



Expand-O-Flash®

Roof Expansion Joint Covers

Designed to manage the movement of commercial and industrial building roof systems. Thermal. Settlement. New and existing junctions. Differing roof deck materials or direction. Seismic movement.

Expand-O-Flash expansion joint covers are flexible, weatherproof, exterior covers for expansion joint openings and are an effective, flexible closure for a wide variety of standard and special applications. Each Expand-O-Flash cover is a combination of a flexible rubber membrane, supported by a closed cell foam to form flexible bellows, with two metal flanges, adhesively and mechanically combined to the bellows by a patented bifurcation process.

Flexible rubber membranes are available in white or black 60 mil EPDM, and black 60 mil Neoprene. Black EPDM is recommended for budget installations. White (sold at a premium) is used where color is important. However, white does not have the longevity of black. Neoprene is more expensive, and is recommended for use where exposure to process oils or animal fats is an issue. It also does not have the longevity of black EPDM.

Metal flanges are available in galvanized steel (26 ga), mill finish aluminum (0.032"), stainless steel (0.018") and copper (16 oz). Galvanized is recommended for budget installations. Aluminum is recommended for areas where longer exposure to severe elements is required. Stainless steel is effective on manufacturing facilities where corrosion could effect longevity of the metal. Copper is used to match other copper metal work.

Selected metals are available on special order including lead coated copper, Tern coated stainless, Kynar coated 24 gauge galvanized, and .032" aluminum and others.

Closed cell foam thickness varies in thickness from $\frac{3}{8}$ " to $\frac{3}{4}$ " depending on bellows width.

Expand-O-Flash®

- Accommodates multidirectional movement
- Non-reinforced bellows for both geometric and elastomeric movement
- Available in 10 foot lengths, 50 and 100 foot rolls (larger rolls also available)
- Peel and Stick (for labor savings) splice tab kits included with all EPDM expansion joint covers.
- Compatible with built-up, modified bitumen (SBS and APP) and single ply (SPM) membranes
- Designed in a variety of styles for application requirements
- Labor saving factory crafted intersections to fit most needs or custom designed for special needs
- Over 40 years of proven design, fabrication and field performance
- Included in Johns Manville Roofing Systems Guarantees for single source responsibility up to 20 year NDL
- **10 Year Repair/Replacement Warranty. Includes labor and materials for replacement of expansion joint cover, factory produced intersections and field applied splices, when installed consistent with Johns Manville specifications and instructions.**



Expand-O-Flash®
Roof Expansion Joint Covers

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

Flexible Membrane Cover

- Type E-60 mil EPDM sheet – white or black (white is premium priced)
- Type N-60 mil Neoprene sheet – black (also premium priced)

Flange Metal

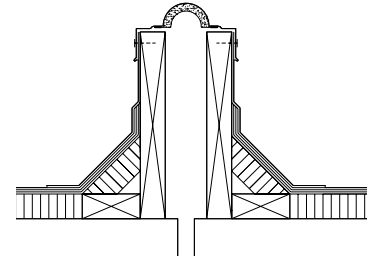
- Style EJ (Flat Flanges) 4" wide
- Style CF (Curb Formed) 2" wide and 2" vertical
- Galvanized Steel, 26 ga.
- Stainless Steel, .018"
- Aluminum, .032"
- Copper, 16 oz.
- Others available

Support Foam

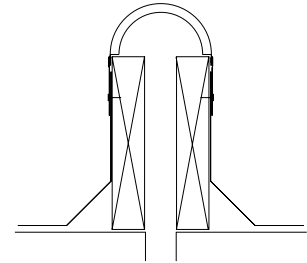
- Closed cell foam, K factor = .25 at ambient
- Thickness varies from 3/8" to 3/4" depending on bellows width

For application to curbs

Style CF



Style EJ

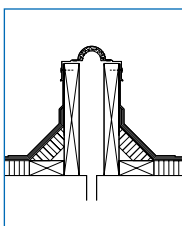


Selection Chart for Standard Sizes

Type N (Neoprene) or Type E (EPDM)

				Style EJ		Style CF and CF-EJ	
Joint Opening or Span		Bellows Width*	Foam Thickness	Style	Length	Style	Length
Roof-to-Wall	Roof-to-Roof						
1" to 2"	1½" to 2½"	4"	3/8"	EJ-4	10 ft./50 ft.	CF-4, CF-EJ-4	10 ft.
2" to 3"	2½" to 3½"	6"	1/2"	EJ-6	10 ft./50 ft.	CF-6, CF-EJ-6	10 ft.
3" to 4"	3½" to 5"	8"	1/2"	EJ-8	10 ft./50 ft.	CF-8, CF-EJ-8	10 ft.
4" to 5"	5" to 6½"	10"	5/8"	EJ-10	10 ft.	CF-10, CF-EJ-10	10 ft.
5" to 6"	6½" to 8"	12"	3/4"	EJ-12	10 ft.	CF-12, CF-EJ-12	10 ft.

