

07 02 00 - SHEET METAL FLASHING AND TRIM

PRODUCT REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermal induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction.
B. Sheet Metal Standard: For flashing and trim, comply with NFPA 245 (Standard Specification for Sheet Metal) [SMANCA] "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
C. SFRS Wind Design: Standard: Manufacture and install (copings) [roof edge flashing] tested according to SFRS ES-1 and capable of resisting the design pressure as indicated on drawings.
D. Allow for thermal movement from ambient and surface temperature changes. Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 1/8" (2 mm) with no joints within 24 inches (600 mm) of corner or intersection. Form expansion joints of interlocking hooked flanges, not less than 1 inch (25 mm) deep. Block with heavy gasket concealed within joints.
E. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant in closed joints.
F. Fabricate cleats and attachment devices from same material as accessory being anchored or trim connected. Sealant joints shall be made of same material as trim unless otherwise specified for application, but not less than thickness of metal being secured.
G. Seams: Fabricate nonseam recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

SHEET METAL

- A. Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in chief sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible. Form sheet metal flashing and trim to fit substrates without excessive of cutting, buckling, and hot marks; true to line, levels, and slopes, and with exposed edges folded back to trim finish.
B. Stainless Steel Sheet: ASTM A 240/A 240M, Type 304, dead soft, fully annealed; 20 (3/4, cold rolled) trim.
C. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy with temper as required to suit forming operations and performance of rivet joints where necessary for strength. Rivet coils shall be selected by architect. Material to have standard manufacturer finish as required conforming to the following color selected by architect:
1. As Mixed Finish: IMB
2. Anodized Finish: Metallurgically bonded surface alloy on both sides, forming aluminum sheet with reflective luster.
3. Clear Anodic Finish: Clear Anodic: AAMA 611, AA-M1C22A11, Class I, 0.018 mm or thicker.
4. Color Anodic Finish: Clear Anodic: AAMA 611, AA-M1C22A24A4, Class I, 0.018 mm or thicker.

UNDERLAYMENT MATERIALS

- A. Slip Sheet: Rinsed-size building paper, 3 B/100 sq. ft. (3.16 kPa/m²) minimum.
B. Self-Adhesive, High-Temperature Sheet: Minimum 30 mils (0.76 mm) thick, consisting of a slip-resistant polyethylene- or polypropylene film top surface laminated by a layer of butyl or BMS modified asphalt adhesive, with release-paper backing, specifically designed to withstand high-heat temperature beneath metal roofing. Provide primer according to wetting recommendations of underlayment manufacturer.
C. Thermal Stability: ASTM D 1970: stable after heating at 240 deg F (116 deg C) for 1 hour; 2. Low-Temperature Flexibility: ASTM D 1970: passes after testing at minus 20 deg F (9 deg C) or lower.

MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufacturer unless otherwise indicated.
B. Fasteners: Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view. Use fastener sizes that penetrate wood blocking or sheathing not less than 1 1/4 inches for nails and not less than 3/8 inch for wood screws. Use wood screws, armor threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufacturer item.
C. Splices and Flashings: Same material as gutter, with splice with female matching internal gutter width.
D. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
E. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
F. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, noncuring, nonstick, nonstaining tape 12 inch wide and 1/8 inch thick.
G. Fastener Sealant: ASTM D 929, elastomeric polyurethane or silicone polymer sealant of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain waterproof.
H. Butyl Sealant: ASTM D 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene elastomer; heavy bodied for hot-applied application.
I. Epoxy Sealer Sealer: Two-part, noncorrosive, aluminum seam-seaming compound, recommended by aluminum manufacturer for exterior nonwelding joints, including riveted joints.
J. Abrasive Coating: Cold-applied asphalt emulsion according to ASTM D 1157.
K. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

MANUFACTURED REGLETS

- A. Register: Manufactured by Fry Register or approved equal.

