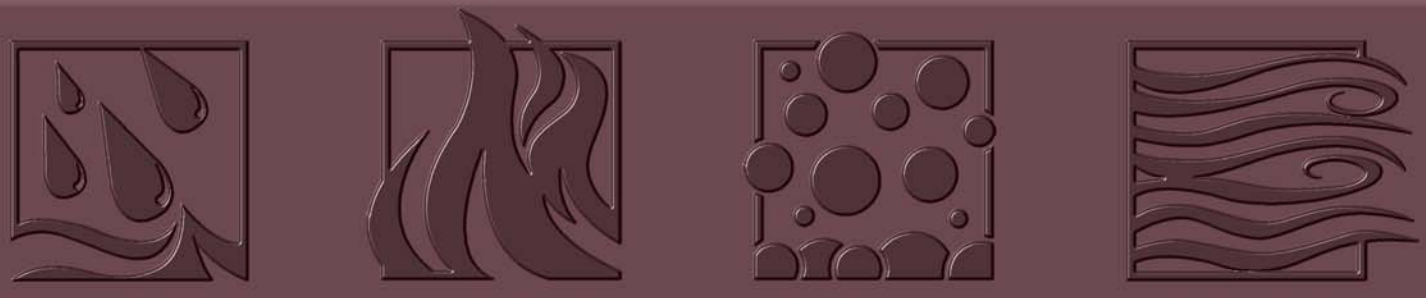
Johns Manville

Defy the Elements



Specialty Roofing Products

Johns Manville

Table of Contents

Johns Manville (JM) is a total roofing systems provider meeting the needs of the commercial and industrial roofing industry. JM is the only manufacturer to complement its membrane offering with a full line of specialty roofing products that include expansion joint covers, edge metal systems, roof vents and drains, and tie-in flashing systems. This gives JM the exclusive opportunity to offer a total roofing systems guarantee that includes specialty roofing products.

Johns Manville's specialty products support a broad offering of membrane systems that include built-up, SBS and APP modified bitumen, and single ply EPDM, PVC and TPO membranes. This makes JM a single-source roofing systems provider for contractors, building owners and specifiers.

Architectural drawings and CSI format, short- and long-form specifications are available.

Contact us at:

Web:	www.jm.com/roofing
Technical Service:	(800) 445-1500
Customer Service:	(800) 223-8317

•RetroDrain® is a registered trademark of OMG, Inc.

Johns Manville offers a variety of roofing components that enhance the roofing system.

- Roof and wall expansion joint covers, intersections and transitions
- Joint closures and transitions
- Fascia, gravel stop and coping systems
- Scuppers, vents and drains

JM's specialty products are designed to accommodate movement.

Seismic
Expertly fabricated joint covers are available on openings up to 24 in. (610 mm) to accommodate calculated multi-directional seismic movement.

Expansion
Design solutions allow expansion along arches and curved surfaces, as well as accommodate movement between building components such as atriums and window walls.

Thermal
Where extreme temperatures cause thermal movement, flexible closures are designed specifically to allow movement between pipes, ducts, tanks, bulk carrying equipment, and building walls or roofs.

Custom Design Services

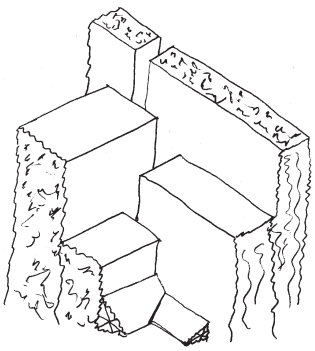
The Specialty Roofing Products group has established its expert reputation by offering technical custom designs and specialty fabricated systems for building movement and closure problems. No matter how challenging or unusual the design situation, JM can turn rough sketches into custom-manufactured systems:

- Expand-O-Flash and Expand-O-Gard—Horizontal and vertical expansion joint covers
- PrestoLock, Presto-Tite and PrestoStop— Fascia and coping edge metal systems

These custom-designed systems can be included in the Johns Manville Peak Advantage® Guarantee, one of the most comprehensive performance guarantees in the roofing industry.

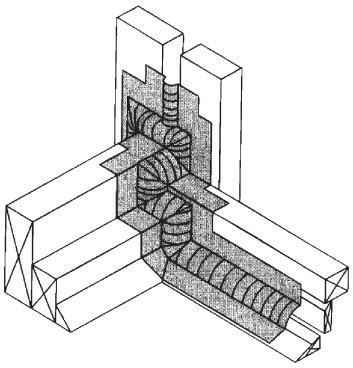
Below is an example of an expansion joint transition between a new and old roof area that created an unusual condition. This rough sketch was turned into a custom-designed transition.

Illustration 1:



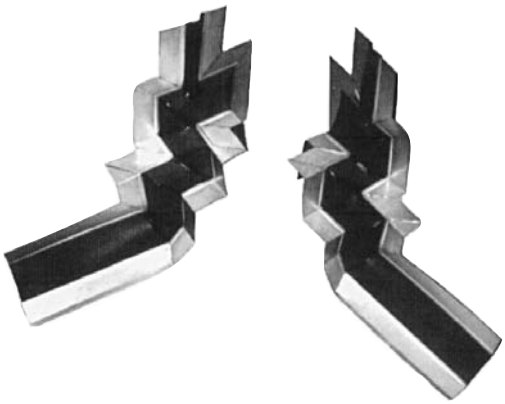
Customer provided transition between new and old roof area.

Illustration 2:



JM technician converted sketch into a detailed drawing for architectural submittal by the roofing contractor.

Illustration 3:

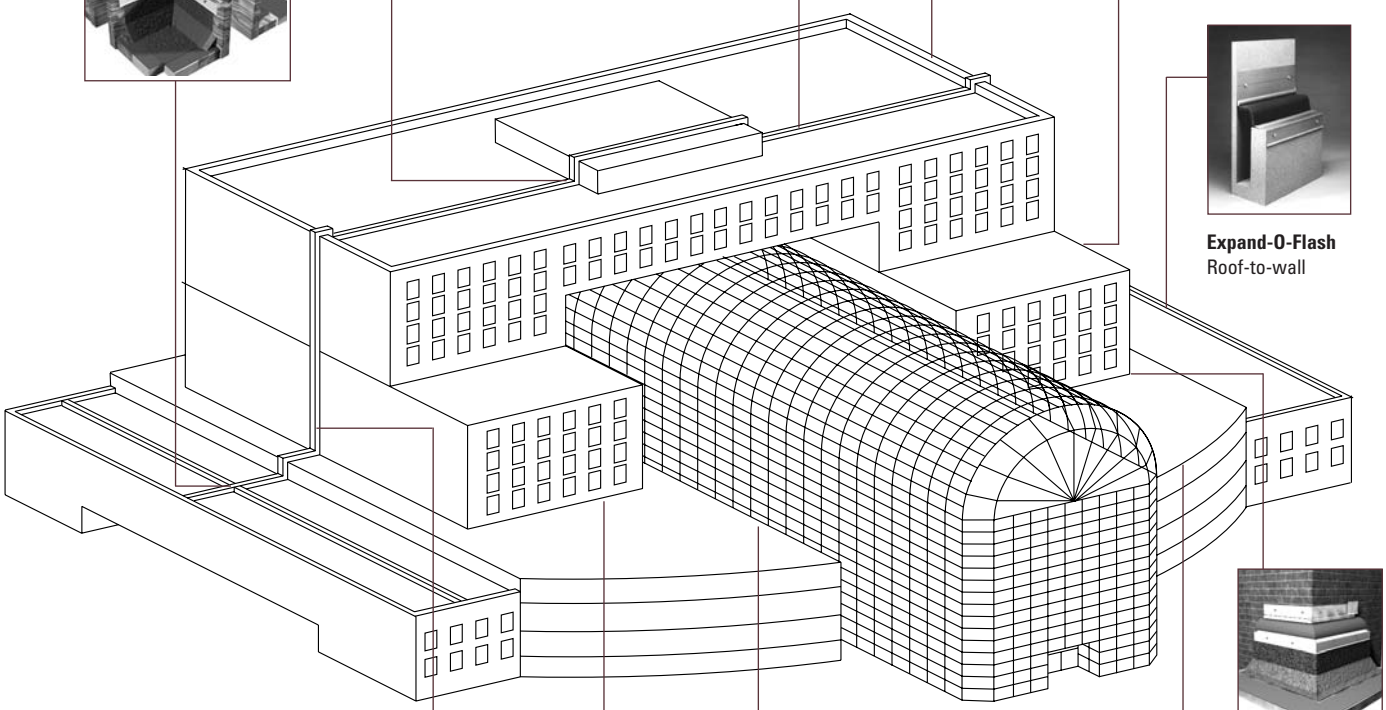


Fabricated two custom-designed transitions after field verification of dimensions.

Expansion joint transitions were installed and qualified for the Johns Manville Peak Advantage Guarantee, successfully solving the design challenge.

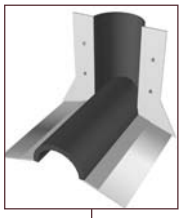
Flexible Closures, Coping and Fascia Systems

Recommended Locations

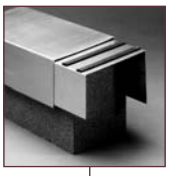


Expand-O-Flash
A variety of factory-fabricated intersections

Expand-O-Flash
A variety of factory-fabricated intersections



Expand-O-Flash® INS
Roof-to-roof



Presto Lock Coping System

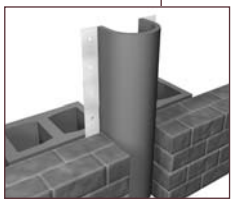
Presto Lock Fascia System

Expand-O-Flash
Roof-to-wall

Expand-O-Flash
A variety of factory-fabricated intersections

Expand-O-Flash/ Expand-O-Gard
Specially designed flexible closure at atriums or window walls

Presto-Tite Fascia System



Expand-O-Gard
Vertical wall expansion joint

Expand-O-Flash
EJ/WC (Expansion Joint with Cover)

WATER FIRE HAIL WIND

Expand-O-Flash

Expand-O-Flash expansion joint covers are effective, flexible, weatherproof exterior closures designed to accommodate openings between adjoining parts of a structure. They can be used for a variety of standard and special applications. Designed to manage the movement of commercial and industrial building roof systems, Expand-O-Flash assists with thermal expansion, settlement, new and existing junctions, differing roof deck materials or direction, and seismic movement.

- Has more than 40 years of proven design, fabrication and field performance.
- Qualifies for Johns Manville Peak Advantage Guarantees.
- Includes 10-year repair/replacement warranty that covers labor and materials for replacement of expansion joint covers, factory-produced intersections and field-applied splices (when installed consistent with JM specifications and instructions).

Each Expand-O-Flash cover consists of a flexible rubber membrane supported by a closed-cell foam material to form a flexible bellow. The bellows are adhesively and mechanically attached to two metal flanges using a patented bifurcation process.

The flexible rubber membranes are available in white or black 60-mil (1.5 mm) EPDM and black 60-mil (1.5 mm) Neoprene.

- Black EPDM is the most cost-effective solution and is recommended for installations where budget is a concern. Black EPDM also offers the longest life expectancy and has a higher UV resistance.
- White often is used when the color of the roof is important.
- Neoprene is recommended for use on roofs exposed to process oils or animal fats.

Metal flanges are available in galvanized steel (26-gauge [0.5 mm]), mill finish aluminum (0.032 in. [0.8 mm]), stainless steel (0.018 in. [0.5 mm]) and copper (16 oz).

- Galvanized steel is a cost-effective solution and is recommended for installations where budget is a concern.
- Aluminum is recommended for areas where longer exposure to severe elements is required.
- Stainless steel is effective on manufacturing facilities where corrosion could affect the metal's longevity. Steel is recommended in coastal applications.
- Copper is a long-lasting, durable and aesthetically pleasing metal generally used to match other copper metalwork.

Other available metals include, but are not limited to:

- Freedom Gray Copper
- Tern-coated stainless
- Kynar®*-coated 24-gauge (0.6 mm) steel or aluminum .032 in. (0.8 mm) and .040 in. (1.0 mm)

* Kynar is a registered trademark of Arkema, Inc.

Expand-O-Flash

- Accommodates multi-directional movement.
- Contains nonreinforced bellows for both geometric and elastomeric movement.
- Is available in 10-ft (3.1 m) lengths, 50-ft and 100-ft (15.2 m and 30.5 m) rolls (custom-length rolls are available upon request).
- Include peel-and-stick splice tabs and kits for labor savings.
- Is compatible with built-up, modified bitumen (SBS and APP) and single ply membranes.
- Is designed in a variety of styles for application requirements.
- Includes labor saving factory-crafted intersections to fit most needs or custom designed for special needs.

Roof Expansion Joint Covers

Sizing Guide

Expand-O-Flash
Each Expand-O-Flash style is made with a combination of proven materials.

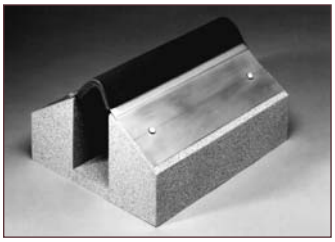
Flexible Membrane Cover
- Type E – 60-mil (1.5 mm) EPDM sheet – white or black
- Type N – 60-mil (1.5 mm) Neoprene sheet – black

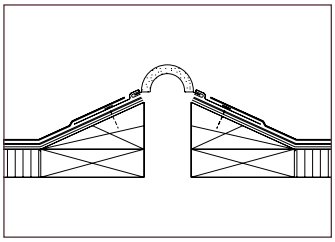
Flange Metal
- Style EJ (Flat Flanges), 4-in. (102 mm) wide
- Style CF (Curb Formed), 2-in. (51 mm) wide and 2-in. (51 mm) vertical
- Galvanized steel, 26-gauge (0.5 mm)
- Stainless steel, .018 in. (0.5 mm)
- Aluminum, .032 in. (0.8 mm)
- Copper, 16 oz (454 g)
- Others available upon request

Support Foam
- Closed-cell foam, "K-factor" = .25 at ambient
- Thickness varies from 3/8 in. (10 mm) to 3/4 in. (19 mm) depending on bellow widths

Expansion joint detail for 1" (25 mm) joint
To provide adequate clearance between metal flanges and bellows for a 1-in. (25 mm) expansion joint, a space of at least 2 in. (51 mm) should be left between curbs, or the curb and wall.

For application to cant
Style EJ





Selection Chart for Standard Bellow Sizes

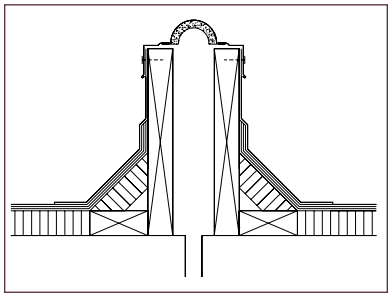
Type N (Neoprene) or Type E (EPDM)

Roof-to-Roof Joint Opening or Span (in.)	Bellow Widths*(in.)	Foam Thickness (in.)
1½ to 2½ (38 mm to 64 mm)	4 (102 mm)	3/8 (10 mm)
2½ to 3½ (64 mm to 89 mm)	6 (152 mm)	½ (13 mm)
3½ to 5 (89 mm to 127 mm)	8 (203 mm)	½ (13 mm)
5 to 6½ (127 mm to 165 mm)	10 (254 mm)	5/8 (16 mm)
6½ to 8 (165 mm to 203 mm)	12 (305 mm)	3/4 (19 mm)

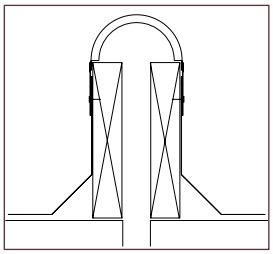
*Based on a rule-of-thumb method for determining bellow widths for CF (Curb Form) and CF/EJ styles: Curb-to-Curb = 1.5 times (outside wood curb to outside of wood curb minus 4 in. [102 mm]); Curb-to-Wall: Bellow width = 2.0 times (outside wood curb to wall minus 2 in. [51 mm]). **In all cases, anticipated movement should be considered for proper sizing.**

Styles EJ, CF, & CF/EJ are available in 10-ft (3.1 m) lengths. Style EJ-4, EJ-6 and EJ-8 also are available in standard 50-ft and 100-ft (15.2 m and 30.5 m) lengths. Custom lengths are available upon request.

For application to curbs
Style CF



For application to curbs
Style EJ



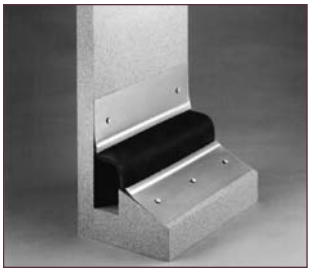
Important Sizing Note:
Joint opening plus curb widths must be considered for bellow sizing on Style EJ for application to curbs.

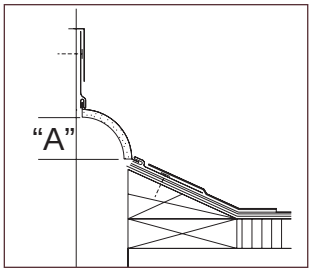
WATER FIRE HAIL WIND

Expand-O-Flash

For application to cant and wall

Style EJ





Selection Chart for Standard Bellow Sizes

Type N (Neoprene) or Type E (EPDM)

Roof-to-Wall Joint Opening or Span (in.)	Bellow Widths*(in.)	Foam Thickness (in.)
1 to 2 (25 mm to 51 mm)	4 (102 mm)	3/8 (10 mm)
2 to 3 (51 mm to 76 mm)	6 (152 mm)	1/2 (13 mm)
3 to 4 (76 mm to 102 mm)	8 (203 mm)	1/2 (13 mm)
4 to 5 (102 mm to 127 mm)	10 (254 mm)	5/8 (16 mm)
5 to 6 (127 mm to 152 mm)	12 (305 mm)	3/4 (19 mm)

*Based on a rule-of-thumb method for determining bellow widths for CF (Curb Form) and CF/EJ styles: Curb-to-Curb = 1.5 times (outside wood curb to outside of wood curb minus 4 in. [102 mm]); Curb-to-Wall: Bellow width = 2.0 times (outside wood curb to wall minus 2 in. [51 mm]). **In all cases, anticipated movement should be considered for proper sizing.**

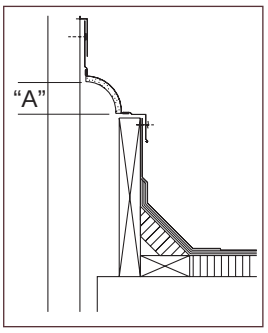
Styles EJ, CF and CF/EJ are available in 10-ft (3.1 m) lengths. Style EJ-4, EJ-6 and EJ-8 also are available in standard 50-ft and 100-ft (15.2 m and 30.5 m) lengths. Custom lengths are available upon request.

