

Drexel Metals Inc.
DMC 100SS 16oz min. Copper Mechanical Seam Metal Roof System
over Plywood

Section 07411 – Metal Roof Panels

Part 1 – General

1.1 Summary

- A. This section includes the following:
 - a. Factory-formed or onsite formed and field-assembled, concealed-fastener DMC 100SS 16oz Copper, Standing Seam Metal Roofing System. Mechanically seamed at 180°
 - b. Metal soffit panels
- B. See Division 7 Section “Sheet Metal Roofing” for custom-fabricated and onsite, roll-formed sheet metal roofing

1.2 Performance Requirements

- A. Wind-Uplift Resistance: Comply with UL 90 Construction #575
- B. Requirements under each set of performance criteria below are examples only. Revise to suit project. Consult a structural engineer experienced in engineering metal roof panel assemblies of type indicated to quantify design loads applicable to project. Verify compliance with codes. See Evaluations.

1.3 Submittals

- A. Product Data: DMC 100SS Standing Seam Metal Roofing System
- B. Shop Drawings:
 - a. All details will include edge conditions, panel profiles, trim and flashings, closures, and other accessories
 - b. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation
- C. Coordination Drawings: Drawn to scale and coordinating metal roof panel installation with penetrations and roof-mounted items
- D. Samples: For each exposed finish and color selection
- E. Material and paint certificates
- F. Field quality-control inspection reports for weather tight warranty projects
- G. Product test reports
- H. Maintenance date

1.4 Quality Assurance

- A. Installer Qualifications: DMC 100SS Standing Seam Metal Roofing System manufactured and/or installed by a Drexel Metals certified manufacturer and/or installer

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- a. Installer's responsibilities include fabricating and installing metal roof panel assemblies and providing professional engineering services needed to assume engineering responsibility
- B. Pre-Installation Conference: Conduct conference at project site or at specified location for the architect or the general contractor

1.5 Warranty

- A. Weather Tightness Warranty: Drexel Metals offers a weather tight warranty for up to 20-year periods. A 20-year no dollar limit warranty is also available. Contact Drexel Metals for information

Part 2 – Products

2.1 Panel Materials

- A. .0216 in. thick Copper
- B. ASTM B370 16 oz. half hard
- C. Panel Sealants:
 - a. Sealant Tape: Pressure-sensitive, gray polyisobutylene compound sealant tape with release-paper backing: 3/16 inch thick x 7/8 inch wide minimum
 - b. Joint Sealant: ASTM C920-05 as recommended in writing by metal roof panel manufacturer
 - c. Butyl-Rubber Based Solvent Release Sealant: ASTM C1311-02
 - d. Sidelap Sealant: Machine or field applied per Drexel engineering

2.2 Underlayment Materials

- A. MetShield underlayment: US classified, ICC-ES ESR #2206, meets 2009 International Building Code™, State of Florida Approved Product FSA #FL6785, Meets ASTM D1970
- B. Self-Adhering, Polyethylene-Faced Sheet: ASTM D1970-11, 40 mils thick minimum, consisting of slip-resisting polyethylene-film reinforcing and top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer
 - a. Standard for self adhering modified bituminous sheet per ASTM D1970-11
 - b. Standard for sampling and testing per ASTM D5147-11
 - c. Standard for load strain properties per ASTM D2523-00
 - d. Standard for peel/stripping strength per ASTM D903-98
 - e. Standard for dimensional change at high temperature per ASTM D1204-08
 - f. Standard for tensile tear strength per ASTM D4073-06
 - g. Standard for water vapor transmission per ASTM E96-10

2.3 Substrate Boards

- A. 5/8" or greater plywood or wood plank for new construction.
- B. Deck attachment:
 - a. Follow DMC Engineering Report specifications for deck attachment.
 - b. When re-roofing, where the deck is less than 15/32" thick the above attachment method must be added to the existing attachment

2.4 Miscellaneous Materials

- A. Fasteners: Self-Drilling #10-13x1" stainless steel pancake head fasteners designed to withstand design loads.
 - a. See DMC Engineering Report for fastener specifications
 - b. Blind Fasteners: High-strength copper or stainless-steel rivets
- B. Concealed-Fastener, Mechanically Seamed Metal Roof Panels: Factory-formed or onsite, designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching clips with appropriate fasteners between vertical legs of Standing Seam Roof System. See DMC Engineering for exact specifications. Include accessories required for weather tight installation

2.5 Standing Seam Roof Panels

- a. Manufacturer:
 - i. Drexel Metals Inc. – (888) 321-9630
- b. Profile: DMC 100SS Standing Seam Metal Roofing System as indicated on drawings
- c. Material: .0216 in. thick copper (16 oz.) ASTM B370 16 oz. half hard
- d. Panel Coverage: 17" Maximum
- e. Panel Height: 1.00" Minimum
- f. Uplift Rating: UL 90 Construction #575
- g. Type: Mechanical Seam 180 degrees
- h. Panel Clip: One-piece stainless steel assembly, 1-1/2 in. wide 1-1/8 in. high. Minimum thickness of .015 in. (No. 28 MSG)

2.6 Metal Soffit Panels

- A. General: Provide factory formed or onsite metal soffit panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners in side laps. Include accessories required for weather tight installation
- B. Metal Soffit Panels:
 - a. Finish: As indicated on drawings
- C. Metal Soffit Panels:
 - a. Manufacturers:
 - i. Drexel Metals Inc. DMC-FW1
 - b. Profile: Flush or Vee Grooves
 - c. Material: Same material, finishes, and colors as metal roof panels
 - d. Material: Metallic-coated steel sheet, 24 gauge .023" nominal or aluminum .032" perforated
 - i. Exterior Smooth Finish: Drexmet® High Performance Metal Roofing Finishes (Trinar®)
 - ii. Color: As selected by architect or building owner from manufacturer's Drexel Metals Inc. Color Chart
 - e. Panel coverage: 12" coverage
 - f. Panel Height: 1" depth
 - g. Panel Length: Continuous with no end laps or panel splices

