

## **SECTION 07 71 00 - ROOF SPECIALTIES**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Roof-edge specialties.
2. Roof-edge drainage systems.
3. Roof drain inserts.
4. Counterflashings.

- B. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Installer, and installers whose work interfaces with or affects roof specialties.
2. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
3. Review special roof details, roof drainage, and condition of other construction that will affect roof specialties.

#### 1.3 SUBMITTALS, GENERAL

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section and by Division 07 Section "EPDM Roofing" concurrently.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1. Fasteners.
2. Canted roof-edge fascia.
3. Fascia sump.
4. Downspouts.
5. Splashblocks.
6. Roof drain inserts.
7. One-piece counterflashings.
8. Two-piece counterflashings.

- B. Shop Drawings: For roof specialties.

1. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.
  2. Include details for expansion and contraction; locations of expansion joints, including direction of expansion and contraction.
  3. Indicate profile and pattern of seams and layout of fasteners, cleats, clips, and other attachments.
  4. Detail termination points and assemblies, including fixed points.
  5. Include details of special conditions.
- C. Samples for Initial Selection: For each type of roof specialty indicated with factory-applied color finishes.
- D. Samples for Verification: For each type of roof specialty indicated, made from 12-inch lengths of full-size components in specified material, and including fasteners, cover joints, accessories, and attachments, as follows:
1. Copings.
  2. Roof-edge specialties.
  3. Roof-edge drainage systems.
  4. Counterflashings.
- E. Sample Warranty: For manufacturer's special warranty.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer Certificates: For each type of roof specialty, as required by Division 07 Section "EPDM Roofing" certifying that each item complies with requirements specified in "Performance Requirements" Article.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing specialties to include in maintenance manuals.
- B. Warranty: Executed special warranty.

#### 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
- B. Furnish not less than six 12-foot-long sections of fascia covers, fascia extenders and counterflashings.

#### 1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer offering products meeting requirements that are FM Approvals listed for specified class and ANSI/SPRI ES-1 tested to specified design pressure.

- B. Source Limitations: Obtain roof specialties approved by manufacturer providing roofing-system warranty specified in Division 07 Section “EPDM Roofing”.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof-specialty installation.

#### 1.10 FIELD CONDITIONS

- A. Field Measurements: Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication, and indicate measurements on Shop Drawings.
- B. Coordination: Coordinate roof specialties with flashing, trim, and construction of parapets, roof deck, roof and wall panels, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

#### 1.11 WARRANTY

- A. Roofing-System Warranty: Roof specialties are included in warranty provisions in Division 07 Section “EPDM Roofing”.
- B. Special Warranty on Painted Finishes: Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

- B. FM Approvals' Listing: Manufacture and install roof-edge specialties that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90. Identify materials with FM Approvals' markings.
- C. SPRI Wind Design Standard: Manufacture and install roof-edge specialties tested and certified according to ANSI/SPRI ES-1 (Test Methods RE-1, RE-2, and RE-3, as applicable) to comply with the Building Code of New York State which references ASCE/SEI 7, and capable of meeting the wind load design criteria indicated on the Drawings.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2 ROOF-EDGE SPECIALTIES

- A. Canted Roof-Edge Fascia: Manufactured, roof-edge fascia system with a snap-on metal fascia cover in longest uniform section lengths not exceeding 12 feet. Provide matching corner units and fascia sumps.
  - 1. Provide one of the following types of canted roof-edge fascia systems to meet wind speed requirements or to comply with roofing system manufacturer's warranty requirements:
    - a. Two-Piece Canted Roof-Edge Fascia: Two-piece fascia system with a continuous formed galvanized steel sheet cant, 0.028 inch thick (24 gage), minimum, with extended vertical leg terminating in a drip edge cleat.
      - 1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
        - a) Carlisle SynTec Systems; SecurEdge 200 Fascia System.
        - b) Firestone Building Products Company, LLC; EdgeGard +.
        - c) Johns Manville; Fascia System 200.
    - b. Three-Piece Canted Roof Edge Fascia: Three-piece fascia system with a continuous extruded aluminum anchor bar with extended vertical leg terminating in a drip edge cleat and continuous formed galvanized steel sheet canted waterdam, 0.028 inch thick (24 gage), minimum.
      - 1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
        - a) Carlisle SynTec Systems; SecurEdge 2000 Canted Fascia.
        - b) Firestone Building Products Company, LLC; AnchorGard Canted Fascia.