Vertical Distance Requirement in Roof-to-Wall Installations (for all styles)

	Bellow Widths (in.)	Mounting Height "A" (in.)
Standard	4 (102 mm)	2 1/2 (64 mm)
	6 (152 mm)	3 3/4 (95 mm)
	8 (203 mm)	5 (127 mm)
	10 (254 mm)	6 1/4 (159 mm)
	12 (305 mm)	7 1/2 (191 mm)
Made-to-Order	14 (356 mm)	8 3/4 (222 mm)
	16 (406 mm)	10 1/4 (260 mm)
	18 (457 mm)	11 1/2 (292 mm)
	20 (508 mm)	12 3/4 (324 mm)
	24 (610 mm)	15 1/4 (387 mm)

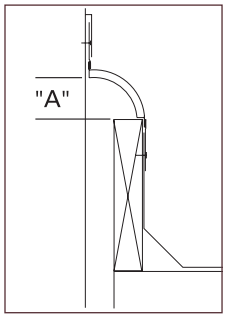
For application to curb and wall

Style CF/EJ



For application to curb and wall

Style EJ



Important Sizing Note:

Joint opening plus curb widths must be considered for bellow sizing on Style EJ for application to curbs.

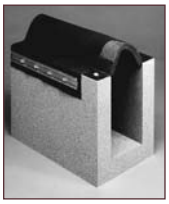
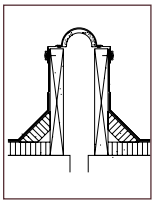
Johns Manville

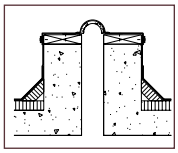
Roof Expansion Joint Covers

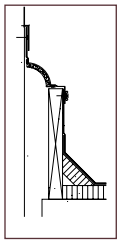
Sizing Guide

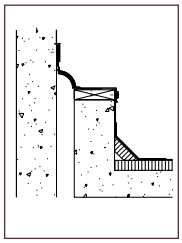
Expand-O-Flash EJ/WC

Expand-O-Flash Style EJ/WC is fabricated using foam-supported bellows with integral attachment flanges. A factory-laminated EPDM or Neoprene cover membrane of sufficient width to flash the entire joint assembly (including curbs with vertical face coverage of 2 in. (51 mm) minimum and 4 in. (102 mm) minimum on wall), is then attached over the nailing flanges. Nailing flanges are 1 3/8-in. (35 mm) steel, wrapped with Neoprene-coated nylon fabric. EJ/WC is used in curb-to-curb or curb-to-wall low-profile installations or where curbs are too wide for metal flanges. EJ/WC is supplied in 50-ft or 100-ft (15.2 m or 30.5 m) rolls (custom-length rolls are available upon request). Foam is held back on one end to allow a 4-in. (102 mm) seam to be "shiplapped" (when the end of one bellow overlaps the other to create a watertight joint). Pre-punched aluminum termination bars are included in the assembly.





Product Selection Chart

Curb-to-Curb

C– EJ Bellow Widths
D– Cover Overall Width

Joint	Curb width (in. & mm)					
	1½ (38 mm)	3 (76 mm)	6 (152 mm)	8 (203 mm)	10 (254 mm)	12 (305 mm)
Opening (in.)	C/D	C/D	C/D	C/D	C/D	C/D
1½ to 2½ (38 mm to 64 mm)	4/11	4/14	4/20	4/24	4/28	4/32
2½ to 4 (64 mm to 102 mm)	6/13	6/16	6/22	6/26	6/30	6/34
4 to 5 (102 mm to 127 mm)	8/15	8/18	8/24	8/28	8/32	8/36
5 to 6½ (127 mm to 165 mm)	10/17	10/20	10/26	10/30	10/34	10/38
6½ to 8 (165 mm to 203 mm)	12/19	12/22	12/28	12/32	12/36	12/40

Curb-to-Wall

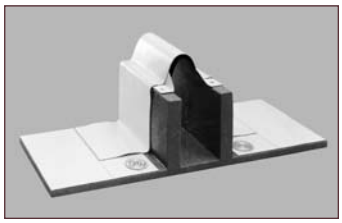
C– EJ Bellow Widths
D– Cover Overall Width

Joint	Curb width (in. & mm)					
Opening	1½ (38 mm)	3 (76 mm)	6 (152 mm)	8 (203 mm)	10 (254 mm)	12 (305 mm)
or Span (in.)	C/D	C/D	C/D	C/D	C/D	C/D
1 to 2 (25 mm to 51 mm)	4/11*	4/13	4/16	4/18	4/20	4/22
2 to 3 (51 mm to 76 mm)	6/13	6/15	6/18	6/20	6/22	6/24
3 to 4 (76 mm to 102 mm)	8/15	8/17	8/20	8/22	8/24	8/26
4 to 5 (102 mm to 127 mm)	10/17	10/19	10/22	10/24	10/26	10/28
5 to 6 (127 mm to 152 mm)	12/19	12/21	12/24	12/26	12/28	12/30

* Also 4/8G with galvanized flange at wall

In all cases, anticipated movement should be considered for proper sizing.

PVC EJ/WC Expand-O-Flash



Expand-O-Flash Style PVC EJ/WC is fabricated using foam-supported bellows with integrally attached nonmetallic nailing flanges. Nailing flanges are a 1 3/8-in. (35 mm) rigid PVC membrane welded to flexible PVC strips. A reinforced PVC cover membrane is then attached over the nailing flanges, welding the entire joint assembly to the PVC membrane. Cover membrane is available in white 60-mil (1.5 mm) or 80-mil (2.0 mm) reinforced PVC. The membrane is designed to cover the curbs or cants, and extend 5 in. (127 mm) onto the roof surface to be welded to the PVC roof membrane.

- Accommodates multi-directional movement.
- Contains reinforced 60-mil (1.5 mm) or 80-mil (2.0 mm) cover membrane to match PVC roof membranes.
- Includes nonmetallic rigid PVC 1 3/8-in. (35 mm) nailing strips.
- Is available in 50-ft (15.2 m) rolls.
- Holds foam back on one end to allow a 4-in. (102 mm) welded seam to be "shiplapped."
- Is designed in a variety of styles for application requirements.
- Qualifies for Johns Manville Peak Advantage Guarantee.

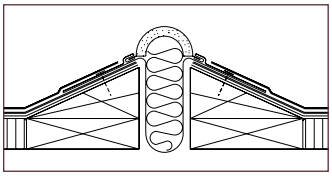
WATER FIRE HAIL WIND

Expand-O-Flash INS

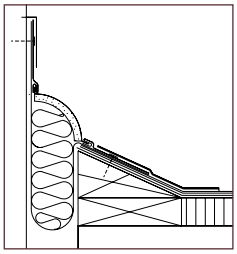
Expand-O-Flash INS is a patented, prefabricated and insulated expansion joint cover. It is formed using a standard Expand-O-Flash cover attached to a rugged, high-quality vapor retarder. Johns Manville Microlite® "L" specialty fiber glass insulation is then poly sleeved and inserted into the opening located between the Expand-O-Flash and vapor retarder. It is available in bellow widths up to 58 in. (1,473 mm) to cover seismic and other expansion joint openings. Microlite "L" provides both thermal insulation (e.g., R=19 for 6 1/4-in. [159 mm] thickness) and sound absorption (noise reduction coefficient of 0.75).

For application to cants

Style EJ-INS

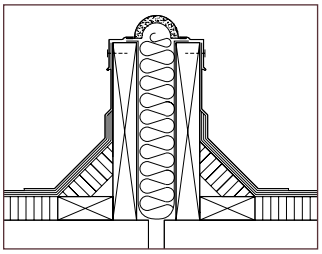


Style EJ-INS

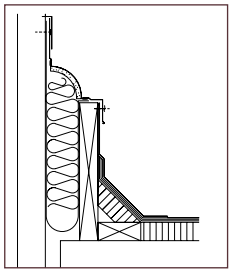


For application to curbs

Style CF-INS

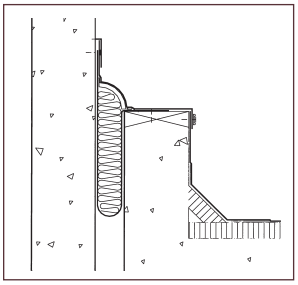


Style CF/EJ-INS

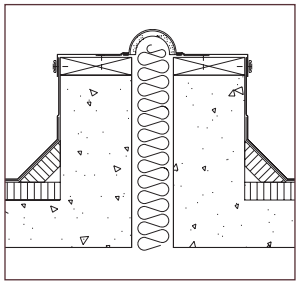


For application to wide curbs (curbs over 2 in. [51 mm] wide)

Style EJ/WC-INS



Style EJ/WC-INS



Available in all expansion joint styles, types and widths.

For size selection, use charts on pages 5 - 7.

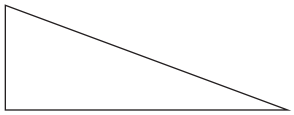
Roof Expansion Joint Covers

Factory-fabricated Intersection Detail

Expand-O-Flash

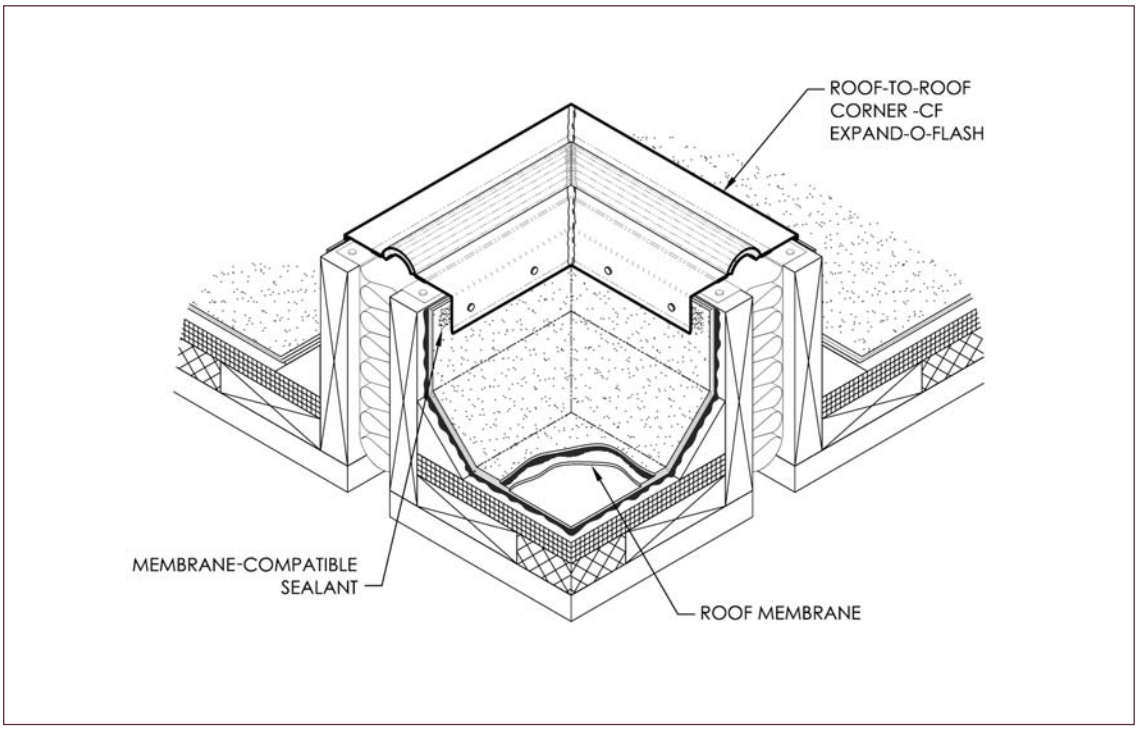
As expansion joints move, the greatest stress occurs in the cover at the point where expansion joints intersect, cross or change directions. Factory-fabricated intersections are designed for maximum flexibility and are produced using special fabrication techniques to ensure watertight and clean seam lines. Factory quality controls ensure high-yield performance.

Unless requested, all Style EJ fittings are designed to fit on a cant composed of a wood 2 in. x 6 in. (51 mm x 152 mm), sawed diagonally. See illustration below.



All intersections are available left or right handed.

Roof-to-Roof Corner

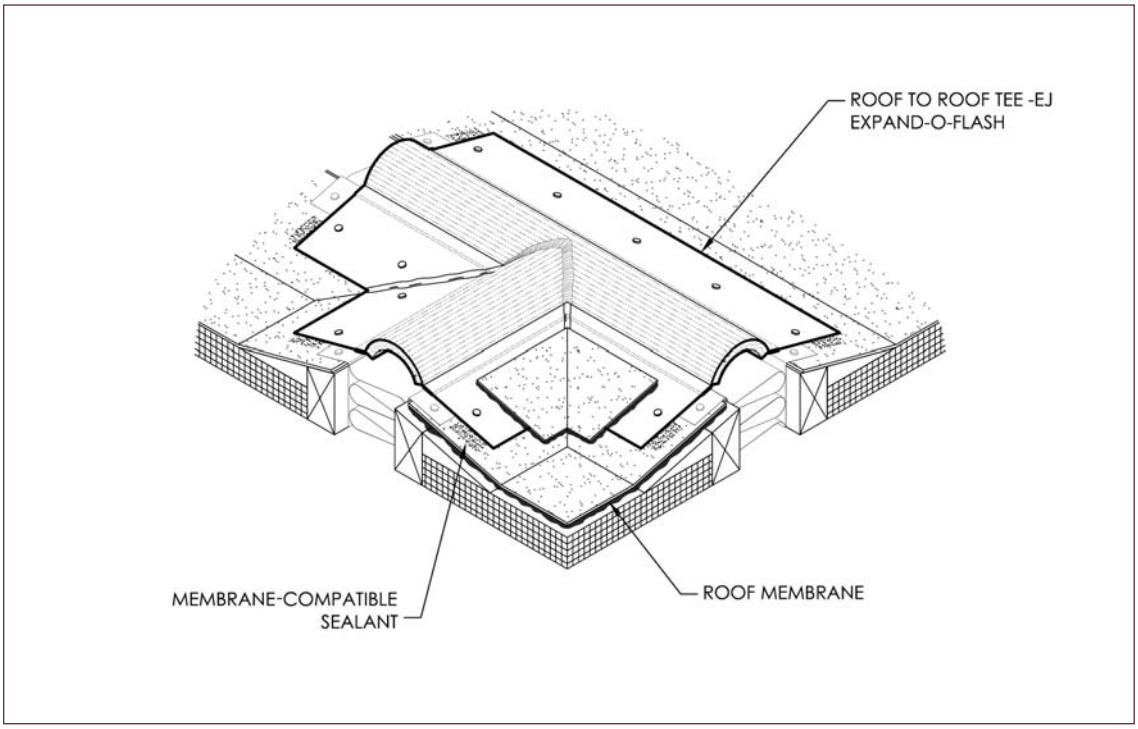


Style	Application
PF-1*	CF
PF-11	EJ
PF-21	WC
PF-31	EJ (vertical application)

* Intersection illustrated

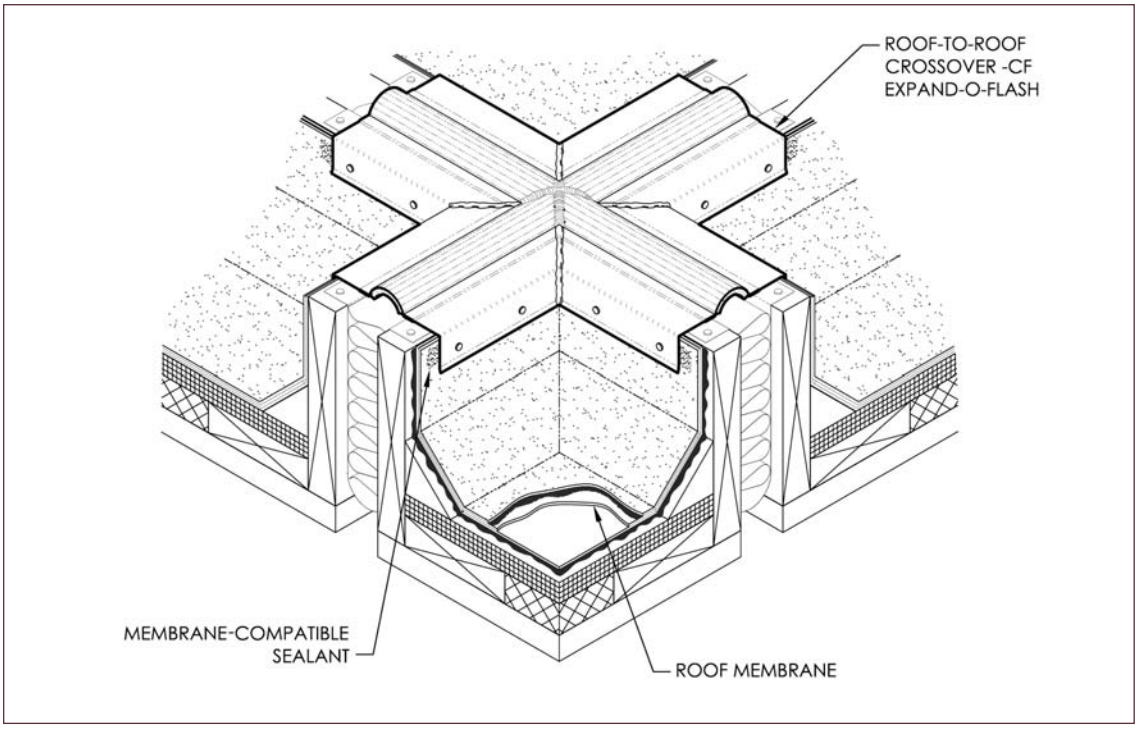
Expand-O-Flash

Roof-to-Roof Tee



Style	Application
PF-2	CF
PF-12*	EJ
PF-22	EJ/WC
PF-32	EJ (vertical application)