*Based on the rule of thumb method to determine bellows width for CF (Curb Form) and CF-EJ styles: Roof to Roof = 1.5 times (outside wood curb to outside of wood curb minus 4 inches); Roof to Wall: Bellows width = 2.0 times (outside wood curb to wall minus 2 inches). For EJ vertically mounted Roof to Roof = 1.5 times (outside wood curb to outside wood curb), for Roof to Wall = 1.5 times (outside wood curb to wall). For curb widths greater than 2½", see style EJ/WC page 7. **In all cases, anticipated movement should be considered for proper sizing.**



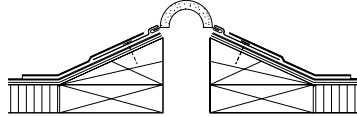
Expansion joint detail for 1" joint

In order to provide adequate clearance between metal flanges and bellows for a 1 inch expansion joint, a space of at least 2 inches should be left between curbs or curb and wall.

Expand-O-Flash®
Roof Expansion Joint Covers

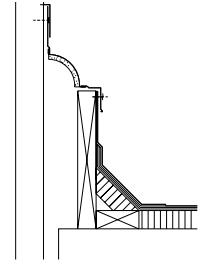
For application to cant

Style EJ



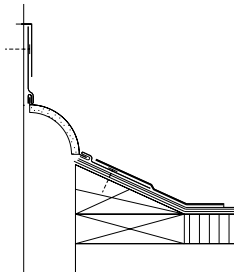
For application to curb and wall

Style CF-EJ

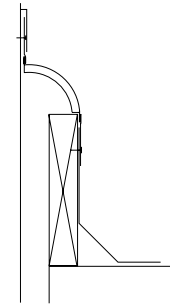


For application to cant and wall

Style EJ



Style EJ



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

Mounting

Bellows Width	Height "A"
4"*	2 1/2"
6"*	3 3/4"
8"*	5"
10"*	6 1/4"
12"*	7 1/2"
14"***	8 3/4"
16"***	10 1/4"
18"***	11 1/2"
20"***	12 3/4"
24"***	15 1/4"

*Standard bellows width.

**Made to order.

For standard size selection
see chart on page 5.

PVC EJ/WC Expand-O-Flash®

Expand-O-Flash Style PVC EJ/WC consists of foam supported bellows with integrally attached non-metallic nailing flanges over which is attached a reinforced PVC cover of sufficient width to weld the entire joint assembly to the PVC membrane.

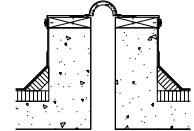
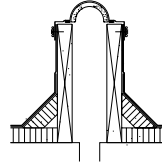
Nailing flanges are 1 3/8" (35 mm) rigid PVC welded to flexible PVC strips which in turn are welded to the reinforced PVC cover membrane. Cover membrane is available in white 80 mil (2.0 mm) reinforced PVC membrane. The membrane is designed to cover the curbs or cants and extend 5" (127 mm) onto the roof surface to be welded to the PVC roof membrane.



Expand-O-Flash® EJ/WC

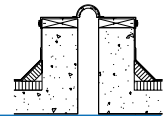
Low Profile Roof Expansion Joint Cover with Cover Membrane in Longer Rolls

Expand-O-Flash Style EJ/WC consists of foam-supported bellows with integral attachment flanges over which a factory-laminated EPDM or Neoprene cover of sufficient width to flash the entire joint assembly, including curbs. Flanges are 1³/₈" steel wrapped with Neoprene coated nylon fabric. Supplied in 50' or 100' rolls (larger rolls by special order) EJ/WC is used in curb-to-curb or curb-to-wall low profile installations or where curbs are too wide for metal flanges on Style CF. Prepunched aluminum termination bar is provided with EJ/WC.



