

SECTION 07 41 13
STANDING SEAM METAL ROOFING

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies the installation of Standing Seam Metal Roofing.

1.2 RELATED WORK

A. Sealant: Section 07 92 00, JOINT SEALANTS.

B. Fascia and Trim: 07 60 00 Flashing and Sheet Metal

1.3 INSTALLATION REQUIREMENTS

Install in accordance with SMACNA Architectural Sheet Metal Manual except as otherwise shown or specified.

1.4 APPLICABLE PUBLICATIONS

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

B. American Society for Testing and Materials (ASTM):

A792/A792M-09.....Standard Specifications for Steel Sheet, 55%
Aluminum-Zinc Alloy-Coated by the Hot-Dip
Process

B32-08.....Standard Specification for Solder Metal

C920-08.....Standard Specifications for Elastomeric Joint
Sealants

D226-06.....Standard Specification for Asphalt-Saturated
Organic Felt Used in Roofing and
Weatherproofing

D227-03.....Standard Specification for Coal-Tar-Saturated
Organic Felt Used in Roofing and Waterproofing

D4397-09.....Standard Specifications for Polyethylene
Sheeting for Construction, Industrial, and
Agricultural Applications

E1514-98 (2003).....Standard Specification for Structural Standing
Seam Steel Roof Panel Systems

C. Federal Specification (Fed. Spec.):

UU-B-790A INT AMD.....Building Paper, Vegetable Fiber: (Kraft,
Waterproof, Water Repellent and Fire Resistant)

D. Sheet Metal and Air Conditioning Contractors National Association
(SMACNA): Architectural Sheet Metal Manual 2003

PART 2 - PRODUCTS

2.1 METAL ROOF PANEL

- A. Aluminum-Zinc Alloy Coated Sheet Steel
- B. ASTM E1514
- C. Factory formed metal roof panels designed to be field assembled by lapping and interconnecting raised side edges of adjacent panels with joint type indicated, and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for a weathertight installation.
- D. Vertical rib, snap joint, standing seam metal roof panels: Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels and snapping panels together.
- E. Panel Coverage: 406 mm (16 inches).
- F. 24 gauge sheet metal

2.2 SEALANTS

- A. ASTM C920
- B. Type, Grade, and Class as recommended in writing by the manufacturer.

2.3 SEALANT TYPE

- A. Pressure sensitive, 100% solids, Gray Polyisobutylene compound with release-paper backing.
- B. 12 mm (1/2 inch) wide x 3mm (1/8 inch) thick.

2.4 UNDERLAYMENT

- A. Felts: ASTM D226, Type I or ASTM D227
- B. Polyethylene sheet: 0.38 mm (15 mil) ASTM D4397

2.5 FASTENERS

- A. Self drilling, or self tapping zinc plated hex head carbon-steel screws with neoprene washer or stainless steel cap.
- B. ASTM B32: Flux type and alloy composition as required for use with metals to be soldered.

2.6 BUILDING PAPER

- A. Fed. Spec. UU-B-790, Type I, Grade C.

2.7 FINISHES

- A. Factory finished complying with SMACNA's recommendations for applying and designating finishes

B. Exterior Finish: Pluoropolymer

C. Color: As selected by owner from manufacturers standard colors

PART 3 - EXECUTION

3.1 EXAMINATION

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

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.

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

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

3.2 PREPARATION

A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

B. Install fascia and trim to comply with requirements specified in Division 7 Section "Flashing and Sheet Metal"

C. Miscellaneous Framing: Install subpurlins, eave angles, furring, and other miscellaneous roof panel support members and anchorage according to metal roof panel manufacturer's written recommendations.

1. Soffit Framing: Install furring channels to supports, as required to comply with requirements for assemblies indicated.

3.3 METAL ROOF PANEL INSTALLATION, GENERAL

A. General: Provide metal roof panels of full length from eave to ridge, unless otherwise indicated or restricted by shipping limitations. Anchor metal roof panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cutting of metal roof panels by torch is not permitted.

2. Install panels perpendicular to purlins.

3. Rigidly fasten eave end of metal roof panels and allow ridge end free movement due to thermal expansion and contraction. Predrill panels.

4. Provide metal closures at peaks, rake walls and each side of ridge and hip caps.
5. Flash and seal metal roof panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
6. Locate and space fastenings in uniform vertical and horizontal alignment.
7. Install ridge and hip caps as metal roof panel work proceeds.
8. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
9. Lap metal flashing over metal roof panels to allow moisture to run over and off the material.

B. Fasteners:

1. Steel Roof Panels: Use stainless-steel fasteners for surfaces exposed to the exterior and galvanized steel fasteners for surfaces exposed to the interior.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal roof panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal roof panel manufacturer.

1. Seal metal roof panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal roof panel manufacturer.

3.4 FIELD-ASSEMBLED METAL ROOF PANEL INSTALLATION

A. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.

3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
- B. Metal Soffit Panels: Provide metal soffit panels full width of soffits. Install panels perpendicular to support framing.
 1. Flash and seal panels with weather closures where metal soffit panels meet walls and at perimeter of all openings
- C. Fascia Panels: Align bottom of panels and fasten with blind rivets, bolts, or self-tapping screws. Flash and seal panels with weather closures where fascia meet soffits, along lower panel edges, and at perimeter of all openings

3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. Penetrations: Form flashing around all penetrations and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.6 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal roof panel units within installed tolerance of 6 mm in 6 m (1/4 inch in 20 feet) on slope and location lines as indicated and within 3 mm (1/8 inch) offset of adjoining faces and of alignment of matching profiles.

3.7 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

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