Roof-to-Roof Crossover

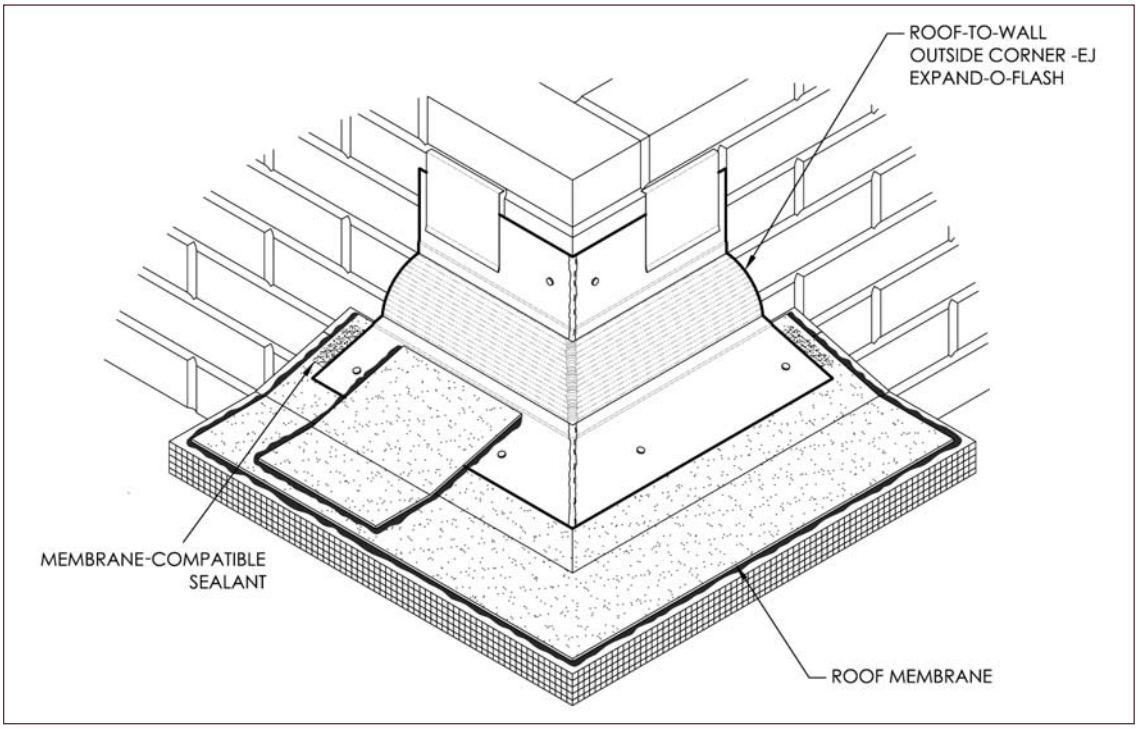


Style	Application
PF-3*	CF
PF-13	EJ
PF-23	EJ/WC
PF-33	EJ (vertical application)

* Intersection illustrated

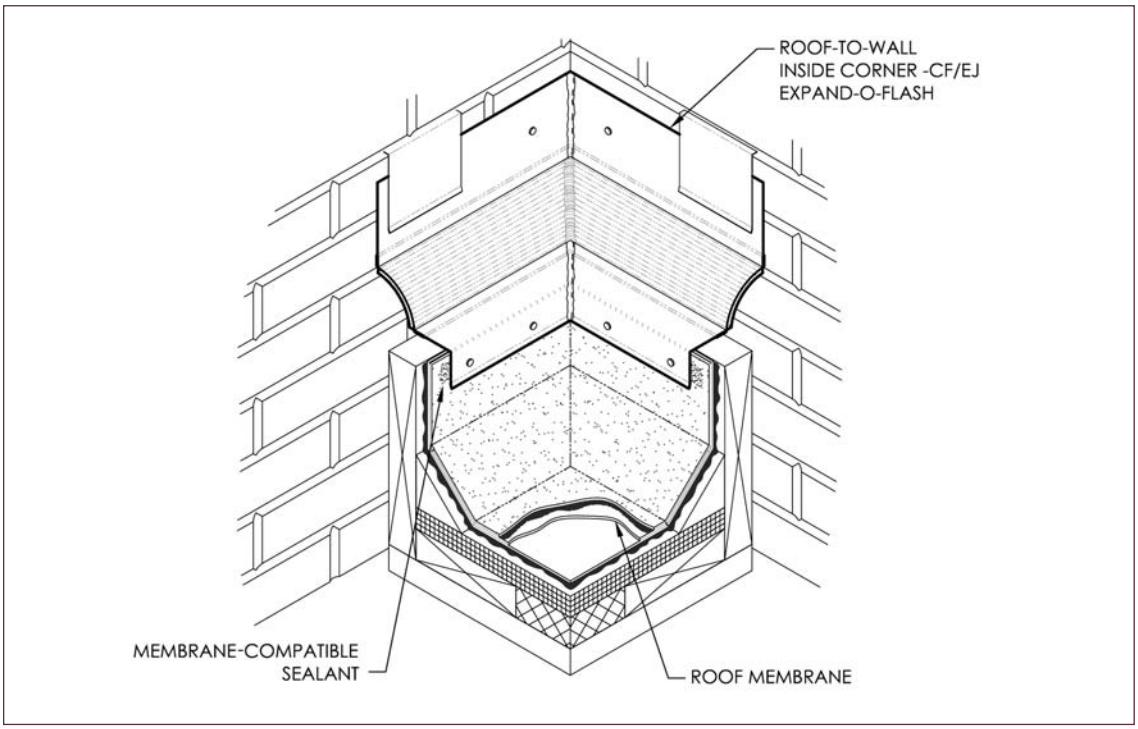
Expand-O-Flash

Roof-to-Wall Outside Corner



Style	Application
PF-4	CF/EJ
PF-14*	EJ
PF-24	EJ/WC
PF-34	EJ (vertical application)

Roof-to-Wall Inside Corner

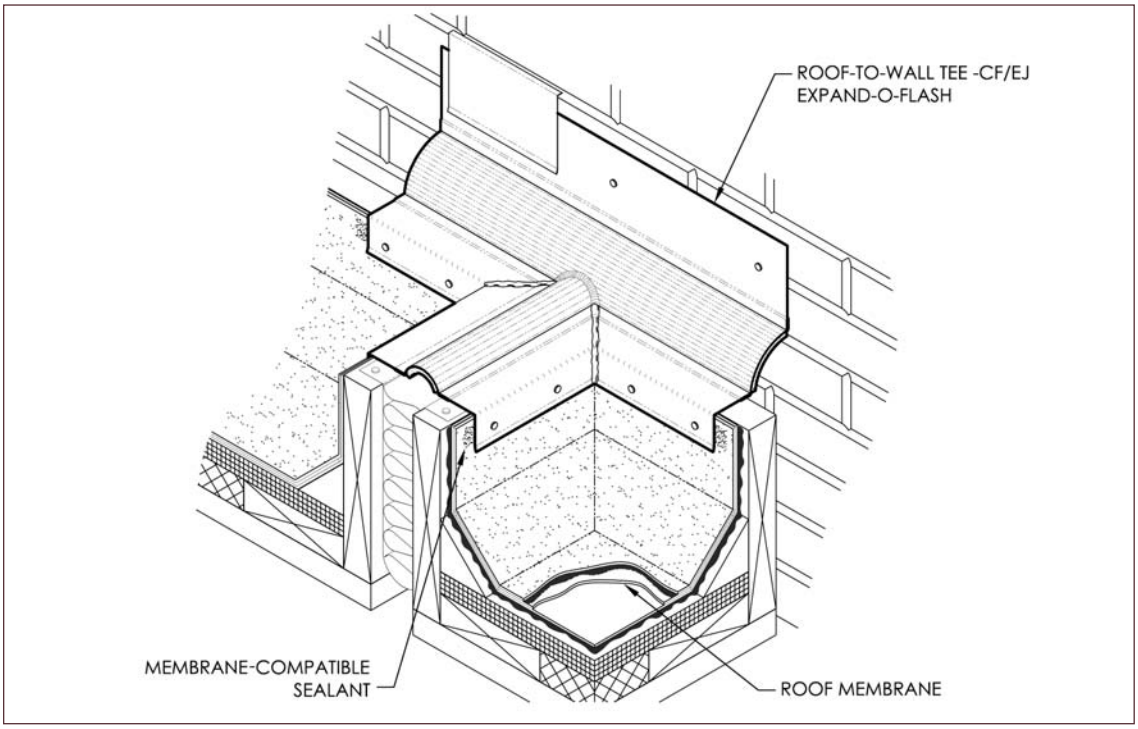


Style	Application
PF-5*	CF/EJ
PF-15	EJ
PF-25	EJ/WC
PF-35	EJ (vertical application)

* Intersection illustrated

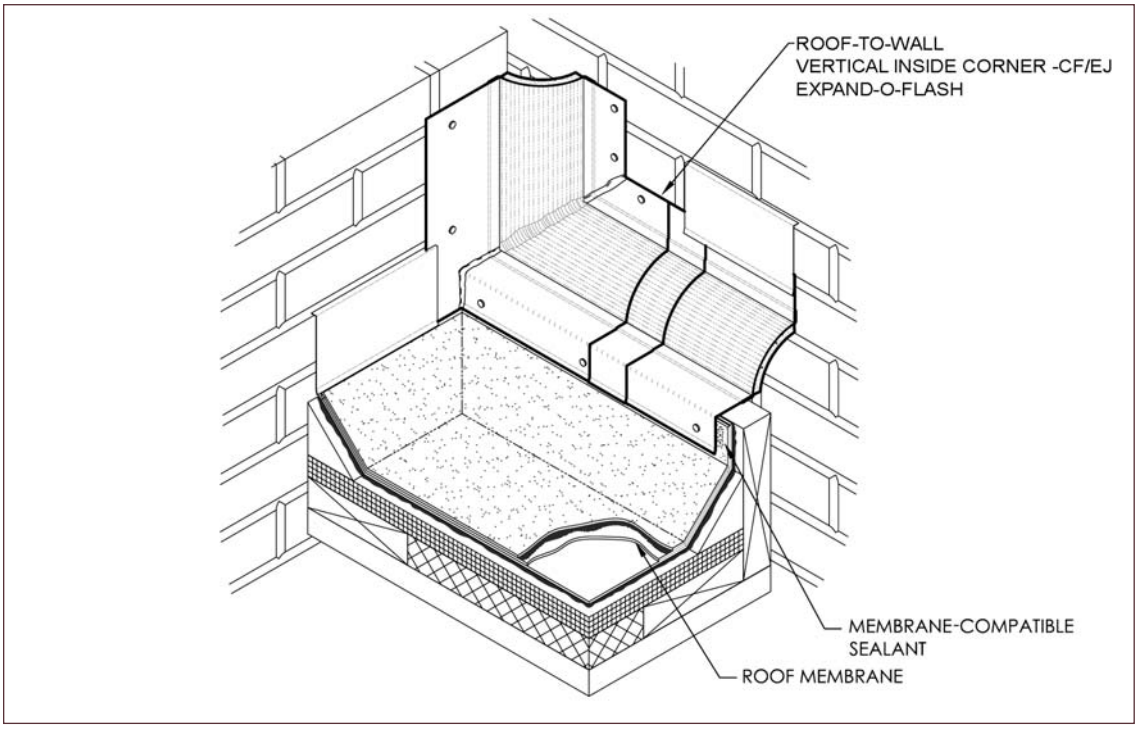
Expand-O-Flash

Roof-to-Wall Tee



Style	Application
PF-6*	CF/EJ
PF-16	EJ
PF-26	EJ/WC
PF-36	EJ (vertical application)

Roof-to-Wall Vertical Inside Corner

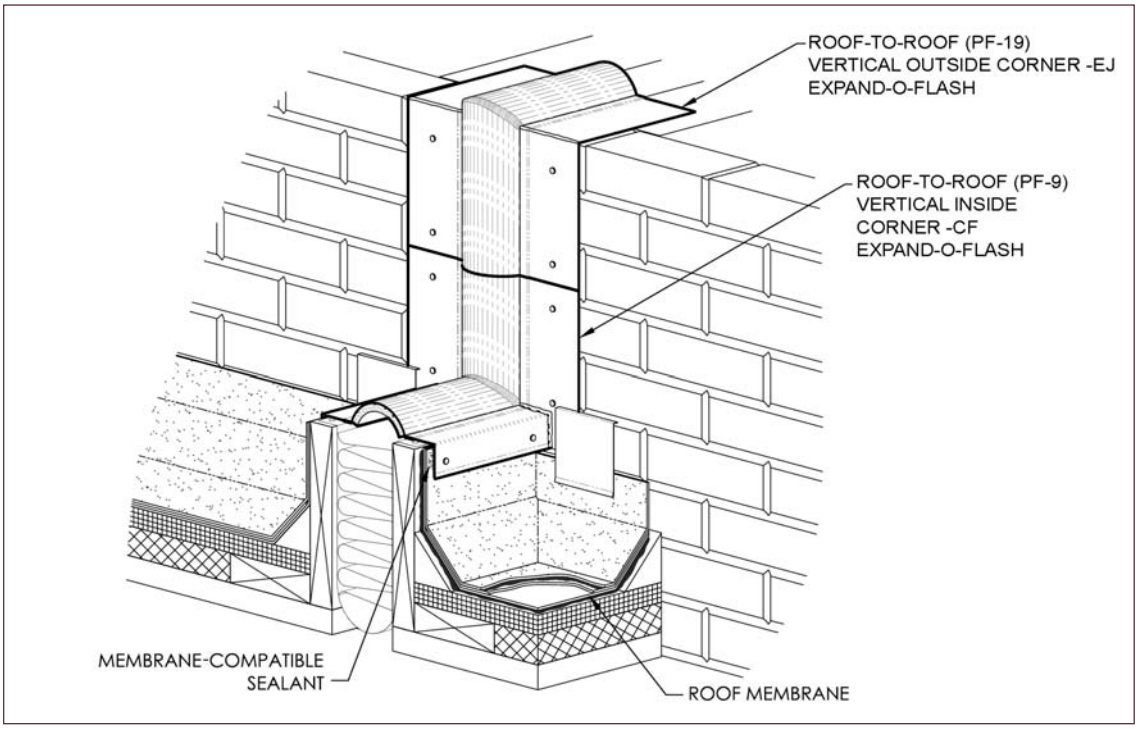


Style	Application
PF-8*	CF/EJ (left hand)
PF-18	EJ
PF-28	EJ/WC
PF-38	EJ (vertical application)

* Intersection illustrated

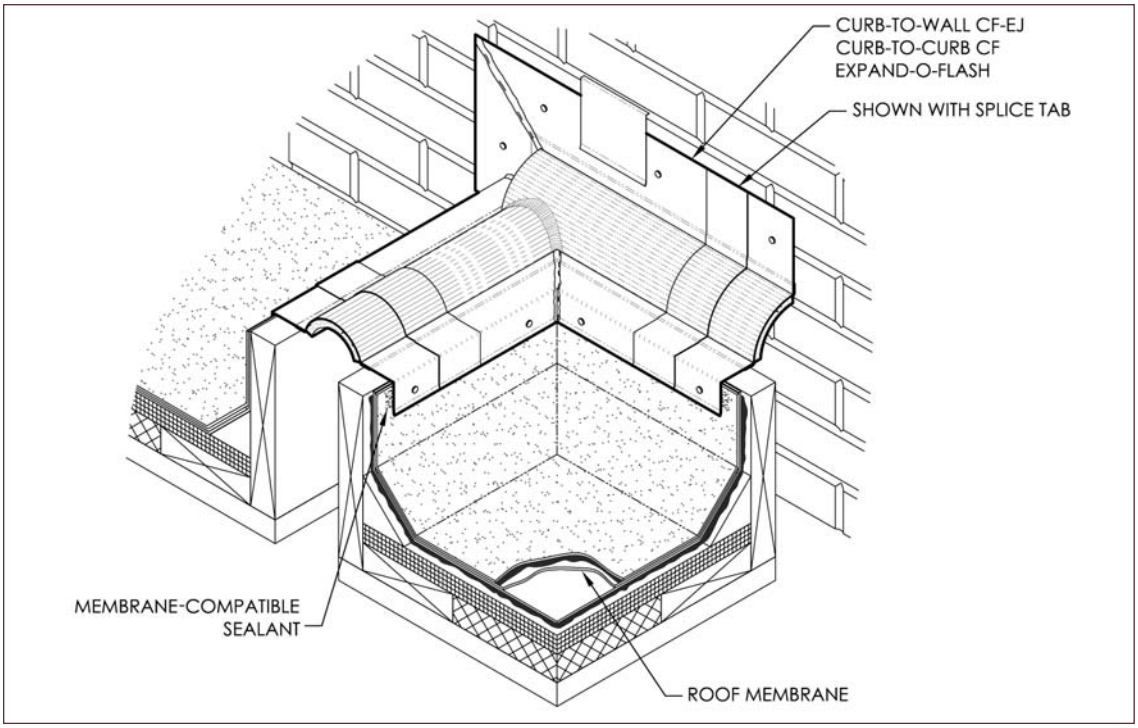
Expand-O-Flash

Structural Expansion Joint into a Parapet Load-Bearing Wall (two-piece component)



Style	Application
PF-9*	CF
PF-19*	EJ
PF-29	EJ/WC
PF-39	EJ (vertical application)

Roof-to-Wall Truncated Tee

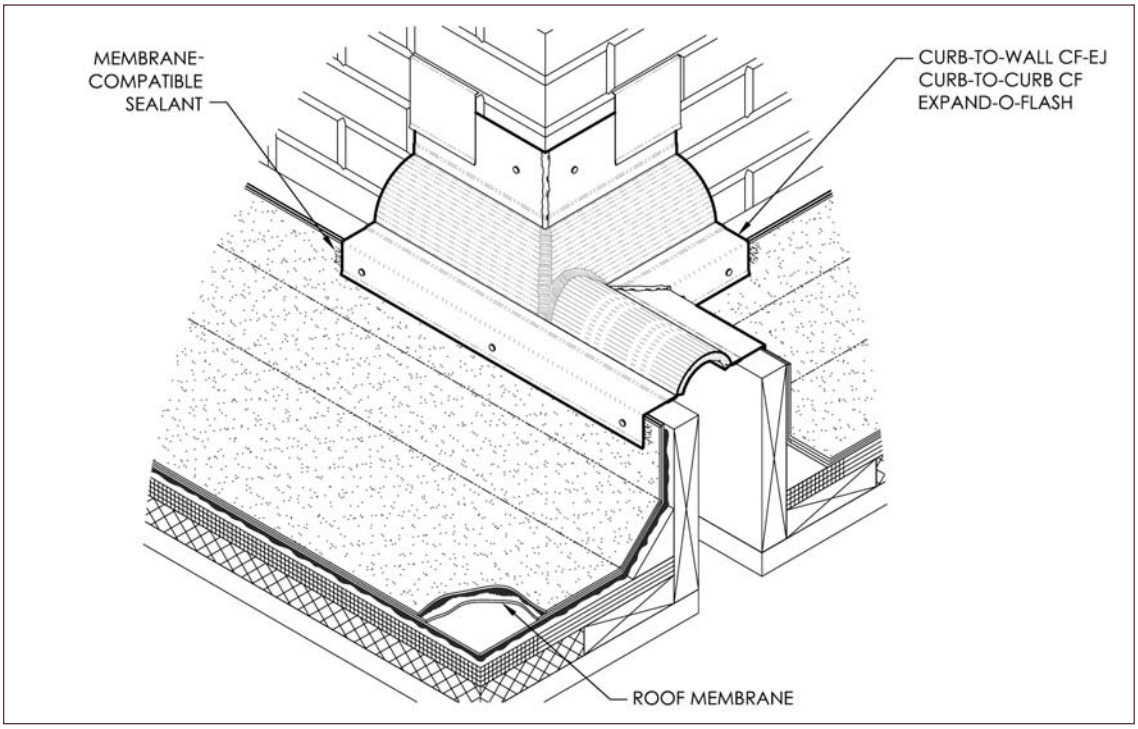


Style	Application
PF-1/5*	CF/EJ
PF-11/15	EJ
PF-21/15	EJ/WC
PF-31/35	EJ (vertical application)