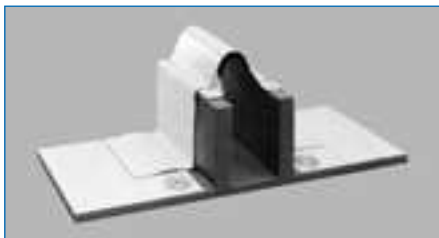
Product Selection Chart

Curb-to-Curb

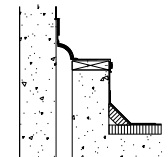
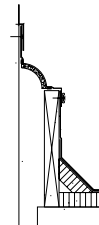


C – EJ Bellows Width (inches)
D – Cover Overall Width (inches)

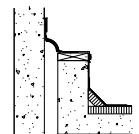
Joint Opening	Width of each curb					
	1½"	3"	6"	8"	10"	12"
	C/D	C/D	C/D	C/D	C/D	C/D
1½ to 2½"	4/11	4/14	4/20	4/24	4/28	4/32
2½ to 4"	6/13	6/16	6/22	6/26	6/30	6/34
4 to 5"	8/15	8/18	8/24	8/28	8/32	8/36
5 to 6½"	10/17	10/20	10/26	10/30	10/34	10/38
6½ to 8"	12/19	12/22	12/28	12/32	12/36	12/40



- Accommodates multidirectional movement
- Reinforced 80 mil cover membrane to match PVC roof membranes
- Non-metallic rigid PVC 1³/₈" (35 mm) nailing strips
- Available in 50 foot (15.2 m) rolls.
- Foam is held back on one end to allow a 4" (102 mm) welded seam to be "shiplapped"
- Designed in a variety of styles for application requirements
- Included in Johns Manville Roof Systems Guarantees



Curb-to-Wall



C – EJ Bellows Width (inches)
D – Cover Overall Width (inches)

Joint Opening or Span	Width of each curb					
	1½"	3"	6"	8"	10"	12"
	C/D	C/D	C/D	C/D	C/D	C/D
1" to 2"	4/11*	4/13	4/16	4/18	4/20	4/22
2" to 3"	6/13	6/15	6/18	6/20	6/22	6/24
3" to 4"	8/15	8/17	8/20	8/22	8/24	8/26
4" to 5"	10/17	10/19	10/22	10/24	10/26	10/28
5" to 6"	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.



Johns Manville

Expand-O-Flash® INS

Insulated Roof Expansion Joint Cover

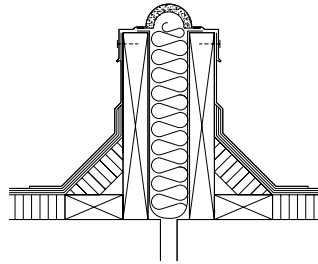
Available in All Expansion Joint Styles, Types and Widths

Expand-O-Flash INS is a patented, factory-prefabricated, insulated expansion joint cover. It is formed using a standard Expand-O-Flash cover and Johns Manville Microlite "L" specialty fiber glass insulation integrally attached with a rugged, high quality vapor retarder system. It is available in bellows widths up to 54" to cover seismic and other expansion joint openings. Microlite "L" provides both thermal insulation (example R=19 for 6 1/4" thickness) plus sound absorption (noise reduction coefficient 0.75).

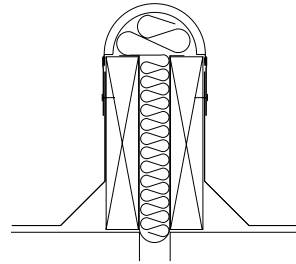


For application to curbs

Style CF-INS

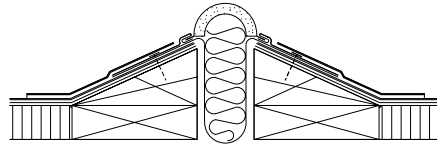


Style EJ-INS



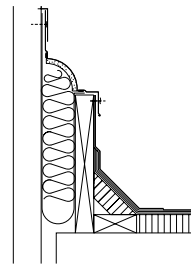
For application to cants

Style EJ-INS

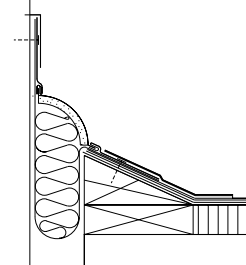


For application to curb or cant to wall

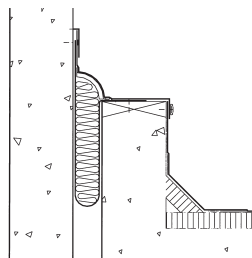
Style CF-EJ-INS



Style EJ-INS



Style EJ-WC



For size selection use charts on page 5 and 6.