- c) Johns Manville; Presto-Tite Canted Fascia.
2. Formed Aluminum Sheet Fascia Covers: Aluminum sheet, not less than 0.050 inch thick and as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Two-coat fluoropolymer.
    - c. Color: 'Dark Bronze' to match existing as selected by Architect from manufacturer's full range.
    - d. Separate colors may be selected for each building.
  3. Corners: Factory mitered and continuously welded, not less than 2 feet long in each direction.
  4. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.
  5. Radius lengths: Provide factory fabricated radius lengths as required to match radius of substrate (verify in field).
  6. Fascia Accessories: Provide the following from the fascia system manufacturer:
    - a. Fascia Extenders: Manufactured, two-piece fascia extender with metal fascia extension in longest uniform section lengths practical not exceeding 12 feet and continuous formed galvanized steel sheet hold-down cleats, 0.028 inch thick (24 gage), minimum, with extended vertical leg terminating in a drip edge cleat. Provide matching corner units.
      - 1) Formed Aluminum: Not less than 0.050 inch thick, with pre-punched slotted holes at 12 inches o.c. at top edge, finished to match fascia cover.
      - 2) Corners: Factory mitered and continuously welded, not less than 2 feet long in each direction.
      - 3) Splice Plates: Concealed, of same material, finish, and shape as fascia extension.
    - b. Soffit Trim: Manufactured metal trim as indicated on Drawings, of same material and finish as fascia cover.
    - c. Fascia Sumps: Manufactured fascia sumps integrated into fascia system, complete with outlet tube that nests into upper end of downspout.
      - 1) Formed Aluminum: Not less than 0.050 inch thick, finished to match fascia cover.
      - 2) Size: As indicated on Drawings.
    - d. Downspouts: Plain rectangular complete with mitered elbows, manufactured from the following exposed metal. Furnish with metal brackets mounted at rear of downspout, from same material as downspouts, and stainless steel anchors.
      - 1) Formed Aluminum: Not less than 0.063 inch thick, finished to match fascia cover.
      - 2) Size: As indicated on Drawings.

## 2.3 ROOF-EDGE DRAINAGE SYSTEMS

- A. Gutters: Manufactured in longest uniform section lengths not exceeding 12 feet, with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch above front edge. Furnish expansion joints and expansion-joint covers fabricated from same metal as gutters.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Systems; SecurEdge 200 Industrial Gutter System IG-1.
    - b. Firestone Building Products Company, LLC; Firestone Industrial Gutter FS-1.
    - c. Johns Manville; Johns Manville Industrial Gutter IG-1.
  2. Aluminum Sheet: Not less than 0.063 inch thick.
  3. Corners: Factory mitered and continuously welded, not less than 2 feet long in each direction.
  4. Gutter Supports: Straps with finish matching the gutters.
- B. Downspouts: Plain rectangular complete with mitered elbows, manufactured from the following exposed metal. Furnish with metal brackets mounted at rear of downspout, from same material as downspouts, and stainless steel anchors.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Systems; SecurEdge 200 Industrial Downspout Closed Face.
    - b. Firestone Building Products Company, LLC; Firestone Industrial Closed Face.
    - c. Johns Manville; Johns Manville Industrial Downspout Closed Face.
  2. Formed Aluminum: Not less than 0.063 inch thick.
  3. Size: As indicated on Drawings.
- C. Aluminum Finish: Two-coat fluoropolymer.
1. Surface: Smooth, flat finish.
  2. Color: 'Dark Bronze' to match existing as selected by Architect from manufacturer's full range.
  3. Separate colors may be selected for each building.
- D. Splashblocks:
1. Precast Concrete Type: Factory-made units from a plant regularly engaged in producing precast concrete units. Provide units with minimum 5000 psi compressive strength, with reinforcement required for handling of units, edged on three sides, with one open end.
    - a. Size: Not less than 24 inches long by 12 inches wide by 3 inches high, unless otherwise indicated.
  2. Rubber Type: Provide units of black recycled rubber, edged on three sides, with one open end.

- a. Basis-of-Design Product: Subject to compliance with requirements, provide TPC (The Park and Facilities Catalog); Downspout Splash Blocks, or comparable product.
- b. Size: Not less than 34 inches long by 12 inches wide by 3 inches high, unless otherwise indicated.

## 2.4 ROOF DRAIN INSERTS

- A. Roof Drain Inserts: One-piece spun aluminum body and heavy duty cast aluminum clamping ring and strainer dome roof drain insert, factory fabricated fixture designed to be installed inside an existing drain leader with no reduction in size.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
    - a. Carlisle Syntec, Inc: Carlisle Hercules Retrofit Insert Drain.
    - b. Firestone Building Products: Firestone Drain Insert.
    - c. Johns Manville, Inc: Hercules RetroDrain.

## 2.5 COUNTERFLASHINGS

- A. One-Piece Counterflashings: Manufactured units formed of single counterflashing sections.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Systems; SecurEdge Counter Flashing 1 Pc. Reglet.
    - b. Firestone Building Products Company, LLC; 1 Piece Counter Flashing Reglet Version.
    - c. Metal-Era LLC; 1 Piece Counter Flashing Reglet Version.
  - 2. Formed Aluminum: Not less than 0.050 inch thick.
  - 3. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches and in longest uniform section lengths not exceeding 12 feet and compress against base flashings with joints lapped.
    - a. Surface-Mounted Type: Provide counterflashing with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
    - b. Reglet Type: For embedment in masonry mortar joints.
- B. Two-Piece Counterflashings: Manufactured units formed to provide secure interlocking of separate receiver and counterflashing pieces.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Systems; SecurEdge 2 Pc. Counter Flashing Reglet.

