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## SECTION 077129 - MANUFACTURED ROOF EXPANSION JOINTS

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes [metal-flanged, bellows-type] [aluminum] [seismic] roof expansion assemblies.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, joints, splices, and attachments to other work.

Delete first paragraph below if no color selections are required.

- C. Samples: For each type of exposed factory-applied[ color] finish required.
- D. Warranties.

#### 1.3 QUALITY ASSURANCE

Retain two paragraphs below if roof membrane system manufacturer requires use of its roof expansion assemblies to obtain roofing system warranty.

- A. Installer Qualifications: Installer of roof membrane.
- B. Source Limitations: Obtain roof expansion assemblies approved by roofing membrane manufacturer and that are part of roofing membrane warranty.

Retain paragraph and subparagraphs below if fire-barrier assemblies are specified in Part 2 as part of roof expansion assembly.

- C. Fire-Test-Response Characteristics: Provide assemblies with fire-test-response characteristics

not less than that of adjacent construction, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

Retain subparagraph below for roof expansion assembly rating.

1. Fire-Resistance Ratings: UL 2079.

Retain subparagraph below only if products specified in Part 2 are part of a fire-resistance-rated assembly.

2. Fire-Resistance Ratings: ASTM E 119.

#### 1.4 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer and Installer agree to repair or replace roof expansion assemblies that leak, deteriorate, or otherwise fail to perform within specified warranty period.

Verify available warranties and insert number in subparagraph below. Many published warranty periods do not exceed two years.

1. Warranty Period: [**Two**] <**Insert number**> years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

See Editing Instruction No. 1 in the Evaluations for cautions about naming manufacturers and products.

Edit this Article with other Part 2 articles in which manufacturers and products are named. See Division 01 Section "Product Requirements" for an explanation of the terms "Available Products" and "Products" and the effect these terms have on "Comparable Product" and "Product Substitution" requirements.

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
  2. Products: Subject to compliance with requirements, provide one of the products specified.

#### 2.2 METALS

- A. Sheet Aluminum: ASTM B 209 (ASTM B 209M); Alloy 3003-H14, 5052-H32, or 6061-T6; minimum 0.032 inch (0.8 mm) thick.

- B. Extruded Aluminum: ASTM B 221 (ASTM B 221M), Alloy 6063-T5 or 6063-T52, minimum 0.040 inch (1.0 mm) thick.

Retain paragraph and subparagraphs below with one or both paragraphs above.

- C. Aluminum Finishes:

Retain finishes in subparagraphs below to suit Project. If retaining more than one, indicate location of each. Verify availability.

1. Mill Finish: As fabricated, no other applied finish.
2. [Clear] [Color] Anodic Finish: Architectural [Class I] [Class II], complying with AAMA 611.

Retain one option in first subparagraph below. Verify availability.

- a. Color: [Light bronze] [Medium bronze] [Dark bronze] [As indicated by manufacturer's designations] [As selected by Architect from manufacturer's full range].
3. High-Performance Organic Finish: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.
  - a. Color and Gloss: <Insert color and gloss>.

## 2.3 MISCELLANEOUS MATERIALS

- A. Roof Cement: ASTM D 4586, Type II.

Revise first paragraph below if sealant of specific type, grade, class, and use is required.

- B. Elastomeric Sealant: ASTM C 920, of type, grade, class, and use classifications required.
- C. Mineral-Fiber Blanket: ASTM C 665.
- D. Fasteners: Manufacturer's recommended fasteners.

## 2.4 FIRE BARRIERS

Delete this Article if fire-resistance rating of roof expansion assembly is not required.

- A. Fire Barriers: Provide assemblies with manufacturer's continuous fire-barrier seals to provide fire-resistance rating not less than rating of adjacent construction.

## 2.5 BELLOWS-TYPE ROOF EXPANSION ASSEMBLIES

- A. Metal-Flanged, Bellows-Type Roof Expansion Assemblies: Provide manufacturer's standard assemblies with prefabricated units for intersections and transitions, splicing units, adhesives, coatings, and other components as recommended by manufacturer. Fabricate assemblies specifically for **[roof-to-roof]** **[roof-to-wall]** **[curb-to-curb]** **[curb-to-wall]** applications.

Coordinate subparagraph and list below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semiproprietary specifications.