2.7 Accessories

- A. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including trim, copings, fascia, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated
 - a. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels
 - b. Clips: Minimum 28 gauge thick, stainless steel clips designed to withstand negative load requirements.
- B. Flashing and Trim: Formed from 16oz (.0216" nominal) thick, Copper sheets. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include eaves, rakes, corners, bases, framed openings, ridges, fascia, and fillers. Finish flashing and trim with the same finish system as adjacent metal roof panels
- C. Gutters: Formed from 16oz (.0216" nominal) or thicker, Copper sheet. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 120" long sections, sized according to SMACNA's "Architectural Sheet Metal Manual". Furnish gutter supports spaced 36 inches (900 mm) fabricated from same metal as gutters. Finish gutters to match metal roof panels and roof fascia and rake trim.
- D. Downspouts: Formed from 16oz (.0216" nominal) or thicker, Copper sheet in 10-foot (3m) long sections, complete with formed elbows and offsets. Finish downspouts to match metal roof panels.
- E. Roof Curbs: Approved stainless steel roof curb manufacturers
 - a. KCC International, Inc.
 - i. Phone: (800) 382-2872
 - ii. Website: <http://www.kcccurbs.com/>
 - b. ThyCurb
 - i. Phone: (800) 666-2872
 - ii. Website: <http://www.thybar.com/>
 - c. LM Curbs
 - i. Phone: (800) 284-1412
 - ii. Website: <http://www.lmcurbs.com/>
 - d. Curbs Plus, Inc.
 - i. Phone (888) 639-2872
 - ii. Website: <http://www.curbs-plus.com/>

2.8 Fabrication

- A. General: Fabricate and finish metal roof panels and accessories either at the factory or onsite by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles, details with dimensional and structural requirements.
- B. Provide panel profile, include major ribs, and intermediate stiffing ribs or striations if any for full length of panel. Note: Major ribs, intermediate stiffening ribs or striations minimize oil canning. Oil canning is not cause for rejection.

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- C. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in Drexel Metals Inc. Details or SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.

Part 3 – Execution

3.1 Preparation

- A. Substrate: Install solid substrate 5/8" thick minimum roof decking or sheathing on entire roof surface. Attachment: See DMC Engineering Report for size and spacing of fasteners.
 - a. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joint staggered between rows.
- B. Install flashings and other sheet metal to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim".
- C. On coastal application (salt water locations within 2,800 feet from direct surf, 1,200 feet from a large bay, or 600 feet from marshes and canals) use Drexmet® Clear Air Dry Edge Coat products on all exposed cut edges to help delay edge creep and corrosion. Follow Drexel Metals Inc. proper installation procedures.

3.2 Underlayment Installation

- A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment wrinkle free on roof sheathing under metal roof panels. Comply with temperature restrictions of underlayment (refer to manufacturer for installation). Use primer rather than nails for installing underlayment at low temperatures. Apply at locations indicated on drawings, in shingle fashion to shed water, with end laps of no less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3½ inches (90 mm). Extend underlayment past eave approximately 3/8" to cover substrate. Roll laps with roller. Cover underlayment within 120 days.

3.3 Metal Roof Panel Installation – General

- A. General: Provide metal roof panels of full length from eave to ridge. Anchor metal roof panels and other components of the work securely in place, with provisions for thermal and structural movement
 - a. Field cutting of metal roof panels by torch or saw blade is not permitted
 - b. Mechanically fasten ridge end of metal roof panels and allow eave end free movement due to thermal expansion and contraction.
 - c. Provide metal Z closures at high-side eave, rake edges, rake walls, and each side of ridge and hip caps.
 - d. Flash and seal metal roof panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
 - e. Lap metal flashing over metal roof panels to allow moisture to run over and off the material
- B. Fasteners:
 - a. Copper Roof Panels: Use #10-13x1" pancake head, stainless steel fastener
- 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

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applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer. Fasteners used must be stainless steel.

- D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal roof panel assemblies
 - a. Seal metal roof panel end laps with triple bead tape the full width of panel.
 - b. Seal side joints where recommended by metal roof panel manufacturer
 - c. Prepare joints and apply sealants to comply with requirements in Division 7 Section Joint Sealants

3.4 Field-Assembled Metal Roof Panel Installation

- A. Standing Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed stainless steel clips at maximum 18" o.c., 2 fasteners per clip
 - a. Install clips to deck with two #10-13x1" stainless steel pancake head fasteners.
 - b. Seam the panels to full 180 degrees
- B. Metal Soffit Panels: Provide metal soffit panels full width of soffits. Install the panels perpendicular to support framing.
 - a. Flash and seal panels with weather closures where metal soffit panels meet walls and at perimeter of all openings

3.5 Accessory Installation

- A. General: Install accessories with positive anchorage to building weather tight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 - a. 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. Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual". Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently water tight and weather resistant.
 - c. Provide elbows at base of downspouts to direct water away from building
 - d. Tie downspouts to underground drainage system indicated.

3.6 Cleaning and Protection

- A. Remove temporary protective coverings and strippable films if applicable, 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. To prevent rust staining remove any fillings caused by drilling or cutting immediately from finished surfaces.
- C. ACQ Treated Lumber: Do not install Drexel Metals Steel or Aluminum Roof Systems over ACQ Treated Lumber without consulting Drexel Metals regarding proper installation procedures and requirements.

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See engineering report and details and follow appropriate requirements.
For any further questions or comments contact:

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