Johns Manville

Expand-O-Flash®

Factory-fabricated Intersections

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, clean seam lines. Close factory tolerance and quality control assures high yield performance.

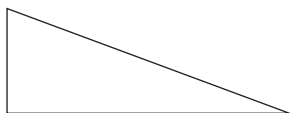
Factory fabricated intersections must be used if they are to be included in all Johns Manville Roofing Systems Guarantees, and in the Johns Manville 10Year Repair/Replacement Warranty.

Standard intersections are available insulated or uninsulated in Styles CF, EJ, CF-EJ and EJ/WC as shown.

Unless requested, all Style EJ fittings are designed to fit on a cant composed of a wood 2 x 6 sawn diagonally.

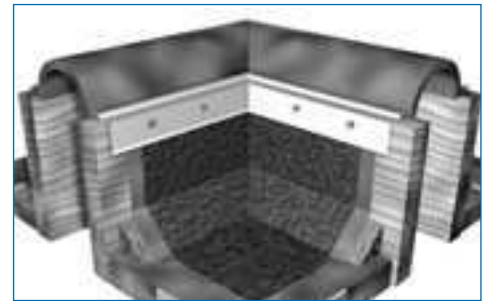
Unless requested, all intersections are fabricated with EPDM bellows.

All intersections available insulated.



Roof to Roof Corner

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



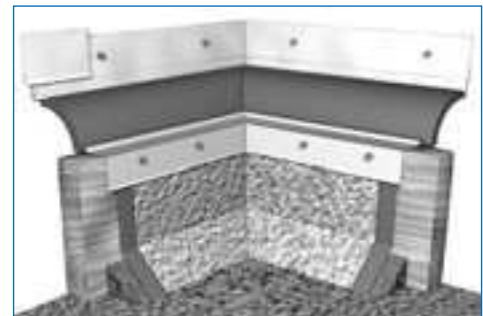
Roof to Roof Crossover

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



Roof to Wall Inside Corner

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



* Intersection illustrated

Expand-O-Flash®
Factory-fabricated Intersections

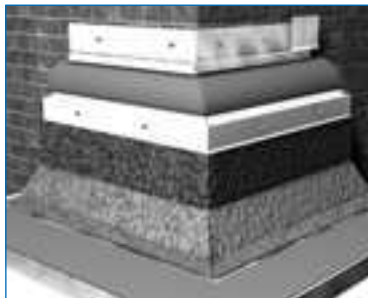
Roof to Wall Vertical Inside Corner

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



Roof to Wall Outside Corner

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



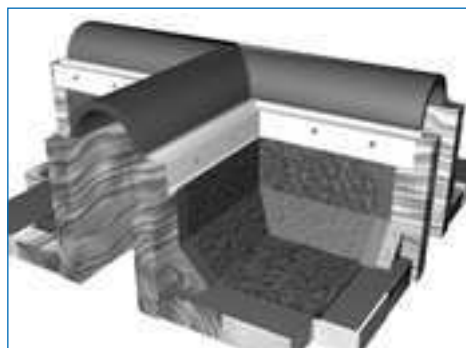
Roof to Wall Tee

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



Roof to Roof Tee

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



* Intersection illustrated

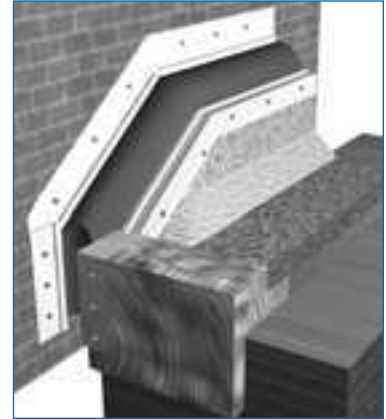
Expand-O-Flash®
Factory-fabricated Intersections

Field fabricated intersections are **not** included in guarantees or warranty. Only Factory fabricated intersections are included in the Johns Manville Roofing Systems Guarantees and in the Johns Manville Total Repair/Replacement Warranty.

Factory fabricated intersections are available left or right hand.