1. **[Available]** Products:

- a. Architectural Art Mfg., Inc.; T Series Roof Expansion Cover.
- b. Balco Metalines, a division of Balco, Inc.; Type **[BRBG-CN]** **[BRBG-SN]** **[BRBG-CSN]** Roof Bellows.
- c. BMCA Insulation Products, Inc., GAF Materials Corporation; Metalastic.
- d. C/S Group; Model **[BRJ]** **[BRJW]**.

Retain last option in first subparagraph below with any of the preceding options to include factory-installed insulation, integrally attached to a vapor retarder, within the expansion joint.

- e. Johns Manville; Style **[EJ]** **[CF]** **[CF-EJ]** **[EJ/WC]** **[INS]**; Expand-O-Flash.
- f. JointMaster, a division of InPro Corporation; **[672]** **[674]**.
- g. MM Systems Corporation; Series **[ERJ]** **[ERJL]** **[ERF]** **[ERFL]**.
- h. Watson Bowman Acme Corp.; Model **[EEJ]** **[EEJ/C]**.
- i. **<Insert manufacturer's name; product name or designation.>**

Retain one option in subparagraph below for metal flange material.

2. Metal Flanges: **[Zinc-coated (galvanized) steel, minimum 0.019 inch (0.5 mm) thick]** **[Copper, minimum 16 oz./sq. ft. (0.55 mm thick)]** **[Stainless steel, minimum 0.015 inch (0.4 mm) thick]** **[Sheet aluminum, minimum 0.032 inch (0.8 mm) thick, mill finish]**.

Delete option in subparagraph below if roof expansion assembly includes factory-installed insulation.

3. Moisture Barrier: Manufacturer's standard moisture barrier looped under roof expansion assemblies at locations indicated. **[Fill space with blanket-type, mineral-fiber insulation.]**

Delete subparagraph below if fire-resistance rating of roof expansion assembly is not required.

4. Fire Barrier: Provide manufacturer's standard fire barrier.

## 2.6 ALUMINUM ROOF EXPANSION ASSEMBLIES

- A. Aluminum Roof Expansion Assemblies: Provide aluminum base members **[with sloped cants]** for anchoring and sealing to roofing membrane or flashing. Provide extruded-aluminum cover plate waterproofed by integral seals. Provide prefabricated units for intersections and transitions, splicing units, adhesives, coatings, and other components as recommended by manufacturer. Fabricate assemblies specifically for curb-to-**[curb]** **[wall]** applications.

Coordinate subparagraph and list below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semiproprietary specifications.

1. **[Available]** Products:
  - a. Architectural Art Mfg., Inc.; L Series Roof Expansion Cover.
  - b. Balco Metalines, a division of Balco, Inc.; Type **[FR]** **[FRE]** **[LPR]** **[LPRE]**.
  - c. C/S Group; Model **[RJ-27LP]** **[RJ-28LP]** **[SRJ]** **[SRJW]**.
  - d. Hickman, W. P. Company; Model **[PSRR]** **[PSRW]** Permaspan Expansion Joint System.
  - e. JointMaster, a division of InPro Corporation; 661.
  - f. MM Systems Corporation; Style **[RXH]** **[RXJ]** **[RXR]** **[RXW]** **[WJK]** **[WJL]**.
  - g. Nystrom, Inc.; **[RJF]** **[RJFW]** **[RJS]** **[RJSW]**.
  - h. Watson Bowman Acme Corp.; Model **[RFL]** **[RFL/C]** **[RFH]** **[RFH/C]**.
  - i. **<Insert manufacturer's name; product name or designation.>**

Fluoropolymer and anodic finishes are available from some manufacturers. Verify availability.

2. Base Frame and Aluminum Covers: **[Mill]** **[Clear anodic]** **[Color anodic]** **[High-performance organic]** finish.
3. Moisture Barrier: Semiconcealed, polymeric sheet bellows.

Delete subparagraph above or below.

4. Moisture Barrier: Semiconcealed gaskets at both curb members with spring-loaded mechanism to maintain positive pressure between gaskets and curb cap.

Delete subparagraph below if fire-resistance rating of roof expansion assembly is not required.

5. Fire Barrier: Provide manufacturer's standard fire barrier.

## 2.7 SEISMIC ROOF EXPANSION ASSEMBLIES

Delete types of roof expansion assemblies in this Article that are not required.

