

Drexel Metals Inc.
**DMC 5V 26 Gauge min. Face-Fastening 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 5V Steel, Face Fastening Metal Roofing System
 - 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. Florida Building Code Approval, FBC #12114.13
- B. Miami-Dade County Approval, NOA #11-0405.05
- C. Wind-Uplift Resistance: Comply with UL 580, TAS 125
- D. Wind-Driven Rain: Comply with TAS 100
- E. Impact Resistance: Comply with UL 2218
- F. UL Class A Fire Rating 263/790
- G. 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 5V Face Fastening 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. Product test reports
- G. Maintenance date

1.4 Quality Assurance

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- A. Installer Qualifications: DMC 5V Face Fastening Metal Roofing System manufactured and/or installed by a Drexel Metals certified manufacturer and/or installer
 - 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. Bare/Unpainted Corrosion Warranty: Drexel Drexlume® (Acrylic Coated Galvalume) comes with a 25 year, 6 month warranty (salt water locations within 2,800 feet from direct surf, 1,200 feet from a large bay, or 600 feet from marshes and canals are excluded)
 - a. Contractor must qualify as a certified installer of Drexel products
- B. Paint Finish Warranty: Drexmet® 35 year "Non Pro-Rated" Paint Finish Warranty for all colors. Drexel Metals Inc. standard form in which manufacturer agrees to repair finish or replace material that show evidence of deterioration of factory-applied finishes within specified warranty period
 - a. Fluoropolymer Paint Finish Warranty Period: 35 years from date of substantial completion
 - b. Failures include, but are not limited to, the following:
 - i. Structural failures including rupturing, cracking, or puncturing
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and excluding salt water locations within specified number of feet
 - i. Drexel Job Information Sheet and Warranty Applications must be completed prior to delivery of the warranty
 - d. Energy Efficient Roof Coatings: A number of Drexmet® Standard Colors meet the minimum standard energy efficient requirements as outlined in the Energy Star Program
- C. Galvalume Substrate Warranty: 20 year (salt water locations within 2,800 feet from direct surf, 1,200 feet from a large bay, or 600 feet from marshes and canals are excluded)
- D. Weather Tight Warranty: Not available for this profile.

Part 2 – Products

2.1 Panel Materials

- A. Metallic-Coated Steel Sheet Pre-painted with Coil Coating: Steel sheet metallic coated by the hot-dip process and pre-painted by the coil-coating process to comply with ASTM A755/A755M-03
 - a. Aluminum-Zinc Alloy-Coated Steel Sheet: Galvalume ASTM A792/A792M-05, AZ50 coating designation, SS, Grade D/50,000 psi min yield, Tension Leveled
 - b. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M-05, G90 coating designations; SS, grade D/50,000 psi min yield, Tension leveled.
 - c. Surface Appearance: Smooth and free of streaks, blistering, and other imperfections
 - d. Exposed Finishes:

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- i. High-performance Trinar® Finish: Two-coat, thermocured paint system with flouropolymer coats containing not less than 70 percent polyvinylidene fluoride (Kynar 500/Hylar 5000) resin by weight; complying with physical properties and coating performance requirements of AAMA 605.3-92 except as modified below:
 - 1. Humidity Resistance: 1500 hours per Federal Test Method Standard 141, Method 6201 or ASTM D2247-02
 - 2. Salt-Spray Resistance: 1000 hours per ASTM B117-03
 - 3. Accelerated Weathering: 3000 hours per ASTM D822, G151, G153
 - e. Concealed Finish: White or light-colored acrylic or polyester backer finish
 - f. Drexlume: ASTM A792-96, Acrylic Coated Galvalume, SS, Grade 50
- B. 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. 15/32" or greater plywood or wood plank for new construction.
- B. Deck attachment:
 - a. In accordance with applicable building code, or follow DMC Engineering Report specifications for deck attachment.
 - b. When re-roofing, where the deck is less than 19/32" (minimum 15/32") the above attachment method must be added to the existing attachment

2.4 Miscellaneous Materials

- A. Fasteners: Self-Drilling #10x1" hex-head carbon-steel screws, with a stainless steel cap or zinc aluminum alloy head and EPDM or neoprene sealing washer.

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- a. See DMC Engineering Report for fastener specifications
- b. Blind Fasteners: High-strength aluminum or stainless-steel rivets
- B. Face Fastening Metal Roof Panels: Factory-formed or onsite, designed to be field assembled by lapping side edges of adjacent panels and attaching through panel to solid substrate, 15/32 minimum using 10 ½” hex-head fasteners. See Drexel Metals Details for installations specifics. 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 5V Face Fastening Metal Roofing System as indicated on drawings
- c. Material: Metallic-coated steel sheet, 26 gauge, .016” nominal thick
 - i. Exterior Finish: Drexmet® High Performance Metal Roofing Finishes (Trinar®)
 - ii. Color: As selected by architect or building owner from Drexel Metals Inc. Standard Color Chart
- d. Panel Coverage: 24” Maximum
- e. Panel Height: ½” rib Minimum
- f. Uplift Rating: UL 580, TAS 125, Miami-Dade County Approval, Florida Building Code Approval FBC #12114.13
- g. Impact Resistance: UL 2218
- h. UL Class A Fire Rating 263/790

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

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- 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. Closure Strips: Closed-cell, expanded, cellular, rubber or cross-linked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1" (25 mm) thick, flexible closure strips; cut or pre-molded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weather tight construction.
- B. Flashing and Trim: Formed from 26-gauge (.016" nominal) thick, metallic-coated steel 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 26-gauge (.016" nominal) or thicker, metallic-coated steel 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 26-gauge (.016" nominal) or thicker, metallic-coated steel sheet in 10-foot (3m) long sections, complete with formed elbows and offsets. Finish downspouts to match metal roof panels.

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. 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.
- C. Use the Drexmet® Paint Pen to touchup all minor scratches on all trim and panels.

Part 3 – Execution

3.1 Preparation

- A. Substrate: Install solid substrate 15/32" thick minimum roof decking or sheathing on entire roof surface. Attachment: See DMC Engineering Report for size and spacing of fasteners.
- 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

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Edge Coat products on all exposed cut edges to help delay edge creep and corrosion. Follow Drexel Metals Inc. proper instillation 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 instillation). 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. Provide foam closures at high-side eave, eave, valley, and each side of ridge and hip caps.
 - c. Lap metal flashing over metal roof panels to allow moisture to run over and off the material
- B. Fasteners:
 - a. Steel Roof Panels: Use self-tapping zinc-plated, hex-head carbon-steel screws, with a stainless steel cap or zinc aluminum alloy head and EPDM or neoprene sealing washer per DMC Engineering Report.
- 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. 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. 5V Face Fastening Metal Roof Panels: Fasten metal roof panels to solid substrate at maximum 16" o.c., or per UL 580 – TAS 125 specification, or per Miami-Dade County NOA #, or engineer recommendation based on project location and wind load requirements.
- B. Metal Soffit Panels: Provide metal soffit panels full width of soffits. Install the panels perpendicular to support framing.

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- 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.

See engineering report and details and follow appropriate requirements.

For any further questions or comments contact:

Drexel Metals Inc.
Technical Department
1234 Gardiner Lane
Louisville, KY 40213
Phone: (502) 716-7143
Fax: (502) 690-6174