* Intersection illustrated

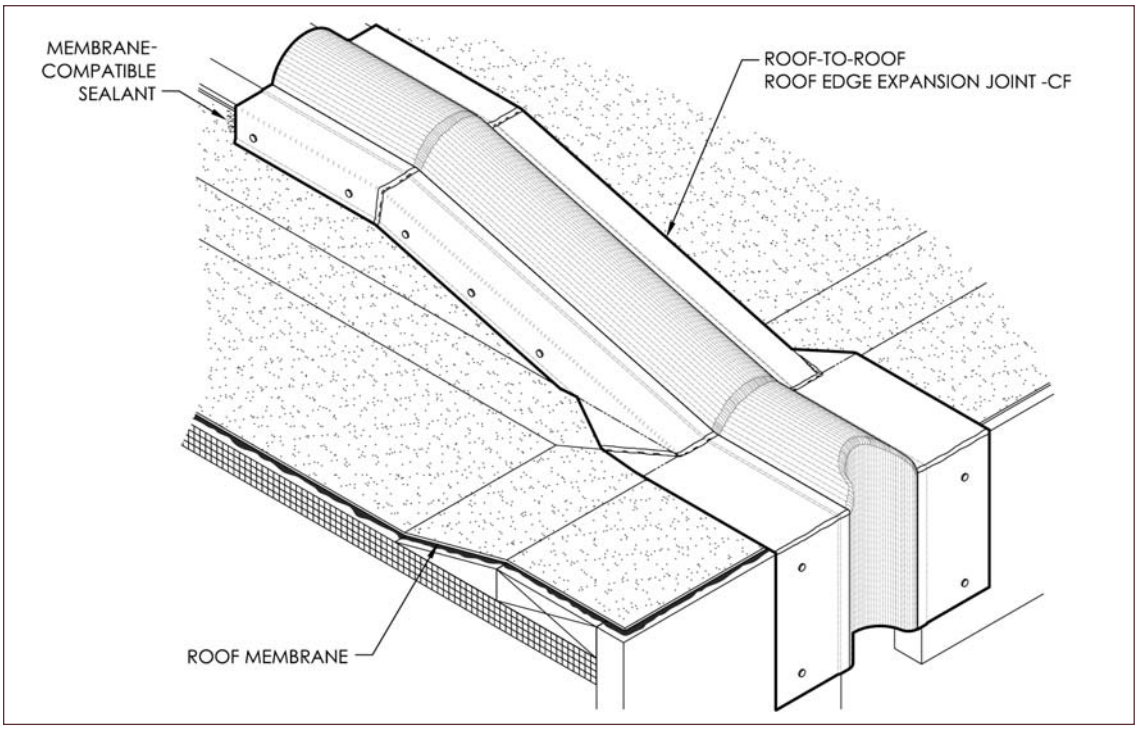
Expand-O-Flash

Roof-to-Wall Compound Outside Corner



Style	Application
PF-4/6*	CF/EJ
PF-14/16	EJ
PF-24/16	EJ/WC
PF-34/36	EJ (vertical application)

Structural Expansion Joint Intersecting a Roof Edge

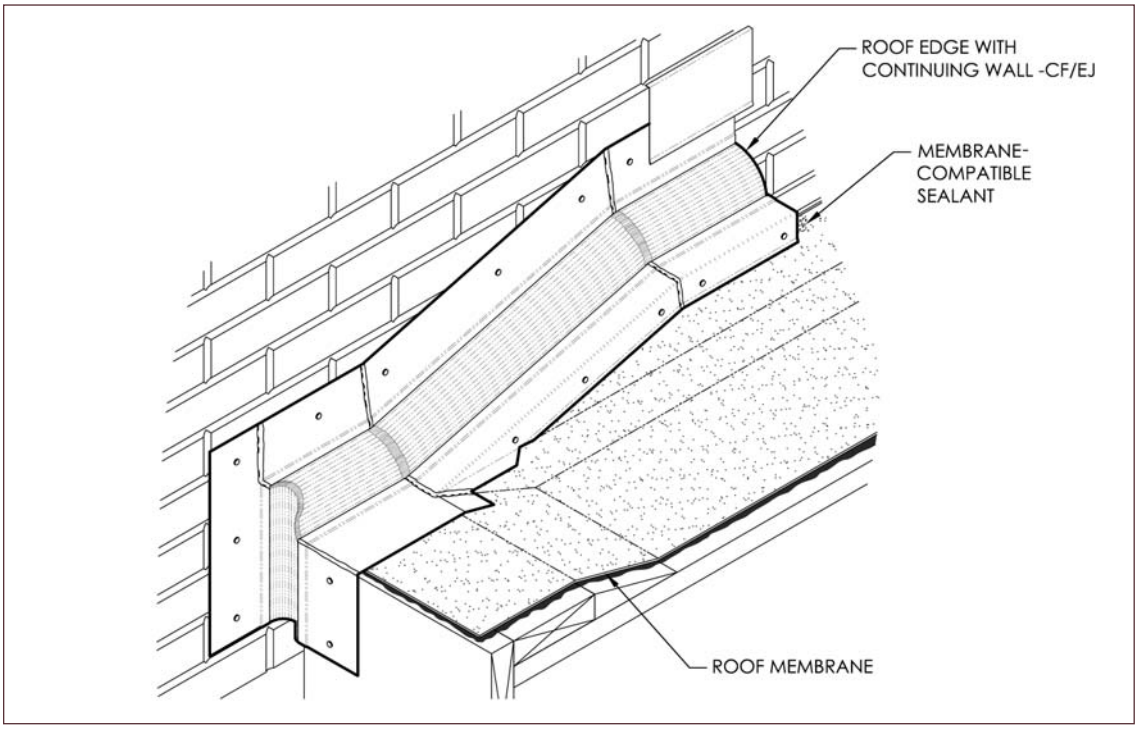


Style	Application
FF-1*	CF
FF-11	EJ
FF-21	EJ/WC
FF-31	EJ (vertical application)

* Intersection illustrated

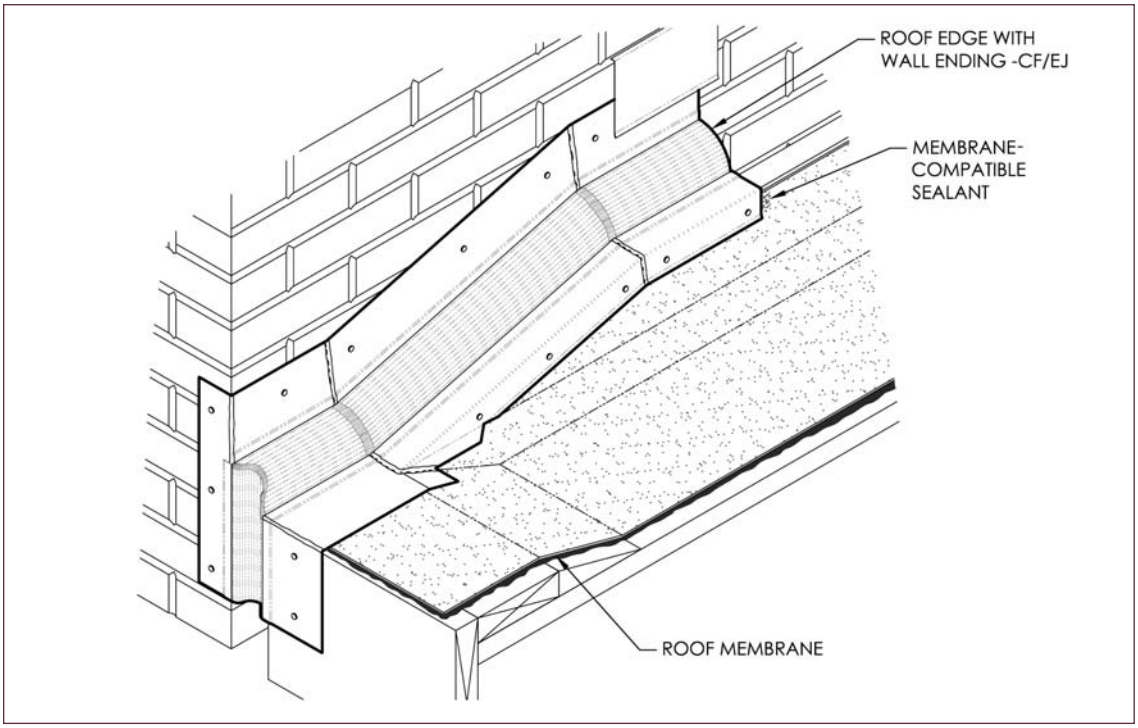
Expand-O-Flash

Roof Edge with Continuing Wall



Style	Application
FF-2*	CF/EJ (left hand)
FF-12	EJ
FF-22	EJ/WC
FF-32	EJ (vertical application)

Roof Edge with Wall Ending

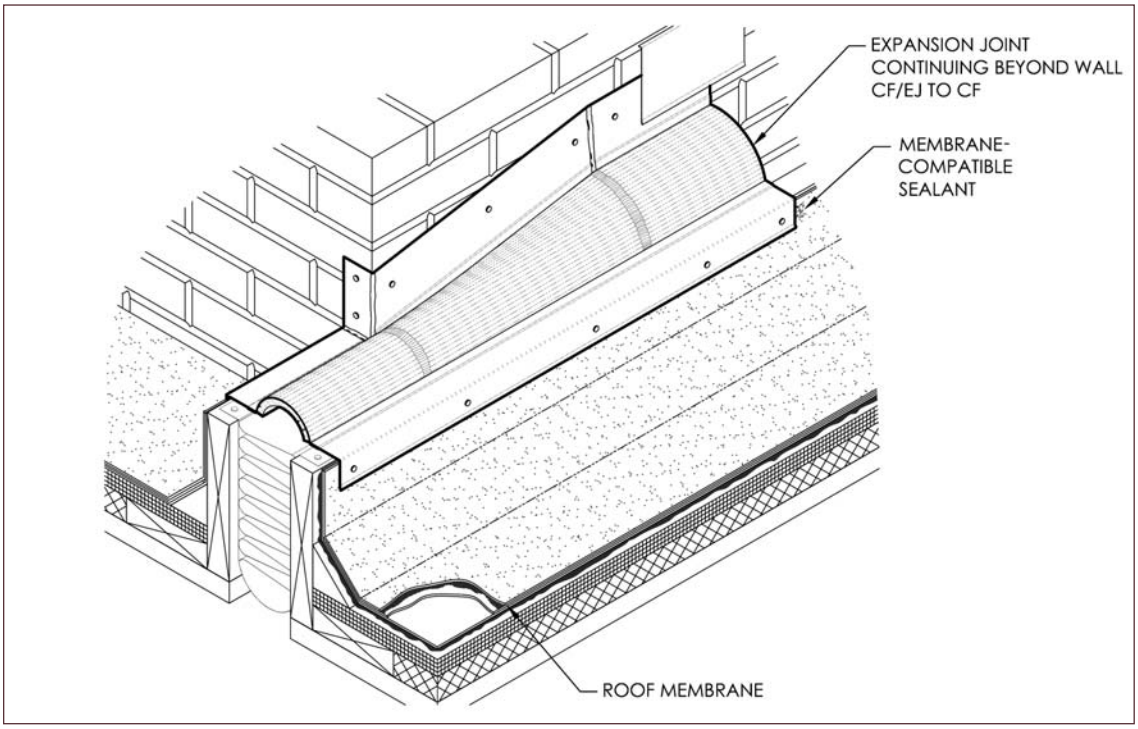


Style	Application
FF-4*	CF/EJ (left hand)
FF-14	EJ
FF-24	EJ/WC
FF-34	EJ (vertical application)

* Intersection illustrated

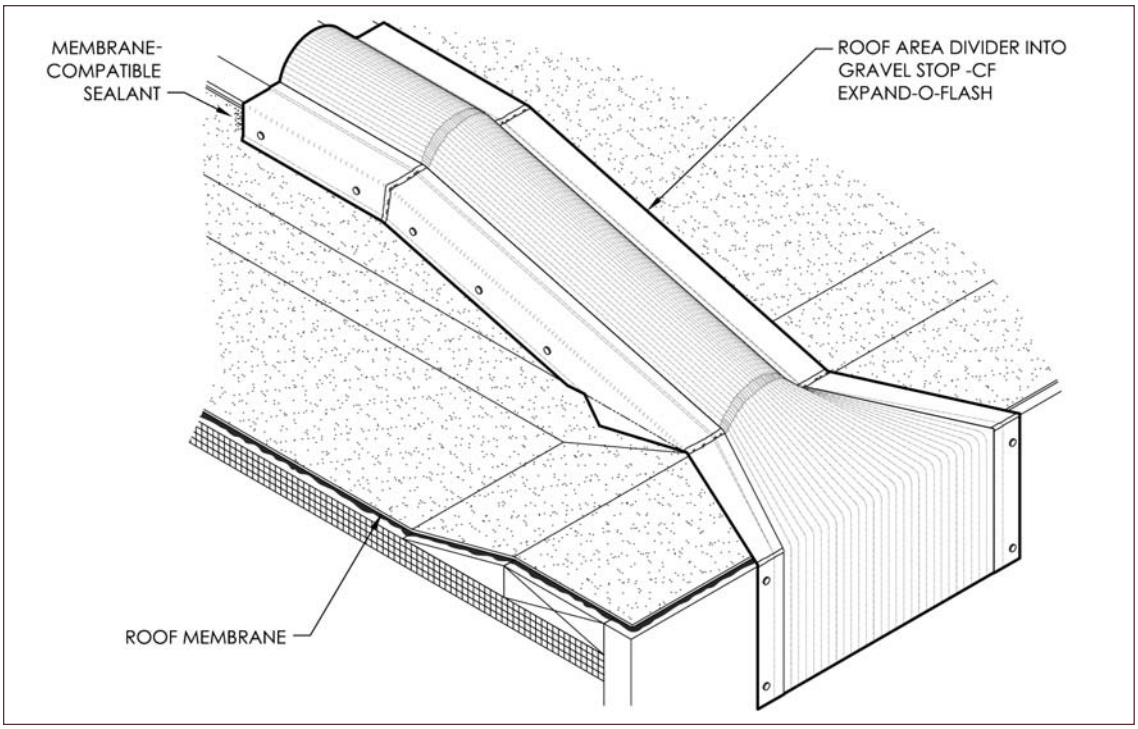
Expand-O-Flash

Expansion Joint Continuing Beyond End of Wall



Style	Application
FF-5*	CF/EJ
FF-15	EJ
FF-25	EJ/WC
FF-35	EJ (vertical application)

Roof Area Divider Intersecting a Gravel Stop Load-Bearing Wall

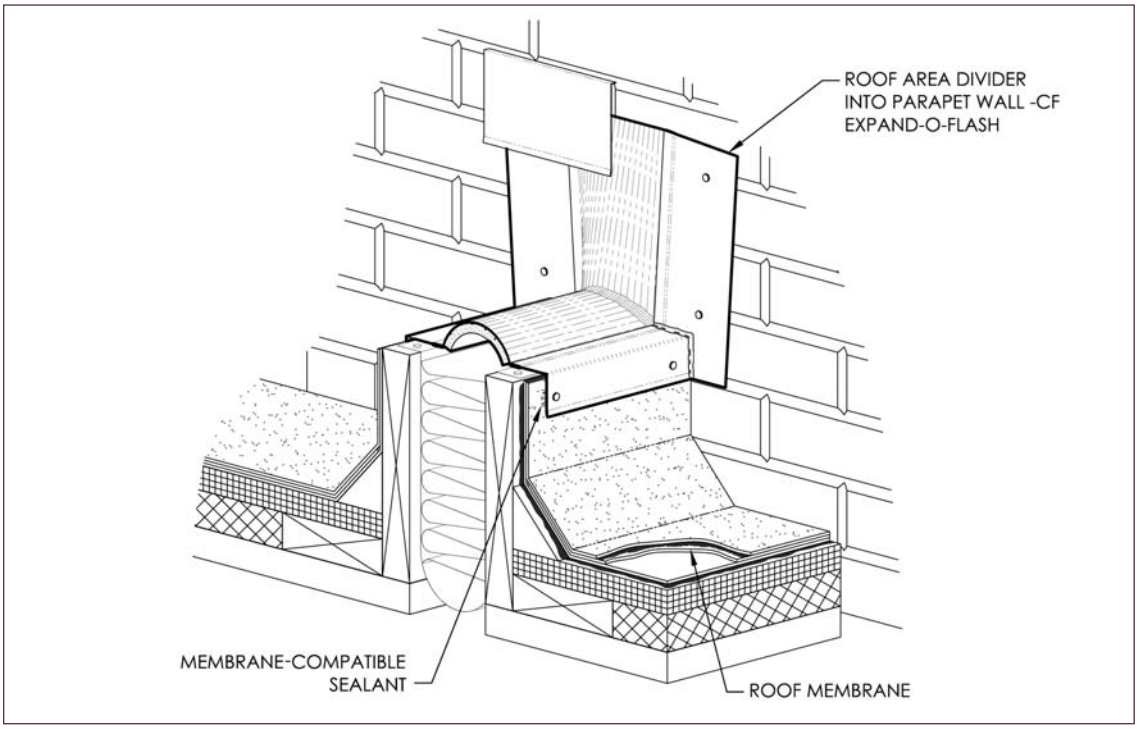


Style	Application
FF-7*	CF
FF-17	EJ
FF-27	EJ/WC
FF-37	EJ (vertical application)

* Intersection illustrated

Expand-O-Flash

Roof Area Divider Intersecting a Parapet Load-Bearing Wall



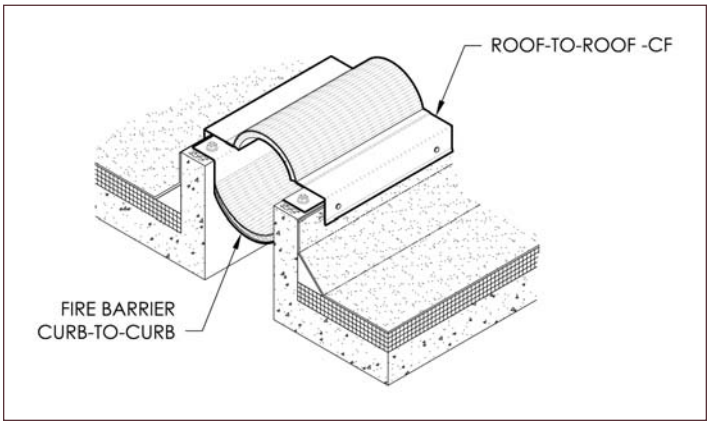
Style	Application
FF-8*	CF
FF-18	EJ
FF-28	EJ/WC
FF-38	EJ (vertical application)

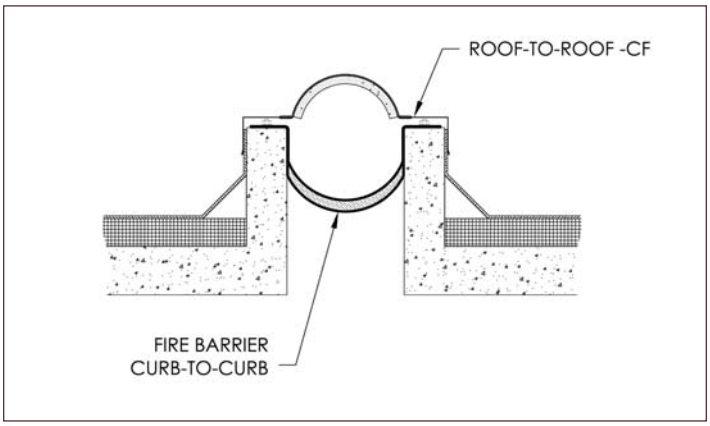
* Intersection illustrated

Fire Protection

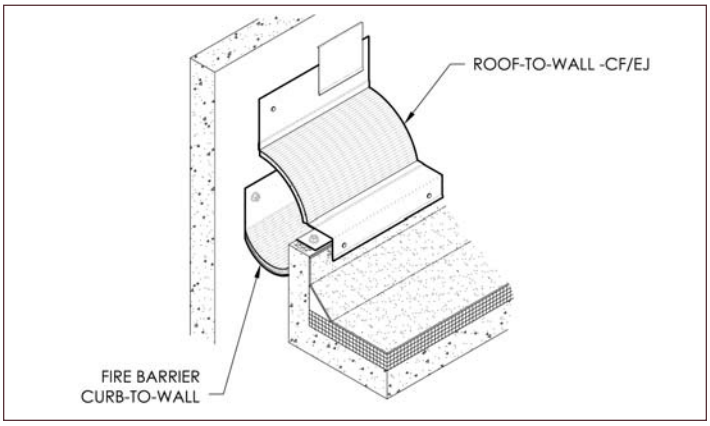
Where building codes require hourly ratings, any style Expand-O-Flash installed on a concrete deck and protected by FS 5800-F* fire barrier provides a UL listed one-hour and two-hour fire rating.