- A. General: Provide assemblies designed to accommodate seismic movement. Provide prefabricated units for intersections and transitions, splicing units, inner seals, adhesives, coatings, and other components as recommended by manufacturer for complete installation. Fabricate assemblies specifically for **[roof-to-roof]** **[roof-to-wall]** **[curb-mounted]** applications.
- B. Extruded Seals: Two continuous, single-layered elastomeric profiles retained in a pair of extruded-aluminum frames.

Coordinate subparagraph and list below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semiproprietary specifications.

1. **[Available]** Products:
  - a. C/S Group Systems, Inc.; Model **[BRJ]** **[BRJW]** with retainer and interior seal.
  - b. Michael Rizza Company; **[RR]** **[RW]** Roof Seals.

- c. MM Systems Corporation; Series [RSS] [RWSS].
- d. <Insert manufacturer's name; product name or designation.>

Neoprene outer seal is available only in black.

- 2. Exterior Seal Color: [Black] [Match Architect's sample] [As selected by Architect from manufacturer's full range].

- C. Aluminum Roof Expansion Assemblies: Pairs of aluminum curb units with provisions for anchoring and sealing to roofing membrane or flashing. Provide extruded-aluminum curb cap waterproofed by integral seals, with interior of expansion joint filled with blanket-type mineral-fiber insulation.

Coordinate subparagraph and list below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semiproprietary specifications.

- 1. [Available ]Products:
  - a. Architectural Art Mfg., Inc.; R Series Roof Expansion Cover.
  - b. C/S Group; Model [SRJ] [SRJW].
  - c. MM Systems Corporation; Style [RXH] [RXJ] [RXR] [RXW] [WJK] [WJL].
  - d. Watson Bowman Acme Corp.; Model [RFL] [RFL/C] [RFH] [RFH/C].
  - e. <Insert manufacturer's name; product name or designation.>

Fluoropolymer and anodic finishes are available from some manufacturers. Verify availability.

- 2. Base Frame and Aluminum Covers: [Mill] [Clear anodic] [Color anodic] [High-performance organic] finish.
- 3. Moisture Barrier: Semiconcealed polymeric sheet bellows.

Delete subparagraph above or below.

- 4. Moisture Barrier: Semiconcealed gaskets at both curb members, with spring-loaded mechanism to maintain positive pressure between gaskets and curb cap.

Delete subparagraph below if fire-resistance rating of roof expansion assembly is not required.

- 5. Fire Barrier: Provide manufacturer's standard fire barrier.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with manufacturer's written instructions unless more stringent requirements are indicated.

Delete first paragraph below if fire-rated roof expansion assembly is not required.

- B. Install fire barriers to provide uninterrupted fire resistance throughout length of roof expansion assembly, including transitions and end joints.

- C. Extend roof expansion assemblies over [curbs,] [parapets,] [cornices,] [gutters,] [valleys,] [fasciae,] [and] [other elements in the construction profile,] with factory-fabricated intersections and transitions.
1. Install factory-fabricated transitions between roof expansion assemblies and building architectural joint systems.
- D. Splice roof expansion assemblies with materials provided by manufacturer, according to manufacturer's written instructions.

Coordinate first paragraph below with roof expansion assemblies in Part 2; delete if not applicable.

- E. Install mineral-fiber blanket insulation to fill joint space within joint and moisture barrier.
- F. Anchor roof expansion assemblies complying with manufacturer's written instructions.
- G. Embed flanges not less than 4 inches (100 mm) in bituminous membranes, with hot bitumen or roof cement. Cover with stripping material according to requirements in Division 07 Section "<Insert applicable roofing Section title>."

Retain paragraph above or below if embedding flanges. Retain above for built-up and modified bituminous roofing membranes. Retain below for polymeric single-ply roofing membranes and retain option if covering flanges with stripping or flashing.

- H. On single-ply roofing, install roof expansion assemblies complying with manufacturer's written instructions. Anchor to cants or curbs and seal to membrane. [ **Cover flanges with stripping or flashing according to requirements in Division 07 Section "<Insert applicable roofing Section title>."** ]

### 3.2 PROTECTION

- A. Provide final protection and maintain in a manner that ensures that roof expansion assemblies are without damage or deterioration at time of Substantial Completion.

END OF SECTION 077129