from the date of installation and final acceptance by the Government. Submit manufacturer warranty.
- C. Warranty on Panel Finishes: Manufacturer's shall warrant their and wall panel finish and provide standard agreement to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes 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 D2244.
 - b. Chalking in excess of a No. 8 rating when testing according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 10 years from date of installation and final acceptance by the COR.

1.7 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extend referenced. The publications are referenced in the text by the basic designation only.

B. American Architecture Manufacturers Association (AAMA):

611-14Anodized Architectural Aluminum

621-02Voluntary Specifications for High Performance
Organic Coatings on Coil Coated Architectural
Hot Dipped Galvanized (HDG) and Zinc-Aluminum
Coated Steel Substrates

2605-13Voluntary Specification, Performance
Requirements and Test Procedures for Superior
Performing Organic Coatings on Aluminum
Extrusions and Panels

C. American Iron and Steel Institute (AISI):

SG03-02Cold-Formed Steel Design Manual

D. ASTM International (ASTM):

A463/A463M-15Steel Sheet, Cold-Rolled, Aluminum-Coated, by
the Hot-Dip Process

A653/A653M-20Steel Sheet, Zinc-Coated (Galvanized), or Zinc-
Iron Alloy-Coated (Galvannealed) by the Hot-Dip
Process.

A924/A924M-19Steel Sheet, Metallic Coated by the Hot-Dip
Process

A1008/A1008M-18Steel, Sheet, Cold-Rolled, Carbon, Structural,
High Strength Low Alloy

B209-14Aluminum and Aluminum Alloy Sheet and Plate

B209M-14Aluminum and Aluminum Alloy Sheet and Plate
(Metric)

C553-19Mineral Fiber Blanket Thermal Insulation for
Commercial and Industrial Applications

C591-20.Unfaced Preformed Rigid Cellular
Polyisocyanurate Thermal Insulation

C612-14 (2019)Mineral Fiber Block and Board Thermal
Insulation

C1396/C1396M-17Gypsum Board

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2101 Elm Street North
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- D2244-16Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
- D4214-07(2015)Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
- E119-20Fire Test of Building Construction and Materials
- E283-19Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
- E331-00(2016)Test Method for Water Penetration of Exterior Windows, Skylight, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- E1592-05(2017)Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Method
- E1646-95(2018)Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference
- E1680-16Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems
- E1980-11(2019)Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
- E2140-01(2017)Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head
- E. Cool Roof Rating Council (CRRC):
 - Standard-14
- F. FM Global:
 - 4471-10Class 1 Panel Roofs
- G. Underwriters Laboratories (UL):
 - 580-05(R2018)Tests for Uplift Resistance of Roof Assemblies
- Fire Resistance Directory

PART 2 - PRODUCTS

2.1 METAL WALL PANELS

- A. Basis of Design: AEP Span, a Division of ASC Prfields, LLC. PBR Panel; Color, "LIGHT STONE".

B. Single-skin exposed fastener metal wall panels applied as the exterior cladding over wall framing as shown and specified in 06 10 00 Rough Carpentry with board insulation as specified in 07 21 13 Thermal Insulation.

1. Water resistive barrier is required as specified in 07 25 00 Weather Barriers.

2.2 SHEET STEEL

A. Minimum 24 gauge (0.60mm / 0.024 inch).

B. Steel, Sheet, Galvanized: ASTM A792.

1. Conform to ASTM A792, AZ50 (Zincalume/Galvalume)

2. Grade 50, galvanized coating conforming to ASTM A924/A924M, Class Z 275 G-90.

C. Recycled Content of Steel Products: Postconsumer recycled content not less than 30 percent.

2.3 EXTERIOR FINISH

A. DuraTech® 5000 (Polyvinylidene Fluoride), full 70% Kynar® 500/Hylar 5000® consisting of a baked-on 0.15-0.20 mil corrosion resistant primer and a baked-on 0.70-0.80 mil finish coat with a specular gloss of 10-30% when tested in accordance with ASTM D-523- 89 at 60°.

2.4 INTERIOR FINISH

A. Primer Coat Material: Corrosion-resistant primer; primer coat dry film thickness: 0.15 mils; finish coat material: polyester paint, finish coat dry film thickness: 0.35 mils.