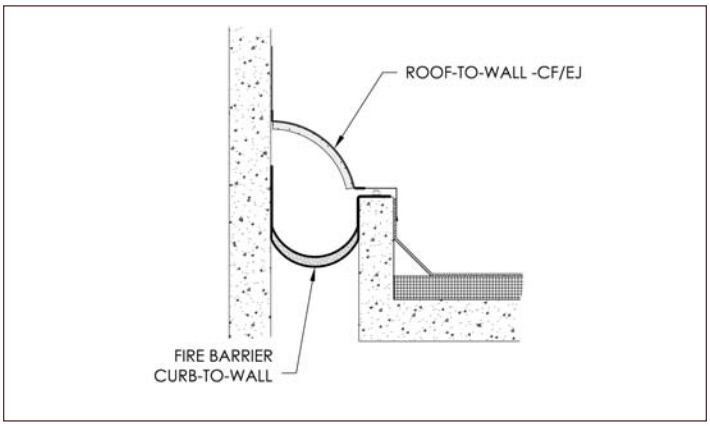
Fire Barrier (Curb-to-Curb)





Fire Barrier (Curb-to-Wall)





FS 5800-F Advantages

- Is UL listed for 1-hour and 2-hour fire rating
- Requires no caulking
- Allows 50 percent expansion/contraction and lateral shear
- Expands joint openings up to 30 in. (762 mm)
- Includes custom sizes
- Meets UBC, BOCA, NFPA, ICBO and SBCCI criteria
- Is ISO 9001 certified

Fire Barrier wall systems also are available, combining JM Expand-O-Gard with Thermal Structures FS 5800-W*.

*Produced by Thermal Structures, Inc., Corona, California

Expand-O-Flash Advantages

- Qualifies for Johns Manville Peak Advantage Guarantees
- Contains EPDM or Neoprene flexible membrane cover
- Includes four flange metals: galvanized, aluminum, copper and stainless
- Enables horizontal, vertical or shear movement
- Opens joints up to 30 in. (762 mm)
- Includes factory-fabricated intersections
- Has seismic joint covers

Expand-O-Gard

Expand-O-Gard is a flexible waterproof closure for vertical building walls designed to accommodate movement between building components caused by thermal, settlement, wind, flex and seismic forces.

Expand-O-Gard is a combination of a durable elastomeric bellows, attached to two metal flanges both mechanically and chemically by a patented bifurcation process. It is available in two designs: Style WS and Style F.

All styles of Expand-O-Gard are available with insulated bellows upon request.

Style WS

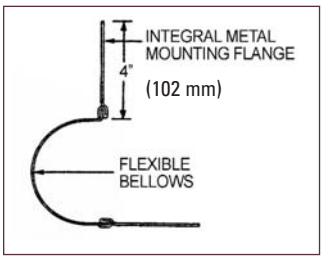
Style WS is for use on masonry construction, stucco, metal buildings and panel wall systems where flanges are concealed and/or sandwiched within the wall system.

- 4-in. (102 mm) metal flanges are available in 26-gauge (0.5 mm) galvanized, 0.032-in. (0.8 mm) aluminum, 16 oz copper or 0.018-in. (0.5 mm) stainless steel. Flanges are available punched (3/4-in. [19 mm] holes 4 in. [102 mm] o.c. for masonry construction) or unpunched. Available in Freedom Gray Copper, Kynar-coated 24-gauge (0.6 mm) steel or aluminum finish.
- Copper or stainless steel flanges are recommended where contact with masonry is part of the design.
- Flexible rubber membrane bellows are black EPDM. White EPDM and black Neoprene are available upon request.
- Available in 10-ft (3.1 m) lengths and 50-ft and 100-ft (15.2 m and 30.5 m) rolls. Other lengths are available upon request.
- Factory-fabricated transitions are available to accommodate intersections between vertical Expand-O-Gard and horizontal Expand-O-Flash expansion joints.

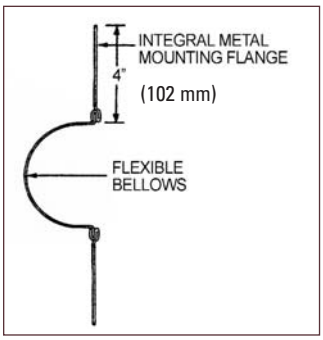
Designation	Length (ft)	Bellow Widths (in.)	Flange Materials	Punched or Unpunched
WS	10 (3.1 m)	4, 6, 8, 10, 12 (102, 152, 203, 254, 305 mm)	A, G, C, S	U, P
WS	50 and 100 (15.2 m and 30.5 m)	4, 6, 8 (102, 152, 203 mm)	A, G, S, C	U

To determine the correct bellow size, multiply the nominal joint width by 1.5, or use the nominal joint width plus the maximum amount of anticipated movement. Use the method yielding the greater size.

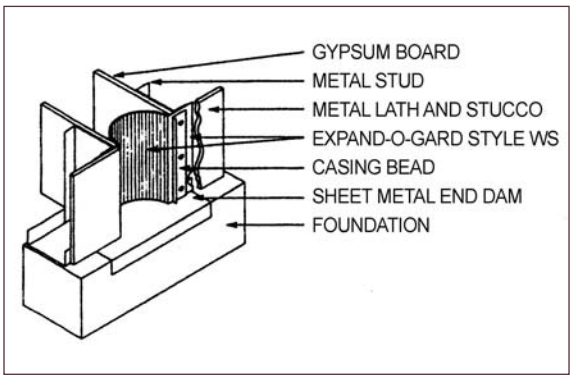
Style WS
Inside Corner Condition



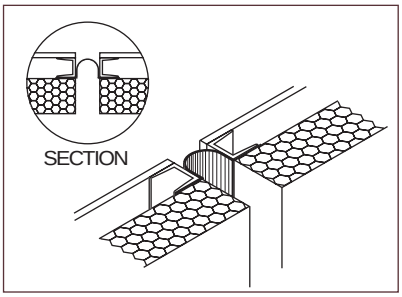
Wall-to-Wall Condition



Style WS Termination Detail



Behind Exterior Facade



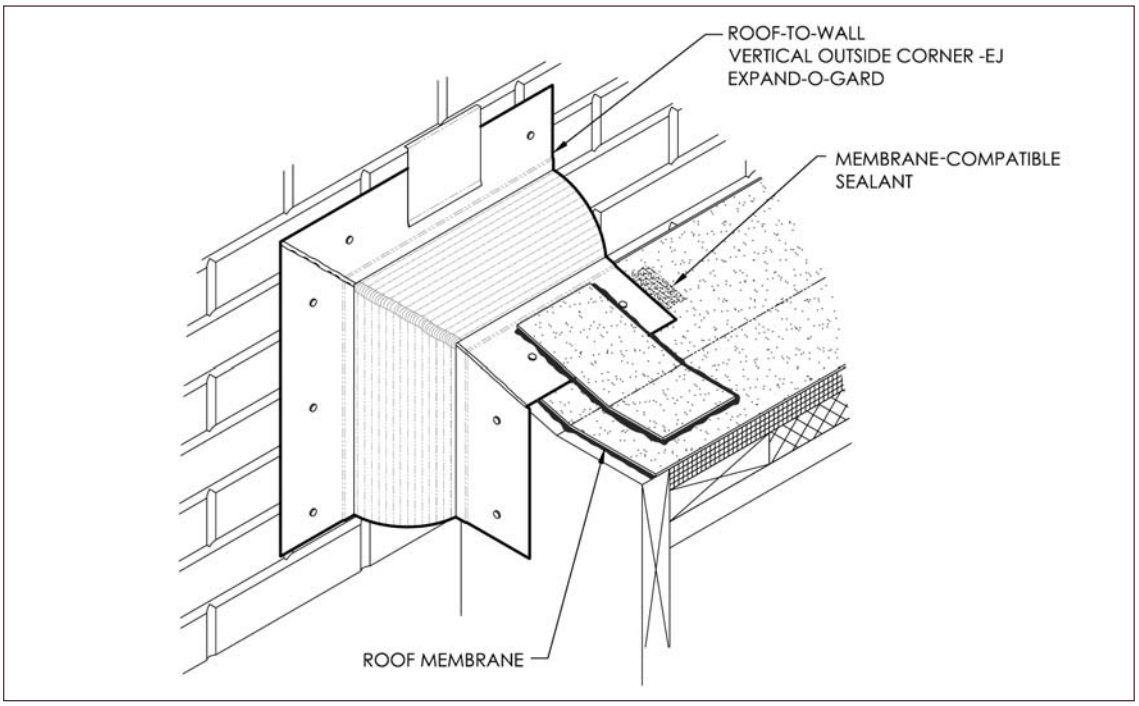
Bellow sizes: As a rule of thumb, bellow sizes should be the greater of the nominal joint plus maximum anticipated movement or 1.5 times the nominal width. Use method yielding the greater size.

WATER FIRE HAIL WIND

Expand-O-Gard - Style WS Vertical

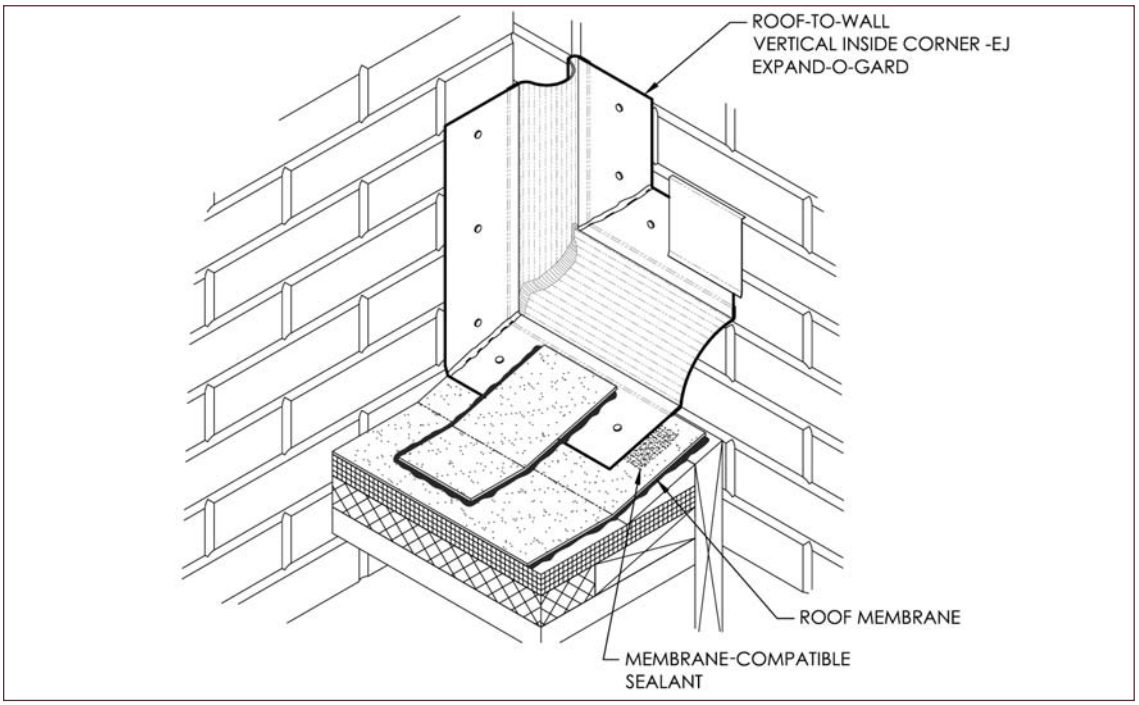
Horizontal-to-Vertical Transitions (Expand-O-Flash to Expand-O-Gard)

Roof-to-Wall Vertical Outside Corner - EJ



Style	Application
EW-4	CF
EW-14*	EJ (left hand)
EW-24	EJ/WC
EW-34	EJ (vertical application)

Roof-to-Wall Vertical Inside Corner - EJ



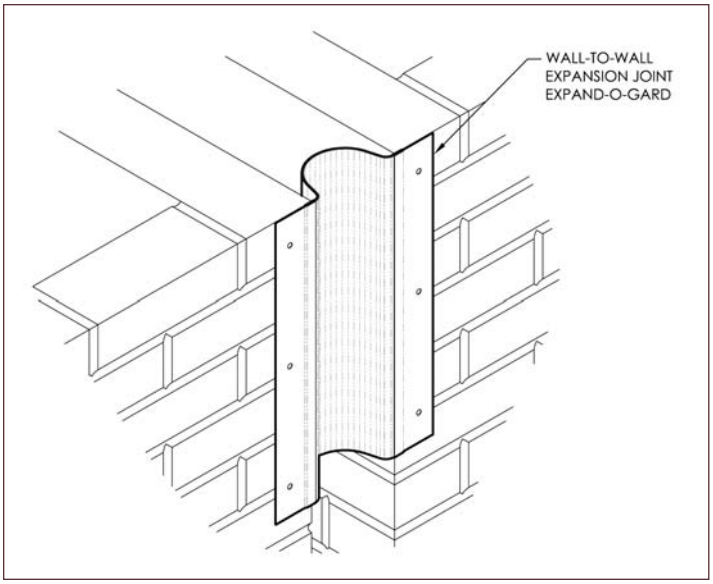
Style	Application
EW-8	CF
EW-18*	EJ (left hand)
EW-28	EJ/WC
EW-38	EJ (vertical application)

* Intersection illustrated

Expand-O-Gard - Style F Vertical

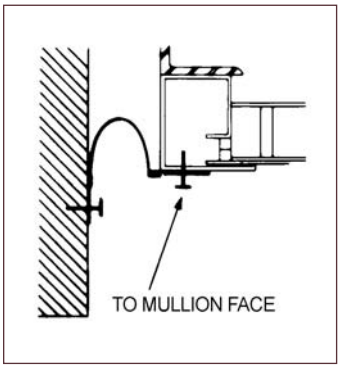
Style F is for use in joints between new and existing vertical masonry, stucco and metal walls, between curtain walls and glass atriums, and other vertical building walls where the flange is part of the visual closure design. Style F can be surface-mounted.

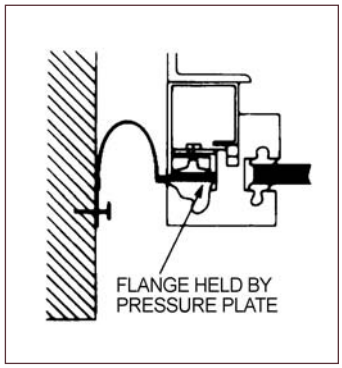
- Stainless steel flanges are 2 ¼-in. (57 mm) double-metal construction for improved rigidity. Stainless is the metal of choice where staining is of concern.
- Flanges are available pre-punched for fastening (¼-in. [6 mm] holes 12 in. [305 mm] o.c.) or unpunched. Other metal flanges are available upon request.
- Flexible rubber membrane bellows consist of black Neoprene. Bellows also are available in black or white EPDM upon request.
- Available in 10-ft, 4-in. (3.2 m) lengths.
- Factory-fabricated transitions are available to accommodate intersections between vertical Expand-O-Gard and horizontal Expand-O-Flash expansion joints.