Roof Edge with Continuing Wall

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



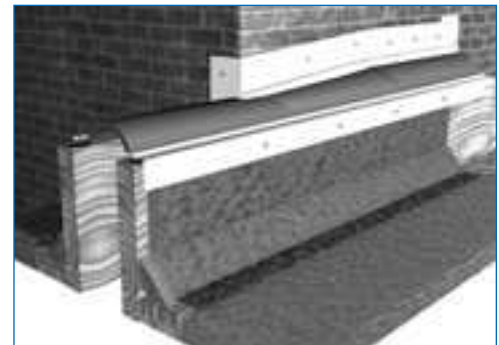
Roof Edge with Wall Ending

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



Expansion Joint Continuing Beyond End of Wall

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



* Intersection illustrated

Expand-O-Flash®
Roof Edge Transition Details

Structural Expansion Joints

**Structural Expansion Joint or Roof Area Divider
 into a Parapet - Non-Load Bearing Wall**

PF-6 CF to CF-EJ Curb to Wall Tee



Structural Expansion Joint into a Parapet - Load Bearing Wall

**PF-9 Vertical Inside Corner
 Style Curb Form**

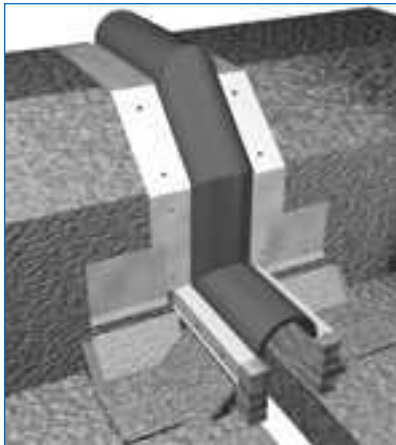
**PF-19 Vertical Inside Corner
 Style EJ on Cants**

**PF-19 Vertical Outside Corner
 Style EJ**

**PF-19 Vertical Outside Corner
 Style EJ**

**PF-29 Vertical Inside or
 Outside Corner
 Style EJ-WC**

**PF-39 Vertical Curb Mounted
 Flanges
 Style EJ.**



Expand-O-Flash®
Roof Edge Transition Details

Structural Expansion Joints

Structural Expansion Joint Intersecting a Roof Edge

FF-1 Style CF Curb Form (Style Shown)

FF-21 Style EJ/WC on Curb

FF-31 Style EJ on Curb

FF-11 Style EJ on Cant (Style Shown)