ROOF-DRAINAGE SHEET METAL FABRICATIONS

- A. Hangers/Box Gutters: Fabricate to cross section (minimum 6" x 6") required from .040 inch thick aluminum, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96 inch (2439 mm) long sections. Furnish hangers/gutter brackets and gutter spacers and straps fabricated from same metal as gutters, of size recommended by chief sheet metal standard but with thickness not less than twice the gutter thickness. Fabricate expansion joints, expansion joint covers, and gutter accessories from same metal as gutters. Shop fabricate interior and exterior corners.
B. Downspouts: Fabricate rectangular downspouts to dimensions indicated from .040 inch thick aluminum, complete with related elbows. Furnish with metal hangers from same material as downspouts and anchors. Shop fabricate elbows.
C. Flanged Scaupers: Fabricate scaupers to dimensions required from .032 inch thick aluminum, with closure flange trim to exterior, 4-inch (102-mm) wide wall flanges to interior, and base extending 4 inches (102 mm) beyond eave or tapered into inlet field of roof.
D. Conductor Heads: Fabricate conductor heads with flange back and stiffened top edge of dimensions and shape required from .040 inch thick aluminum, complete with order books include over-flow opening if side as indicated on drawings.
E. Splash Pans: Fabricate to dimensions and shape required and from .04 inch thick aluminum.

LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Roof Edge Flashing (Gutter Shop) and Fascia Cap: Fabricate from .050 inch aluminum, in minimum 96 inch (2439 mm) length, but not exceeding 12 feet (3.66 m) long sections. Furnish with ends (150-mm) wide, joint cover plates. Shop fabricate interior and exterior corners.
B. Copings: Fabricate from .050 inch aluminum in minimum 96-inch (2439-mm) long, but not exceeding 12-foot (3.66-m) long, sections. Fabricate joint plates of same thickness as coping. Furnish with continuous class II support edge of exterior side and interior lip. Meet corners, fasten and seal solder or weld waterproof. Shop fabricate interior and exterior corners. Seam to be flat back and allow for expansion.
C. Base Flashing: Shop fabricate interior and exterior corners from .032 inch aluminum.
D. Counterflashing and Flashing Reserves: Fabricate from .032 inch aluminum.
E. Roof Penetration Flashing: Fabricate from .018 inch stainless steel.
F. Roof Drain Flashing: Fabricate from .018 inch stainless steel.

STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Apron, Eave, Crook, and Barker Flashing: Fabricate from .032 inch Aluminum.
B. Valley Flashing: Fabricate from .018 inch Stainless Steel.
C. Drip Eaves: Fabricate from .032 inch Aluminum.
D. Eave, Rake, Ridge, and Hip Flashing: Fabricate from .032 inch Aluminum.

WALL SHEET METAL FABRICATIONS

- A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96 inch (2439 mm) long, but not exceeding 12-foot (3.66 m) long, sections, under copings, and at shelf angles. Fabricate discontinuous limit sill and sash flashings to extend 4 inches (102 mm) beyond each side of wall opening, and form with 2-inch (50-mm-) high, and dams. Fabricate from copper nonferrous fabric or self-adhesive flashing, see Detail Masonry SPC.
B. Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend 4 inches (102 mm) beyond wall opening. Form head and sill flashing with 2-inch (50-mm-) high, and dams. Fabricate from .032 inch thick Aluminum.

SUBMITTALS

- A. Product Data: For each type of product.
B. Shop Drawings: For sheet metal flashing and trim.
1. Include plans, elevations, sections, and attachment details.
2. Clarification between shop and field-installed work.
3. Include identification of finish for each item.
4. Include section of seams and details of transition joints, expansion joints and expansion-joint covers, direction of expansion, roof-penetration flashing, and connections to adjoining work.

WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 20 years from date of Substantial Completion.