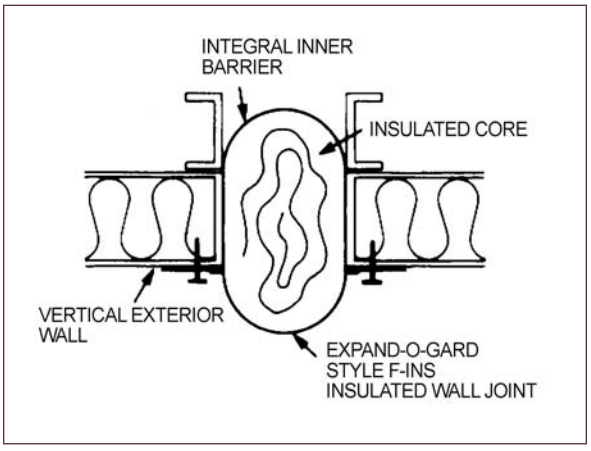
Abutment or Structural Expansion Joints

Curtain Wall to Dissimilar Material





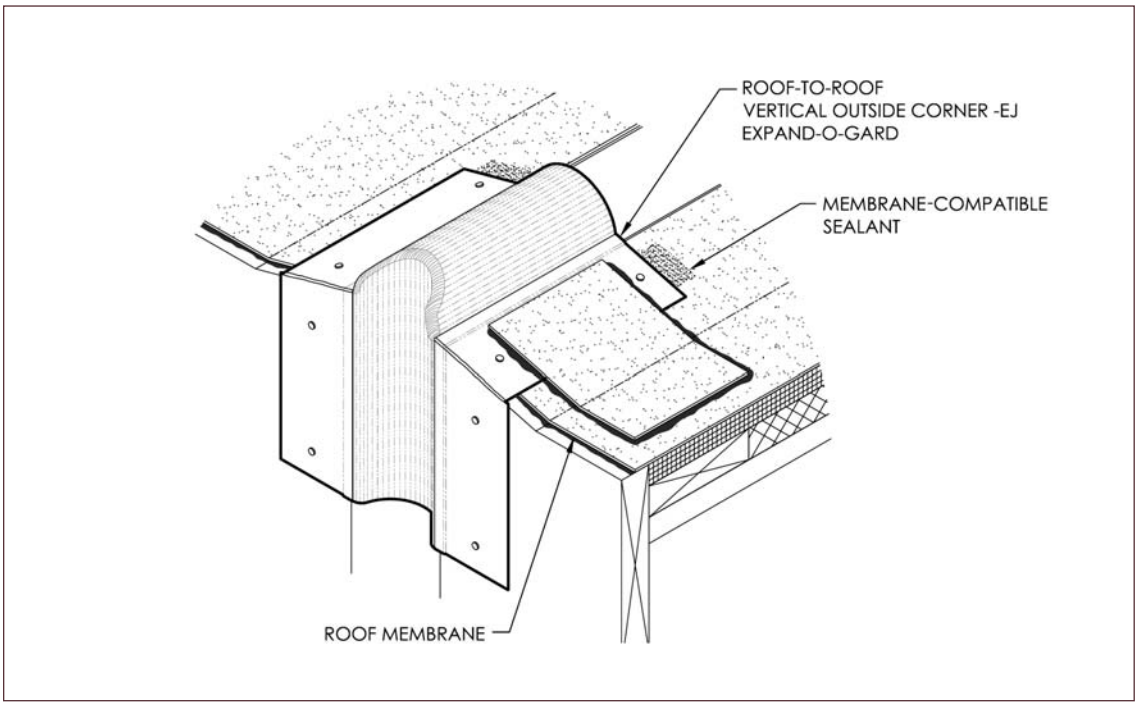
Expand-O-Gard Style F-INS Insulated Wall Joint



Expand-O-Gard - Style F

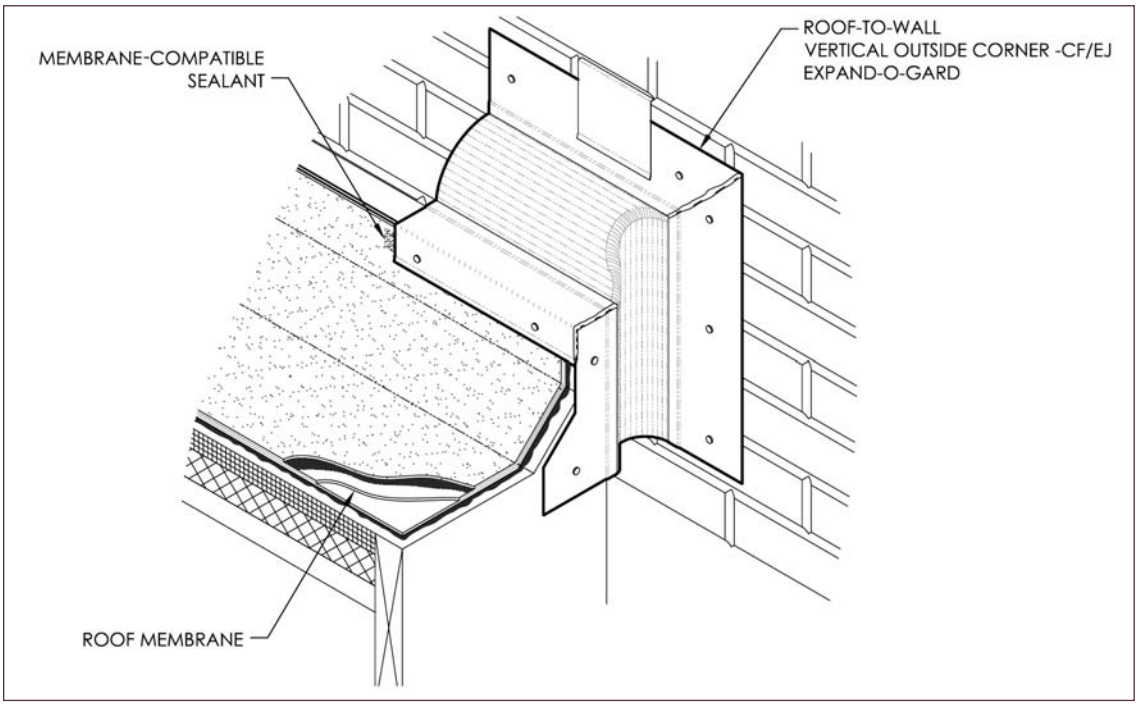
Horizontal-to-Vertical Transitions (Expand-O-Flash to Expand-O-Gard)

Roof-to-Roof Vertical Outside Corner - EJ



Style	Application
EG-1	CF
EG-11*	EJ
EG-21	EJ/WC
EG-31	EJ (vertical application)

Roof-to-Wall Vertical Outside Corner - CF/EJ



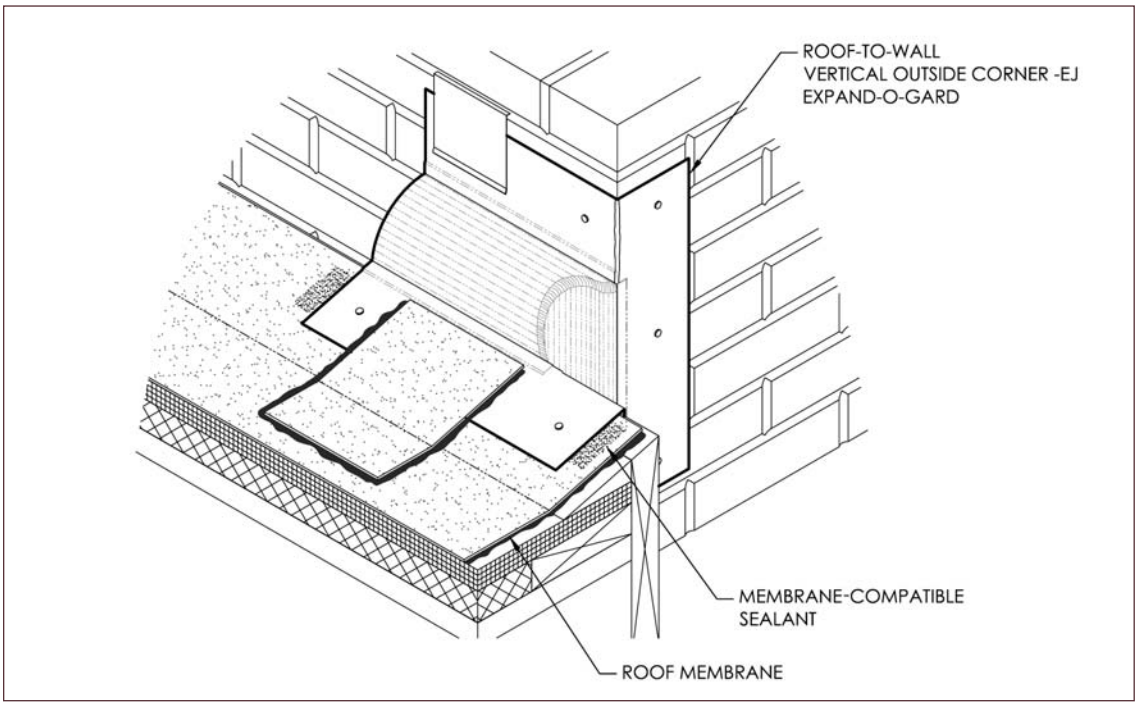
Style	Application
EG-2*	CF (right hand)
EG-12	EJ
EG-22	EJ/WC
EG-32	EJ (vertical application)

* Intersection illustrated

Expand-O-Gard - Style F

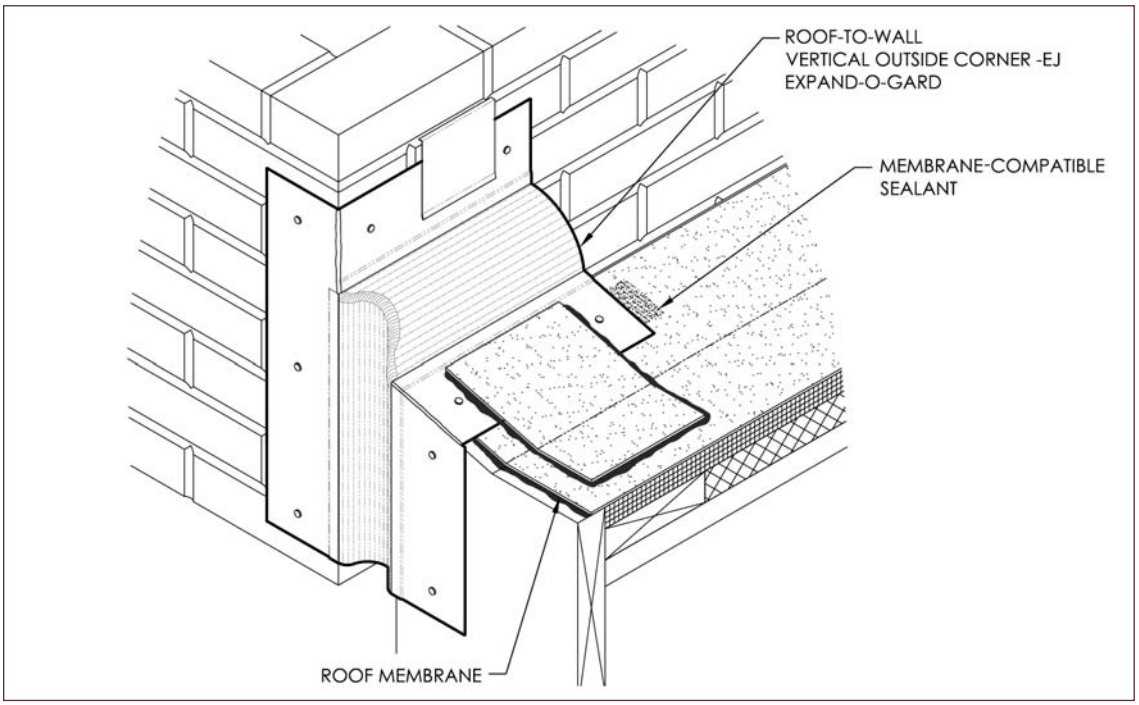
Horizontal-to-Vertical Transitions (Expand-O-Flash to Expand-O-Gard)

Roof-to-Wall Vertical Outside Corner - EJ



Style	Application
EG-3	CF
EG-13*	EJ (right hand)
EG-23	EJ/WC
EG-33	EJ (vertical application)

Roof-to-Wall Vertical Outside Corner - EJ



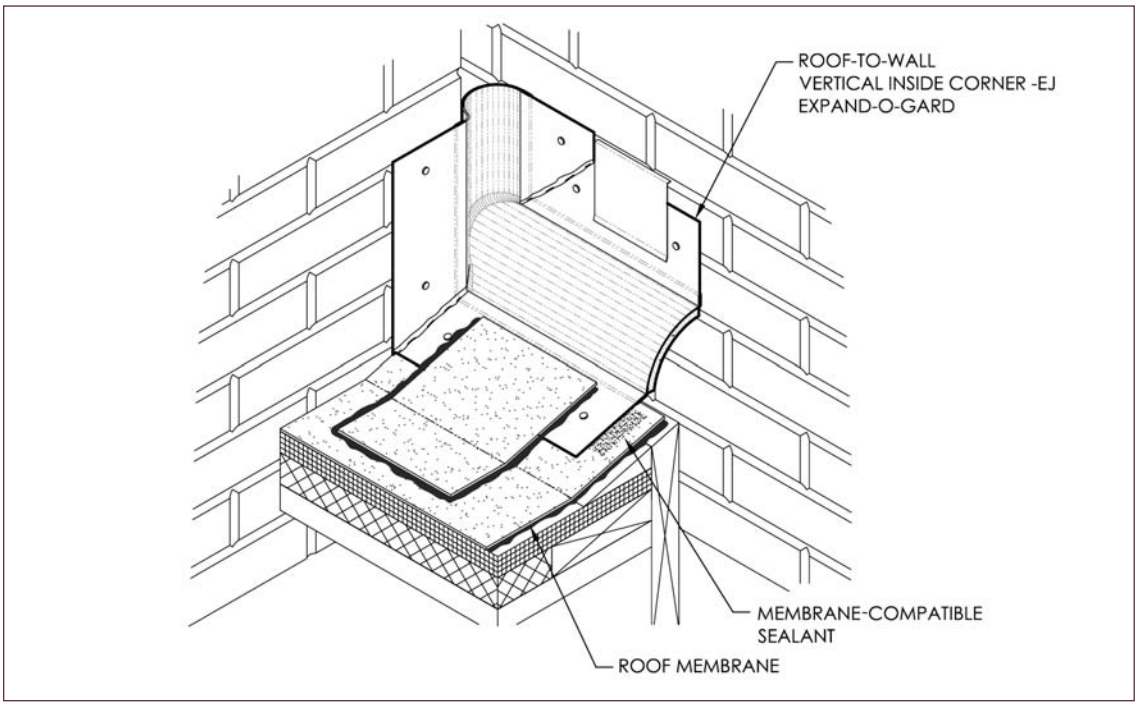
Style	Application
EG-4	CF
EG-14*	EJ (left hand)
EG-24	EJ/WC
EG-34	EJ (vertical application)

* Intersection illustrated

Expand-O-Gard - Style F

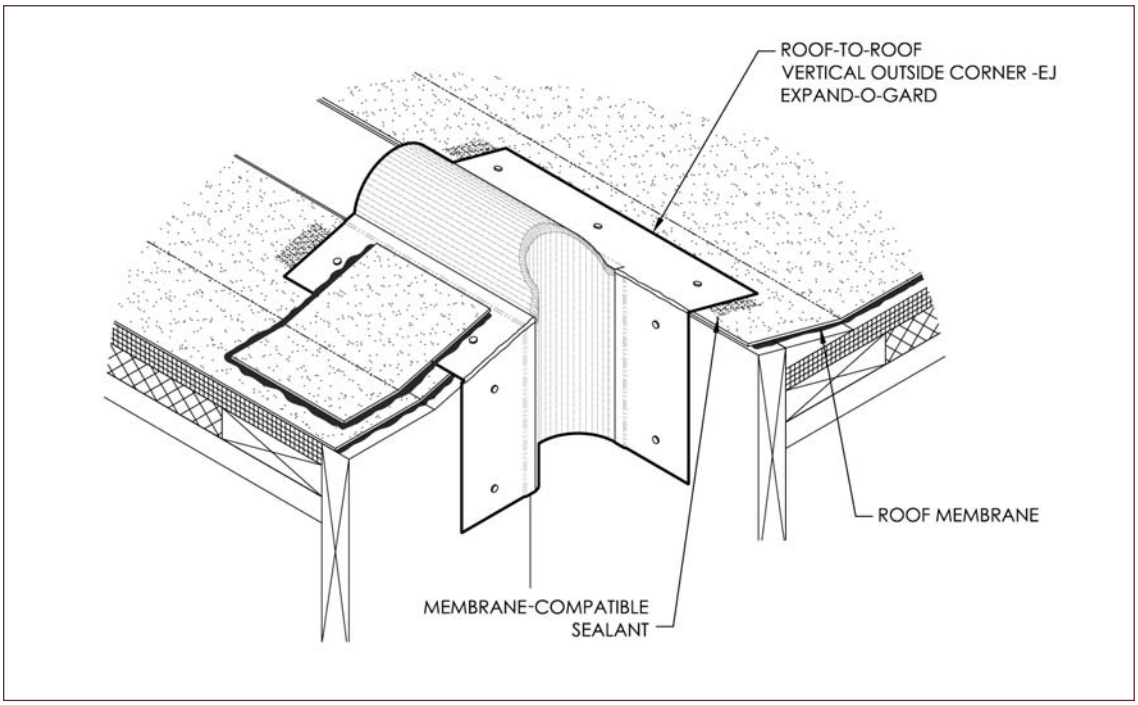
Horizontal-to-Vertical Transitions (Expand-O-Flash to Expand-O-Gard)

Roof-to-Wall Vertical Inside Corner - EJ



Style	Application
EG-5	CF
EG-15*	EJ (left hand)
EG-25	EJ/WC
EG-35	EJ (vertical application)

Roof-to-Roof Vertical Outside Corner - EJ



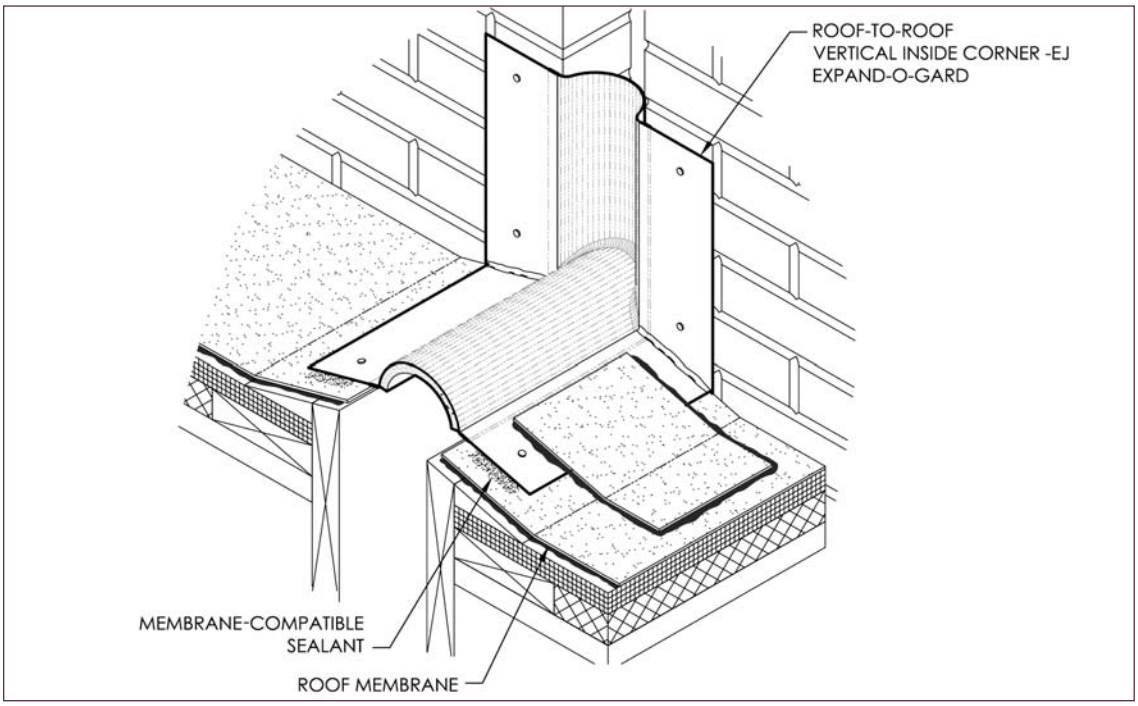
Style	Application
EG-6	CF
EG-16*	EJ (right hand)
EG-26	EJ/WC
EG-36	EJ (vertical application)