FF-21 Style EJ/WC

FF-31 Style EJ on Curb

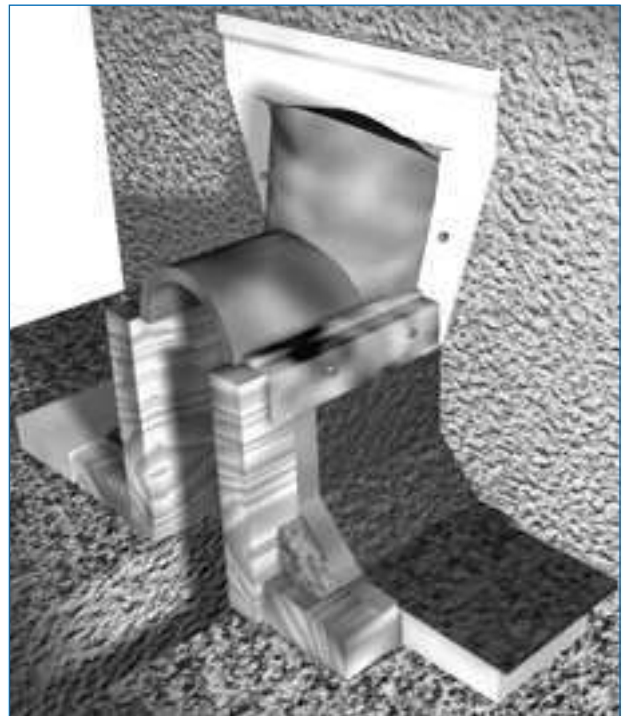


Area Dividers

Roof Area Divider into a Gravel Stop
Load Bearing Wall



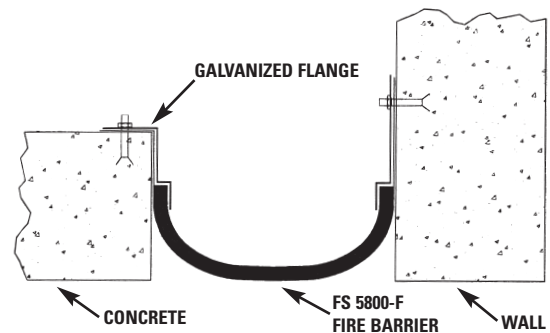
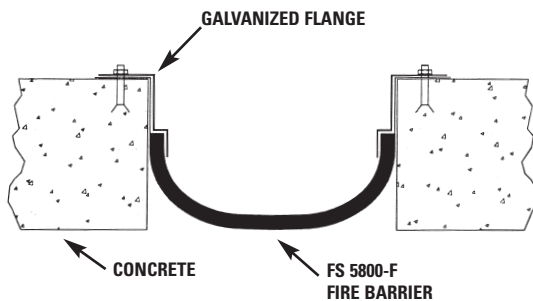
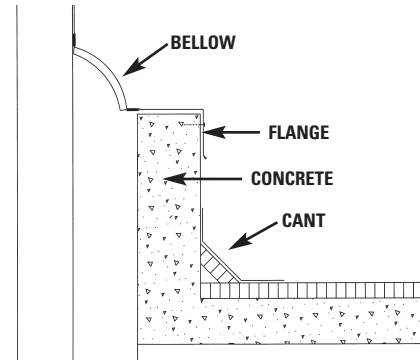
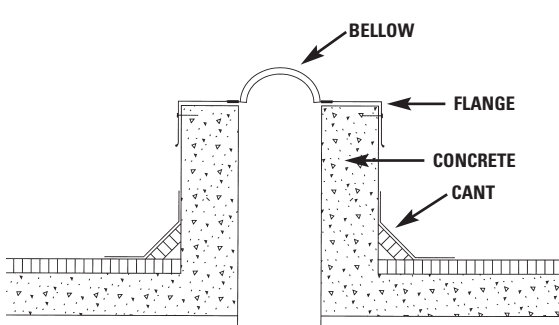
Roof Area Divider into a Parapet
Load Bearing Wall



Expand-O-Flash®
Roof Edge Transition Details

Fire Protection

Where life safety is a requirement, any style Expand-O-Flash installed on a concrete deck and protected by FS 5800-F* provides a UL listed 1 hour and 2 hour Fire Rating.



Expand-O-Flash® Advantages

- Included in Johns Manville Roofing Systems Guarantees
- EPDM or Neoprene flexible membrane cover
- Four Flange metals - galvanized, aluminum, copper, stainless
- Horizontal, vertical, shear movement
- Joint openings up to 30 inches
- Factory fabricated intersections
- Seismic Joint Covers

FS 5800-F Advantages

- UL listed for 1 & 2 hour fire rating
- No caulking required
- 50% expansion / contraction and lateral shear
- Joint openings up to 30 inches
- Custom sizes
- Meets UBC, BOCA, NFPA, ICBO & SBCCI
- ISO 9001 certified

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

*Produced by Thermal Structures, Inc., Corona California

Expand-O-Flash®
Problem Solving

We can make an expansion joint for just about any opening

Johns Manville has built its reputation with the specifying community and contractors alike through our highly experienced Technical Services Department and our skilled craftsmen. We are problem solvers through building movement management.

No matter how unusual your roofing challenge, Johns Manville can turn your rough sketches into custom-manufactured, high quality Expand-O-Flash® expansion joint covers, intersections and transitions. And, when used in a total Johns Manville Roofing System, they can be included in one of the most comprehensive performance guarantees in the industry.

Seismic Joint Covers

We have expertly fabricated seismic closures on openings up to 24" (expansion joint over 54") to accommodate calculated multi-directional seismic movement without failure.

Radius Closures

Our designed solutions allow expansion along curved surfaces, such as arches, to accommodate movement at curved surfaces between building components, such as atriums and window walls.

Penetration Closures

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

Specialty One-of-Kind

We help find solutions to building movement management through our Technical Service Department. Several solutions involve movement unrelated to roofing and/or buildings.

UltraGard EPDM Metal/Membrane Flashing

UltraGard EPDM Metal/Membrane Flashing is a specially designed and manufactured flashing for sealing and waterproofing UltraGard EPDM roofing systems where they join an adjacent bituminous roof membrane. It is comprised of a nominal 6" (150 mm) strip of EPDM sheet secured in a patented method to flanges of nominal 4" (100 mm) wide galvanized steel, Type 100G-6, 4" (100 mm) galvanized steel flange with 6" (150 mm) EPDM membrane. Available in 100 foot rolls.