B. Color: Off white to light gray

2.5 FASTENERS

A. Fasteners of size, type and holding strength as recommended by panel manufacturer.

2.6 METAL WALL PANEL ACCESSORIES.

A. 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. Fabricate accessories in accordance with SMACNA Manual. Provide manufacturer's factory-formed clips, shims, flashings, gaskets, lap strips, closure strips, and caps for a complete installation as required for the following

2.7 FABRICATION

A. General:

1. Unless otherwise shown on drawings or specified herein, panels shall be full length. Fabricate flashings and accessories in longest practical lengths.
2. Fabricate wall louvers and frames used in conjunction with walls panels to be of same material, thickness and finish as exterior face sheets of wall system. Louver assembly to be designed and installed to prevent infiltration of water into structure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install panels in accordance with the manufacturer's approved erection instructions and diagrams, except as specified otherwise.
- B. Install panels in full and firm contact with supports and with each other at side and end laps.
- C. Where panels are cut in the field, or where factory applied coverings or coatings are abraded or damaged in handling or installation, make finish repairs with material of the same type and color as the weather coating, before being installed.
- D. Seal cut ends and edges, including those at openings through the sheets.
- E. Correct defects or errors in the materials in a manner approved by the COR.
- F. Replace defective materials which cannot be corrected with nondefective material.
- G. Provide molded closure strips where indicated and whenever sheets terminate with open ends after installation.
- H. Wall Panels:
 1. Apply panels with the configuration in a vertical position.
 2. Provide panels in the longest obtainable lengths.
 3. Seal side and end laps with joint sealing material.
 4. Flash and seal walls at the base, at the top, around windows, door frames, framed louvers, and other similar openings. Install closure strips, flashings, and sealing material in an approved manner that will assure complete weather tightness.
- I. Flashing:
 1. Provide flashing and related closures and accessories in connection with the preformed metal panels as indicated and as necessary to provide a watertight installation.

2. Install details of installation, which are not indicated, in accordance with the panel manufacturer's printed instruction and details, or the approved shop drawings.
3. Allow for expansion and contraction of flashing.

J. Fasteners:

1. Space fasteners in accordance with the manufacturer's recommendations, and as necessary to withstand the design loads indicated.
2. Install fasteners in valleys or crowns as recommended by the manufacturer of the panel being used.
3. Install fasteners in straight lines within a tolerance of 13 mm (1/2-inch) in the length of a bay.
4. Drive exposed penetrating type fasteners normal to the surface, and to a uniform depth to seat gasketed washers properly, and drive so as not to damage factory applied coating.
5. Exercise care in drilling pilot holes for fastenings to keep drills perpendicular and centered in valleys, or crowns, as applicable. After drilling, remove metal filings and burrs from holes prior to installing fasteners and washers. Do not torque fasteners to exceed values recommended by the manufacturer.
6. Remove panels deformed or otherwise damaged by over-torqued fastenings, and provide new panels.
7. Remove metal shavings and filings from roofs on completion to prevent rusting and discoloration of the panels.

3.2 ISOLATION OF ALUMINUM

- A. Isolate aluminum in contact with or fastened to dissimilar metals other than stainless steel, white bronze, or other metal compatible with aluminum by one of the following:
 1. Painting the dissimilar metal with a prime coat of Zinc-Molybdate followed by two coats of aluminum paint.
 2. Placing a non-abrasive tape or gasket between the aluminum and the dissimilar metal.
- B. Paint aluminum in contact with, or built into mortar, concrete, plaster, or other masonry materials with a coat of alkali-resistant bituminous paint.

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- C. Paint aluminum in contact with wood or other absorptive materials that may become repeatedly wet, with two coats of bituminous paint, or two coats of aluminum paint. Seal joints with caulking material.

3.3 PROTECTION AND CLEANING

- A. Protect panels and other components from damage during and after erection, and until project is accepted by the COR.
- B. After completion of work, all exposed finished surfaces of panels are to be cleaned of soil, discoloration and disfiguration. Touch-up abraded surfaces of panels.

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