* Intersection illustrated

Expand-O-Gard - Style F

Horizontal-to-Vertical Transitions (Expand-O-Flash to Expand-O-Gard)

Roof-to-Roof Vertical Inside Corner - EJ

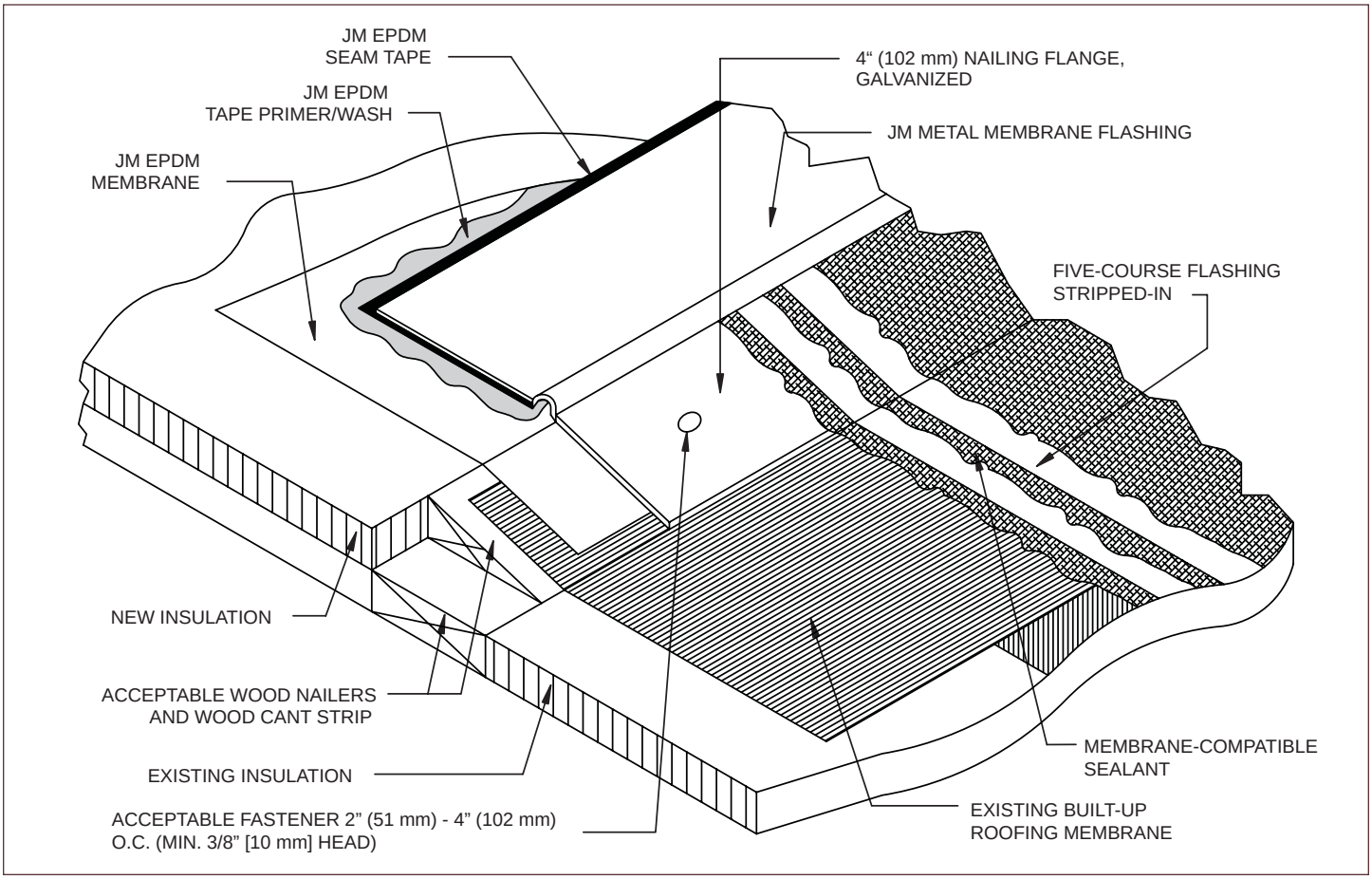


Style	Application
EG-9	CF
EG-19*	EJ
EG-29	EJ/WC
EG-39	EJ (vertical application)

* Intersection illustrated

JM EPDM Metal/Membrane Flashing

JM EPDM Metal/Membrane Flashing is a specially designed and manufactured flashing system for sealing and waterproofing adjacent JM EPDM and bituminous membrane roofing systems. Using a patented securement method, the flashing system is attached using a 6-in. (152 mm) strip of 60-mil (1.5 mm) cured EPDM secured to a 4-in. (102 mm) wide, 26-gauge (0.5 mm) galvanized steel flange. Available in 100-ft (30.5 m) rolls. 50-ft (15.2 m) rolls are available upon request.



Presto Lock

Presto Lock Coping System is a cost-effective, snap-on coping system designed for use with single ply, built-up and modified bitumen roofing systems. The system consists of stainless steel anchor clips and aluminum or galvanized coping covers in a variety of thicknesses and colors.

Stainless Steel Anchor Clips

12-in. (305 mm) wide, 20-gauge (0.9 mm) galvanized base with two stainless steel clips designed to keep upward pressure on the coping cover. These are spaced 4-in. (102 mm) on center and attached by #12, 1 5/8-in. (41 mm) hex head fasteners with Neoprene washers furnished with the system. Specially approved masonry fasteners also are available upon request.

Coping Cover

Aluminum

12-ft (3.7 m) lengths are available in any combinations of the following gauge and finish:

- **Gauges:** 0.040" (1.0 mm)
  0.050" (1.3 mm)
  0.063" (1.6 mm)
  0.080" (2.0 mm)
- **Finish:** Mill, Kynar 500, Clear and Colored Anodized

Galvanized

12-ft (3.7 m) lengths are available in any combinations of the following gauge and finish:

- **Gauges:** 22 gauge (0.8 mm)
  24 gauge (0.6 mm)
- **Finish:** Plain, Kynar

Concealed Splice Plate

8-ft (203 mm) wide plate with dual butyl sealant strips of color and metal to match the coping cover. These are placed over every other anchor clip and under the coping cover joint. Cover plate joints are spaced 3/8 in. (10 mm) apart.

Coping Extenders

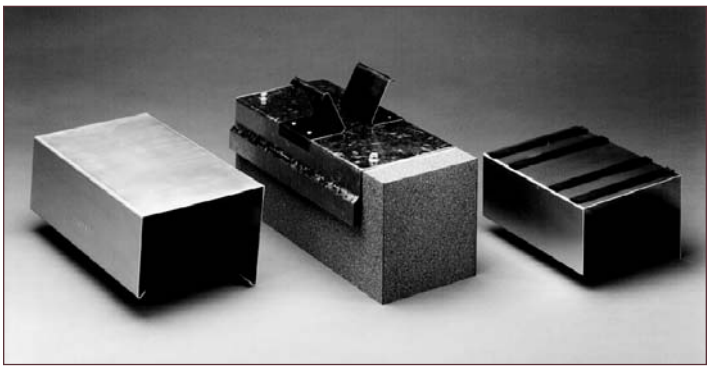
Available face exposure from 4 in. to 14 in. (102 mm to 356 mm) in metal to match the coping cover. Extenders are hooked at the bottom to a continuous cleat, fastened 12 in. (305 mm) on center. Top is fastened 12 in. (305 mm) on center.

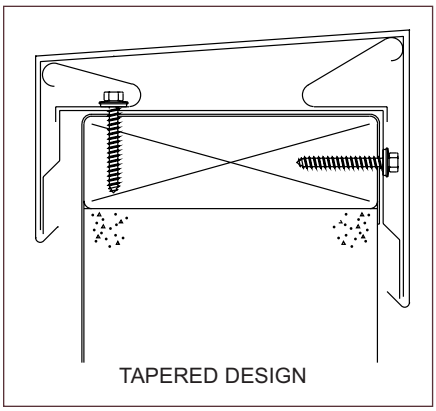
Accessories

Factory-fabricated corners, end caps, tees, scuppers, sumps and downspouts are available with "quicklock" or premium-priced welded seams.

Presto Lock Advantage

- Qualifies for all Johns Manville Peak Advantage Guarantees for total system coverage from edge-to-edge.
- Designed for fast snap-on.
- Approved for FM Global 1-90.
- Meets criteria for ANSI-SPRI ES-1 Wind Design "Standard for Edge Systems Used with Low-Slope Roofing Systems."
- Offers 28 standard Kynar 500 colors available. Special colors are available upon request.
- Special sizes, shapes, metals and arched and radiused coping are available upon request.
- Custom fabrication to fit exact job requirements.
- Available in both tapered and flat designs; tapered shown is recommended.





Presto Lock

Presto Lock Fascia System is an economical snap-on fascia system designed for use with single ply, built-up and modified bitumen roofing systems. The fascia system consists of a galvanized base piece (Water Dam and Cover Plate) of either galvanized or aluminum. Concealed splice plates complete the system.

- Qualifies for all Johns Manville Peak Advantage Guarantees for total system coverage from edge to edge.
- Is 0.050 in. (1.3 mm) aluminum FM Global 1-90 approved.
- Provides special sizes, shapes, metals and curved fascias upon request.
- Offers 28 standard Kynar 500 colors. Special colors are available upon request.

Water Dam

10-ft (3.1 m) sections of 24-gauge (0.6 mm) galvanized are installed over the membrane by attaching to the vertical face and through the skirt onto the roof with standard roofing nails. Sections should be butted together.

Cover Plate

For installation, place the flashing over the water dam and snap the cover plate into place. All flashing details must be approved and compatible with the roofing membrane. 10-ft (3.1 m) sections of Presto Lock should be installed with a 1/2-in. (13 mm) spacing between each section. Joint sections should be staggered with the water dam.

Standard sizes are 7-in. (178 mm) face (covers two, 1 1/2-in. [38 mm] nailers) and 9-in. (229 mm) face (covers three nailers). These lengths are available in combinations of the following gauge and finish:

Aluminum

- **Gauges:** 0.040" (1.0 mm)
  0.050" (1.3 mm)
  0.063" (1.6 mm)
- **Finish:** Mill, Kynar 500

Galvanized

- **Gauges:** 22 guage (0.8 mm)
  24 guage (0.6 mm)
- **Finish:** Kynar 500

Concealed cover plates of the same color and material are installed behind each joint of the cover plate. These simply snap into place (see illustration).

Extender Plate

For use where additional metal coverage is required. Fits behind the bottom edge of the fascia system and extends downward the required distance from 4 in. to 14 in. (102 mm to 356 mm) in 1-in. (25 mm) increments. The extender plate is fastened behind the water dam and hooked onto a continuous cleat at the bottom of the assembly. Concealed extender plates are placed behind each joint.

Accessories

Inside and outside corners, fascia sumps and scuppers are available. Accessories are made of the same material and color as the cover plate. Corners can be field-fabricated; however, factory fabrication is recommended.

Presto Stop

Gravel stop for built-up, modified and single ply membranes.

- Standard SMACNA Details – 10-ft (3.1 m) lengths.
- Available in:

Steel

Available in:

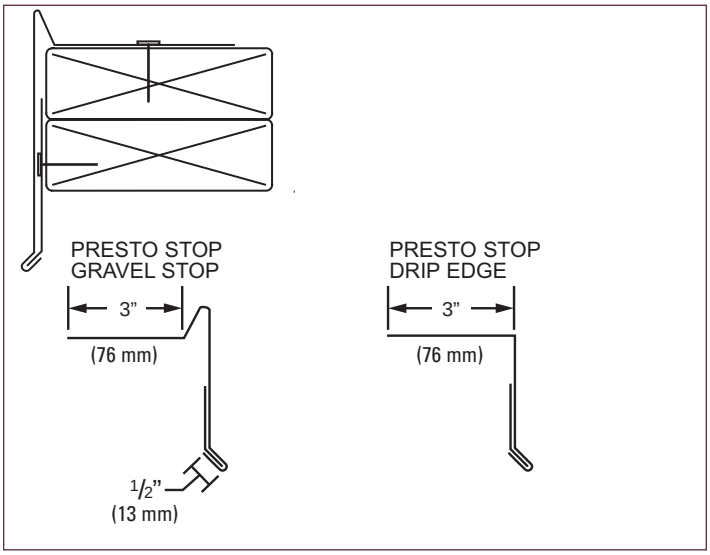
- **Gauges:** 22 gauge (0.8 mm)
  24 gauge (0.6 mm)
- **Finish:** Kynar 500

Aluminum

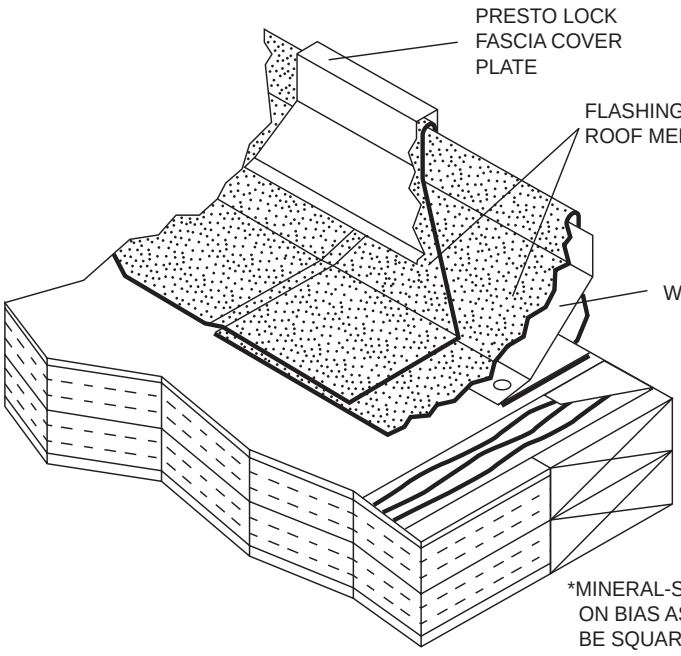
Available in:

- **Gauges:** 0.040" (1.0 mm)
  0.050" (1.3 mm)
  0.063" (1.6 mm)
- **Finish:** 0.040" (1.0 mm) – Mill, Anodized, Kynar 500
  0.050" (1.3 mm) – Mill, Anodized, Kynar 500
  0.063" (1.6 mm) – Mill, Anodized, Kynar 500

- Other sizes and metals available upon request.
- Qualifies for all Johns Manville Peak Advantage Guarantees.

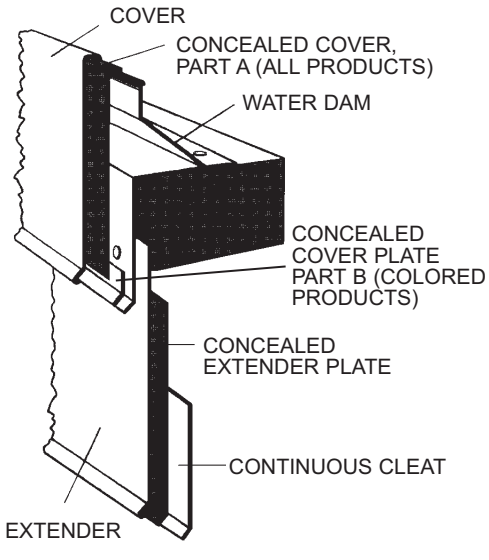


Built-Up and Modified Bitumen Roofing Flashing Detail

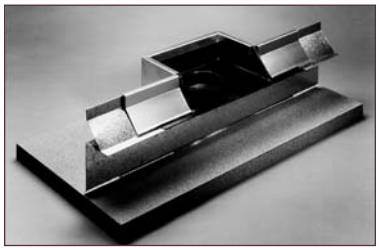


DYNAFLEX™ AND COATED GLASTITE™ FLEXIBLE ARE APPROVED FLASHING MATERIALS FOR BUILT-UP AND MODIFIED BITUMEN SYSTEMS. USE SINGLE PLY MEMBRANE FLASHING WITH ALL SINGLE PLY SYSTEMS.

Presto Lock Fascia Assembly



Fascia Sump



Scupper

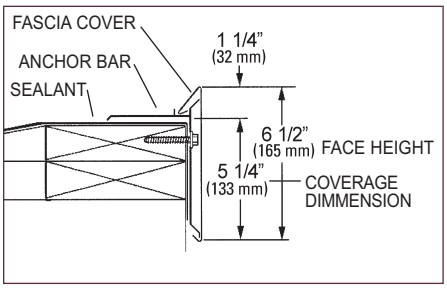
Corner

Presto-Tite

Presto-Tite is a two-part fascia system designed for maximum protection against wind uplift damage.

- Extruded aluminum anchor bar – 12-ft (3.7 m) long, preslotted 12 in. (305 mm) o.c.
- Snap-on fascial cover – 12-ft (3.7 m) long, notched for 1-in. (25 mm) overlap
- Available in 24-gauge (0.6 mm) steel with Kynar 500 and 0.040-in. (1.0 mm) aluminum in mill finish, clear or colored anodized, or Kynar 500.
- EPDM rubber anchor bar splicing plate gaskets to help with spacing and expansion.
- Qualifies for all JM Peak Advantage Guarantees.
- FM Global 1-645 approved.
- Meets ANSI/SPRI ES-1-2003 "Wind Design Standards."
- Lifetime 170 mph (274 km/hr) wind blow-off warranty rider included in the Johns Manville Peak Advantage Guarantee.
- No "stripping in" required.
- No fasteners to penetrate the horizontal roof surface.
- Three face sizes to cover one, two or three nailers (four sizes available for adhered and mechanically fastened single ply systems).