- b. Firestone Building Products Company, LLC; 2 Piece Counter Flashing Reglet Version.
    - c. Metal-Era LLC; 2 Piece Counter Flashing Reglet Version.
  - 2. Formed Aluminum: Not less than 0.050 inch thick.
  - 3. Surface-Mounted Receivers: Provide receivers with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
  - 4. Embedded Receivers: For embedment in masonry mortar joints.
  - 5. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches and in longest uniform section lengths not exceeding 12 feet designed to snap into receiver and compress against base flashings with joints lapped.
- C. Aluminum Finish: Two-coat fluoropolymer.
- 1. Surface: Smooth, flat finish.
  - 2. Color: 'Dark Bronze' to match existing as selected by Architect from manufacturer's full range.
  - 3. Separate colors may be selected for each building.

## 2.6 MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation.
- B. Aluminum Sheet: ASTM B209, alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.
- C. Aluminum Extrusions: ASTM B221, alloy and temper recommended by manufacturer for type of use and finish indicated.

## 2.7 MISCELLANEOUS MATERIALS

- A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:
  - 1. Exposed Penetrating Fasteners: Not permitted.
  - 2. Fasteners for Aluminum: Series 300 stainless steel.
  - 3. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel.
- B. Elastomeric Sealant: ASTM C920, elastomeric polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.

## 2.8 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Coil-Coated Aluminum Sheet Finishes:
  - 1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - b. Concealed Surface Finish: Apply pretreatment and manufacturer's standard acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Examine walls, parapets, and roof edges for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION, GENERAL

- A. Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.
  - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Provide uniform, neat seams with minimum exposure of sealant.
  - 3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
  - 4. Torch cutting of roof specialties is not permitted.
  - 5. Do not use graphite pencils to mark metal surfaces.

- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by isolating surfaces with adhered EPDM membrane or by other permanent separation as recommended by manufacturer.
  - 1. Underlayment: Where installing metal directly on cementitious or wood substrates, install a course of adhered EPDM membrane sheet underlayment.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.
  - 1. Space movement joints at a maximum of 12 feet with no joints within 24 inches of corners or intersections unless otherwise indicated on Drawings.
  - 2. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
  - 3. Loose-nail fascia extender at center of pre-punched slotted hole; do not draw nail tight.
  - 4. Stagger joints in fascia from those in fascia extender by not less than 24 inches.
- D. Fastener Sizes: Use fasteners of sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.

### 3.3 INSTALLATION OF ROOF-EDGE SPECIALITIES

- A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners over fully adhered EPDM field membrane extended vertically to bottom of fascia.
- B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.
- C. Install fascia extender cover cleat with provisions for expansion and fasteners loose in slotted holes.
- D. Strip-in cleat with adhered EPDM membrane flashing up and over cant dam, installed as indicated on Drawings prior to installation of fascia cover.

### 3.4 INSTALLATION OF ROOF-EDGE DRAINAGE-SYSTEM

- A. Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.
- B. Fascia Sumps: Install Fascia sumps to match adjacent fascias in tapered sump to allow for proper drainage from roof into fascia sump.
  - 1. Provide secure watertight connection between fascia sump and downspout.
- C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c.

1. Provide elbows at base of downspouts to direct water away from building.
  - a. Install splashblocks where downspouts discharge onto roof surfaces, grade or at other locations indicated.

### 3.8 INSTALLATION OF ROOF DRAIN INSERTS

#### A. Roof Drain Insert Installation:

1. Prior to installation, verify existing roof drain is functioning properly. Rod, snake, clean and flush existing drain and piping as required for proper operation.
2. Remove existing dome strainer, clamping ring and hardware, thoroughly hone and clean existing roof drain bowl and piping prior to roof drain insert installation.
3. Install roof drain inserts according to manufacturer's written installation instructions.

### 3.5 INSTALLATION OF COUNTERFLASHINGS

- A. Coordinate installation of counterflashings with installation of base flashings.
- B. Counterflashings: Insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap 4 inches over top edge of base flashings. Lap counterflashing joints a minimum of 4 inches and bed with butyl sealant. Fit counterflashings tightly to base flashings.
- C. Coordinate installation of two-piece counterflashings with masonry installer.

### 3.6 CLEANING AND PROTECTION

- A. Clean all surfaces, clean off excess sealants.
- B. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- C. Replace roof specialties that have been damaged or that cannot be successfully restored by finish touchup or similar minor restoration procedures.

END OF SECTION 07 71 00