END OF SECTION 07 02 00

07 72 33 - ROOF HATCHES

PRODUCT REQUIREMENTS

- A. Contractor to furnish and install, where indicated on plans, single leaf preassembled metal roof Boss-of-Design Manufacturer: Type F-07B 48" x 48" or NB-07B 30"x54" for slip ladder access. (See drawings by contractor) by The BSCCO Company, P.O. Box 1033, New Haven, CT 06510; Tel: 860-234-1111; Fax: 860-234-1112; Email: bscoc@bisco.com; Web: www.bisco.com
B. Finishes: Factory finish shall be mill finish Aluminum.

SUBMITTALS

- A. Product Data: Submit manufacturer's product data.
B. Shop Drawings: Submit shop drawings including profiles, accessories, location, adjacent construction interface, and dimensions.

QUALITY ASSURANCE

- A. Install products in strict accordance with manufacturer's instructions and approved submittals. Locate, size level, plumb, and in proper alignment with adjacent work.

WARRANTY

- A. Provide manufacturer's standard warranty. Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. (Should a part fail to function in normal use within the period, manufacturer shall furnish a new part at no charge.)

END OF SECTION 07 72 33

07 54 23 - THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

PRODUCT REQUIREMENTS

- A. Manufacturers:
1. Firestone ULTRA FLY TPO.
2. Johns Manville.
3. Carlisle Built.
4. Or Approved Equal.
B. Source Listeners: Obtain components including fasteners for roofing system from same manufacturer as membrane roofing.
C. Provide roofing system meeting requirements of FM Global 4470 including attachment requirements. See Drawings for wind uplift requirements.
D. Anterested Weathering: Roofing system shall withstand 200 hours of exposure when tested according to ASTM D 152, ASTM G 154, or ASTM G 155.
E. Fire Resistance: Roofing system shall meet required damage when tested according to Fire ASTM D 3748 or ASTM D 2727.
F. Roofing System: It is to be designed to withstand uplift pressure established by ASCE/EI-7.
G. Exterior Fire Test Exposure: ASTM E 108 or UL 790, Class A for application and roof slopes indicated; tested by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
H. Fire-Resistance Rating: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.
I. Fabric-Resistance (TPO Sheet): ASTM D 8878, (laminate fabric or scrim-reinforced, uniform, 3.0 mils) 60 mil nominal TPO sheet, Exposed Face Color: White.
J. Source Sheet: ASTM C-753, joints: loose, 3/4 inch (19 mm) thick, seal coated.
K. ROOF INSULATION:
1. Polyisocyanurate Board Insulation: ASTM C 1209, Type I, Class 1, Grade 2 Mat or glass-fiber mat face on both major surfaces.
2. Tapered Insulation: Provide factory-dependent insulation boards fabricated to slope of 1/4 inch per 12 inches (1.48) unless otherwise indicated.
3. Provide preformed saddles, crickets, tapered edge stops, and other insulation shapes as necessary for sloping to drain. Fabricate to slopes indicated.

SUBMITTALS

- A. Product Data: For each type of product.
B. Shop Drawings: For roofing system, include plans, elevations, sections, details, and attachments to other work.
C. Samples of Roofing, of color required.
D. Research/Evaluation Reports: For components of roofing system, from ICC-ES.
E. Source Warranty: For manufacturer's special warranties.
F. Maintenance Data: For roofing system to include in maintenance manuals.

QUALITY ASSURANCE

- A. Install entire roof assembly and accessory components from the manufacturer's recommendations and installation instructions.
B. After installation, protect installed roofing from construction traffic and damage as recommended by the manufacturer.

WARRANTY

- A. When warranties are required, verify with Owner's counsel that warranties stated in this article are not less than remedies available to Owner under prevailing local law. Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
1. Warranty Period: 20 years from date of Substantial Completion.

END OF SECTION 07 54 23

MUSSMAN ARCHITECTS logo and contact information. Includes address: 410 N. Ninth Street, Pittsboro, NC 27581, phone: 919.539.2525, website: www.mussmanarchitects.com. Also includes a circular seal for the State of North Carolina and the seal of the Treasure Coast Classical Academy.

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SHEET TITLE: ROOF SPECIFICATIONS

SHEET NO. 022004

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