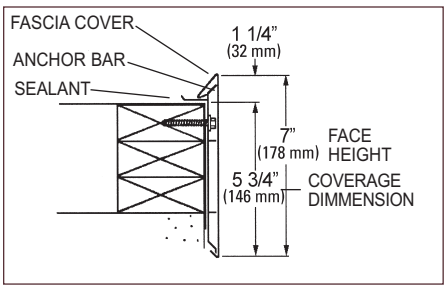
Modified and BUR Version - Typical Applications



Style	Face Height (in.)	Coverage Dimmension (in.)
PFM-50	5 (127 mm)	3¾ (95 mm)
PFM-65*	6½ (165 mm)	5¼ (133 mm)
PFM-85	8½ (216 mm)	7¼ (184 mm)

* Fascia System illustrated

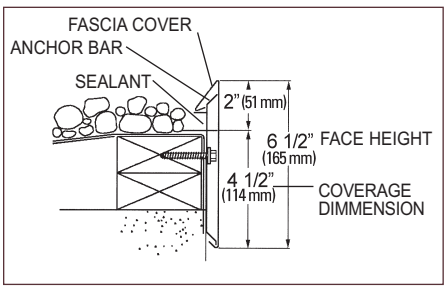
Single Ply Adhered and Mechanically Fastened Version - Typical Applications



Style	Face Height (in.)	Coverage Dimmension (in.)
PF-40	4 (102 mm)	2¾ (70 mm)
PF-55	5½ (140 mm)	4¼ (108 mm)
PF-70*	7 (178 mm)	5¾ (146 mm)
PF-85	8½ (216 mm)	7¼ (184 mm)

* Fascia System illustrated

Single Ply Stone Ballasted Version - Typical Applications



Style	Face Height (in.)	Coverage Dimmension (in.)
PFB-50	5 (127 mm)	3 (76 mm)
PFB-65*	6½ (165 mm)	4½ (114 mm)
PFB-80	8 (203 mm)	6 (152 mm)

* Fascia System illustrated

Presto-Tite

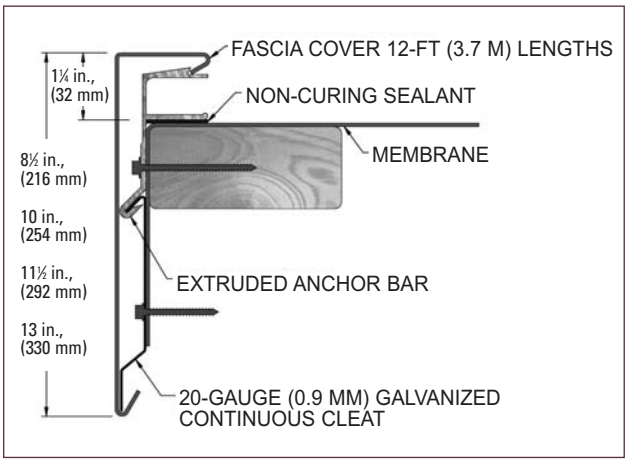
For larger face heights in 0.050-in. and 0.063-in. (1.3 mm and 1.6 mm) aluminum.

- Eliminates the need for fascia extenders, which saves substantial time and labor costs.
- Standard sizes ranging from 8 ½-in., 10-in., 11½-in. and 13-in. (216 mm, 254 mm, 292 mm and 330 mm) face heights to accommodate multiple nailers and coverage requirements. Custom sizes are also available.
- Available in 12-ft (3.7 m) lengths with pre-punched holes for quicker installation and lower labor costs. Fastening holes are slotted, which allows for proper thermal movement of the materials and ensures correct fastener placement and spacing.
- Extruded aluminum anchor bar securely terminates the roof membrane, providing maximum protection at the building perimeter.
- Unique non-penetrating design eliminates the "stripping-in" of metal edge.

Presto-Tite Fascia System for Larger Face Heights

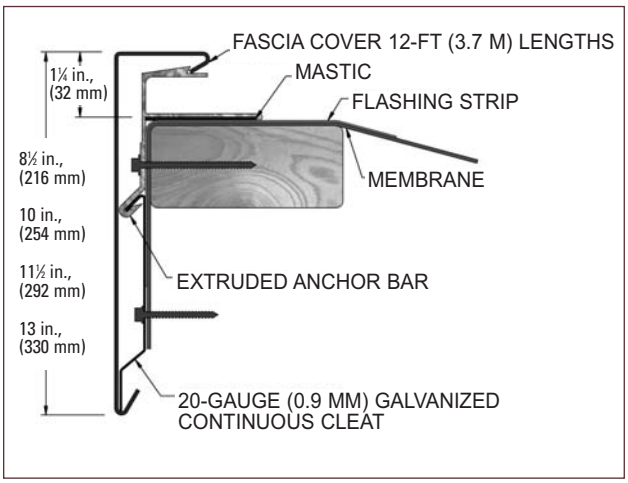
- Qualifies for all JM Peak Advantage Guarantees.
- FM Global 1-270 approved.
- Meets ANSI/SPRI ES-1-2003 "Wind Design Standards."
- Miami-Dade approved.

Single Ply Adhered and Mechanically Fastened Version - Typical Application



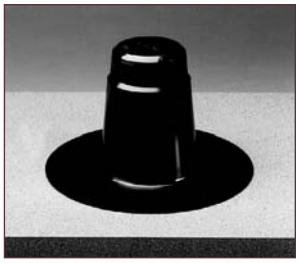
Style	Face Height (in.)
PEF-85	8½ (216 mm)
PEF-100	10 (254 mm)
PEF-115	11½ (292 mm)
PEF-130	13 (330 mm)

Modified and BUR Version - Typical Application



Style	Face Height (in.)
PEFM-85	8½ (216 mm)
PEFM-100	10 (254 mm)
PEFM-115	11½ (292 mm)
PEFM-130	13 (330 mm)

FP-10 One Way Roof Vent



The FP-10 One Way Roof Vent is a solar operated, moisture/vapor venting unit designed to release and prevent the re-entry of moisture-laden air in new or existing lightweight fill decks and built-up roofing systems.

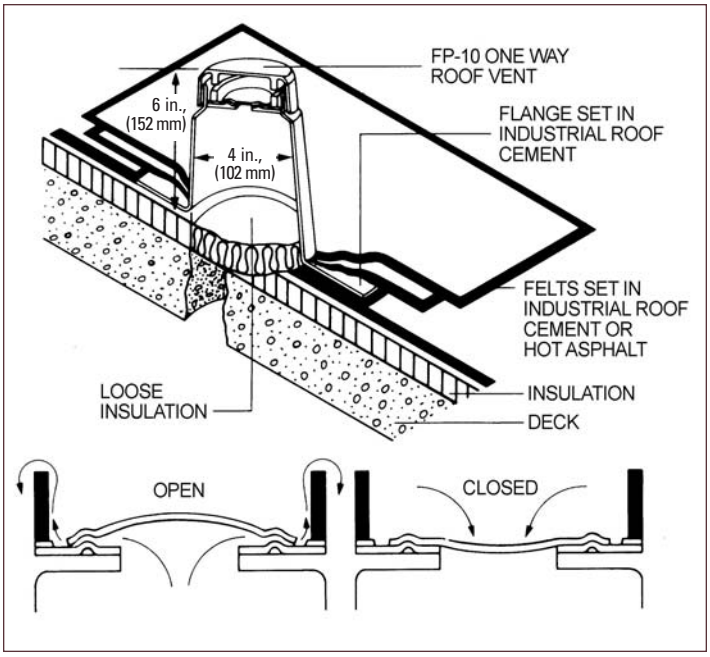
The FP-10 Roof Vent is manufactured from black polyethylene and is designed for use with typical built-up roofing and modified bitumen systems. For torch-applied systems, do not apply flame directly to vent.

The venting unit consists of three major components: A one-piece roof deck flange and body, a weatherproof cap and a silicone rubber valve. The deck flange is 10 in. (254 mm) in diameter, while the body has a base diameter of 4½ in. (114 mm) and a height of 6 in. (152 mm).

As the sun heats the roofing membrane causing trapped moisture-laden air to expand, the one-way valve is forced open, releasing the moisture into the surrounding atmosphere.

When the roofing membrane cools, the process is reversed. Cooler air in the roof assembly contracts, drawing moisture-laden air into the roof system. The one-way valve closes to prevent its re-entry. The one-way silicone-rubber valve also prevents the entry of snow and wind-blown rain.

The unit qualifies for all Johns Manville Peak Advantage Guarantees for total system responsibility.



Industry practice recommends the use of one vent per 1,000 sq ft (93 m^2) of roofing area for vapor pressure control.

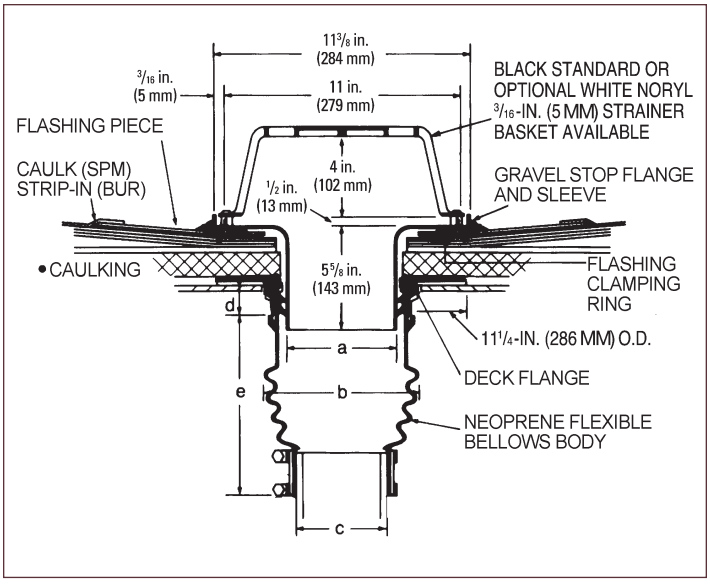
Flex-I-Drain®

Flex-I-Drain is a unique roof drain system, designed to connect to the building plumbing system with no hub connectors. The flexible bellows allow differential movement up to 1 in. (25 mm) in any direction between the roof deck/roofing system and the plumbing.

- Made from tough, durable, high UV-resistant, high-tensile strength modules, high-heat deflection temperature GE Noryl®* resin. It meets UL94V-1 requirements.
- Standard color: Black. For installations requiring a white drain, a white Noryl strainer basket will be furnished.
- Lower installation cost—one-person installation (deck clamping-ring installation requires only one person under the deck). Lightweight (6 lb [2.7 kg])
- Broad code approval/certification:
  BOCA 1993 National Plumbing Code
  ICBO 1994 Uniform Building Code
  SBCCI Std. Building and Plumbing Codes
  1995 International Building Code
- Compatible with all roofing membrane systems and decks.
- Up to 3 1/2 in. (89 mm) of insulation can be placed under the drain. Where thicker insulation is used, a sump can be fabricated to accommodate the 3 1/2-in. (89 mm) restriction.

- Short, flexible boot also is available for 4-in. (102 mm) drains.
- Overflow drains are available.
- Deck flange is shipped with removable fiber board plug to prevent entry of construction debris and bitumen into the plumbing system during construction.
- Qualifies for all Johns Manville Peak Advantage Guarantees for total system coverage.

*Noryl® is a registered trademark of General Electric.



Dimension	Drain Size 4" (102 mm)	6" (152 mm)
a	5 1/4" (133 mm)	7" (178 mm)
b	6 1/2" (165 mm)	8 1/2" (216 mm)
c	4 1/2" (114 mm)	6 5/8" (168 mm)
d	2" (51 mm)	2" (51 mm)
e	8" (203 mm)	8" (203 mm)

PC/PET RetroDrain®

PC/PET RetroDrain replacement roof drains are manufactured from engineered resin copolymer. The PC/PET is tough. It is consistently resistant to temperature extremes. The strainer dome installs with a snap fit. The ribbed clamping ring, with raised connection bosses, positions perfectly every time, while forming a watertight seal to the roof membrane. The one-piece molding of the RetroDrain body is designed to sit flush on the existing roof drain, thereby eliminating the need to remove the old drain. The integral Johns Manville-patented mechanical compression seal ensures a watertight connection to the old drain pipe.

SuperDome® RetroDrain

SuperDome RetroDrain has the same PC/PET one-piece molded RetroDrain body. However, it is furnished with a cast aluminum strainer dome with screw-down lid, which secures the drainage system against vandals while permitting access to authorized personnel. The strainer dome has an integral clamping ring that is connected to the RetroDrain body.

PC/PET RetroDrain

SuperDome RetroDrain

Sizes

To fit	3”, 4”, 5” and 6” (76 mm, 102 mm, 127 mm and 152 mm)
Flange dimension	14” (356 mm)
Drain stem length	12” (305 mm)
PC/PET strainer height	4” (102 mm)
SuperDome strainer height	5.5” (140 mm)

PVC AlumaWeld® RetroDrain

This one-piece, 0.064-in. (1.6 mm) spun aluminum body has a plastisol-coated flange for direct hot-air welding of PVC-type roof membranes. The drain is equipped with a heavy-duty, cast-aluminum strainer dome for strength and durability. The PVC AlumaWeld RetroDrain incorporates the patented technology of the Johns Manville mechanical compression seal, providing a mechanical, watertight connection to PVC or cast iron pipes. It also is available with a plastic strainer dome.

- RetroDrains qualify for all Johns Manville Peak Advantage Guarantees for total system coverage.
- All RetroDrains are compatible with all Johns Manville membrane systems.

Sizes

To fit	3”, 4”, 5” and 6” (76 mm, 102 mm, 127 mm and 152 mm)
Flange dimension	17.5” (445 mm)
Drain stem length	12” (305 mm)
Strainer height	4” (102 mm)
Cast 362 aluminum alloy strainer height	7” (178 mm)

*RetroDrain®, SuperDome® and PVC AlumaWeld® RetroDrains are registered trademarks of OMG, Inc.

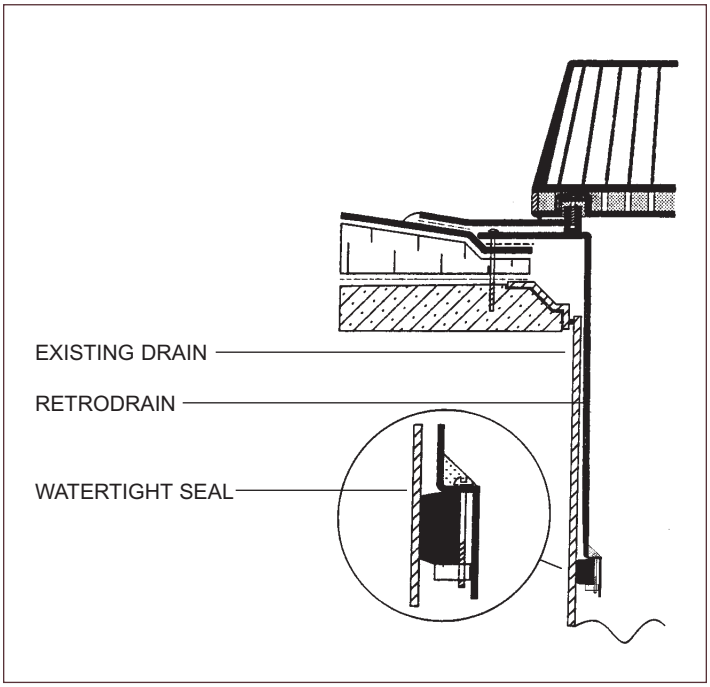
Hercules® RetroDrain

The Hercules RetroDrain is manufactured from .125-in. (3 mm) spun 1100 aluminum alloy. The one-piece construction drain body is designed for retro-fit applications. The heavy-duty cast-aluminum clamping ring ensures a uniform compression seal of the membrane for strength and durability. Hercules RetroDrains also are available in copper. The copper body and flange are joined by a copper-to-copper weld to ensure continuity of one-piece construction. Both are supplied with six welded studs to secure the cast aluminum clamping ring. The clamping ring accommodates one of three domes: cast aluminum, SuperDome or PC/PET.

Sizes

To fit	3", 4", 5" and 6" (76 mm, 102 mm, 127 mm and 152 mm)
Flange dimension	17.5" (445 mm)
Drain stem length	12" (305 mm)
SuperDome strainer height	5.5" (140 mm)
Cast 362 aluminum alloy strainer height	7" (178 mm)

Johns Manville Watertight Seal



USII RetroDrain®

The USII RetroDrain product line is manufactured from 0.064-in. (1.6 mm) spun 1100 aluminum alloy. Its one-piece construction drain body is designed for retro-fit applications. The strainer dome securely fastens to the flange by means of a push-in fastener system. The model incorporates the technology of the Johns Manville Seal providing a mechanical and watertight connection. The versatile USII RetroDrain easily fits into schedule 40 or 80 pipes. Available with cast aluminum or PC/PET strainer dome.

Sizes

To fit	3", 4", 5" and 6" (76 mm, 102 mm, 127 mm and 152 mm)
Flange dimension	17.5" (445 mm)
Drain stem length	12" (305 mm)
Strainer height	4" (102 mm)
Cast 362 aluminum alloy strainer height	7" (178 mm)

* Hercules® and USII RetroDrains® are registered trademarks of OMG, Inc.

Notes

PRODUCT WARRANTIES

Johns Manville designs roofing products that work together to provide a one-source comprehensive roofing system solution. Total roofing system guarantees are available under the JM Peak Advantage® Guarantee program. To learn more about our standard guarantee terms and conditions, visit our Web site at www.jm.com or talk to your local JM sales representative.

JM Peak Advantage Guarantees are available only on qualified JM roofing systems containing JM roofing products. JM standard product terms and conditions will apply to include a one-year limited product warranty. Limited product warranty information is available at www.jm.com/About Us/US Terms and Conditions.

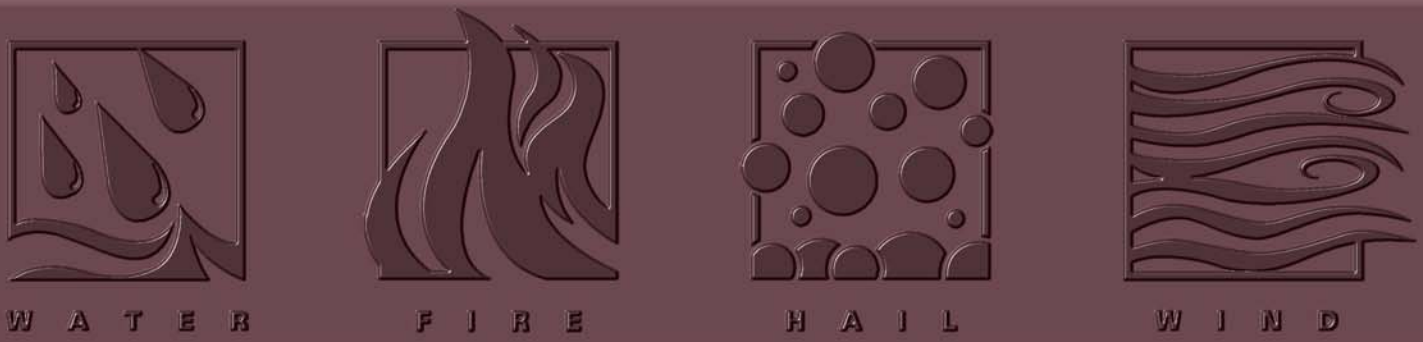
Peak Advantage Contractor Program

To ensure quality workmanship and top-notch installation, JM offers its Peak Advantage Contractor Program. Contractors selected to participate are proven to be best of class, having lived up to the highest performance standards. These contractors have access to JM's strongest guarantees. To be assured of the best possible results on the roofing system you specify, make sure it's installed by a JM Peak Advantage contractor.

SPECIALTY ROOFING PRODUCTS

For more information on Johns Manville Specialty Roofing Products, please contact:

Technical Service (800) 445-1500
Customer Service (800) 223-8317



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