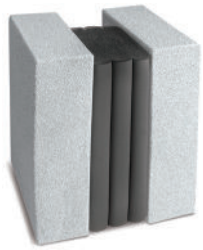
BUILDING TRUST

PRODUCT DATA SHEET

Emshield® WFR2

Fire / Water / Movement / Sound

US Patents: 9,670,666 9,637,915 9,068,297 8,739,495 C1 10,934,702 10,934,704 10,941,562



Emshield® WFR2 sample shown here is displayed in substrate mock-up

Product Description

Emshield® WFR2 by Sika Emseal features two water-repellant sealant sealing surfaces each adhered to fire-retardant impregnated foam backing. Because of the symmetrical design, either side can face out from an exterior or interior wall and maintain a 2 fire-rating. When either (or both) faces have a field-applied band of sealant that face is watertight.

Emshield WFR2 is installed into epoxy adhesive field-applied to the sides of the foam and on the joint faces. An optional field-injected sealant band seals the bellows to the substrate at the installation surface providing watertightness. Joins between each stick are executed using a field-applied sealant at the bellows' edges of the join and field-applied intumescent sealant on the adjoining faces to the sealant.

Uses and Applications

For expansion joints in exterior and interior walls where a combination of watertightness, fire-rating, sound attenuation and thermal-efficiency are required. It can be used alone or under any other expansion joint cover, plate or filler where depth of substrate allows. Because it is coated on both sides it can face in either direction from the wall and maintain its performance characteristics within that wall.

Watertight, 2-Hour Fire-Rated, Sound Attenuating Energy-Efficient Wall Expansion Joint

Emshield WFR2 is fire-rated, watertight, sound-attenuating, energy-efficient primary seals for both retrofit and new structural expansion joints in vertical-plane applications.

Emshield WFR2 eliminates the need for additional fire blankets, mineral wools, liquid sealants, cover plates, or other fire stopping materials.

For joints from 1/2-inch (12mm) up to 6-inches (100mm) where +50% and -50% (total 100%) of nominal material size joint movement is expected.

Emshield WFR2 (Wall, Fire-Rated 2-Hours) is tested and certified by Underwriters Laboratories (UL), to the rigors of UL 2079, it can work in conjunction with the Emshield horizontal fire-rated deck expansion joints, DFR2 and DFR3.

Fire-retardant-impregnated foam is factory pre-coated on both facing sides with a coat of waterproof sealant. The resulting composite is then factory compressed to less than its nominal size for installation into structural or other openings.

Emshield WFR2 provides a watertight, clean handling, UV stable, nonstaining, low-temperature-flexible, high-temperature-stable, sound-attenuating, energy-efficient and fire-rated joint seal in a single installation process.

Emshield WFR2 builds on Emseal's track record of over 40 years of innovation in sealing structural expansion joints with impregnated foam sealants.

Features

Watertight – Emshield WFR2 is installed with tensionless bellows, which when installed with an optional sealant bead on the weather face, maintain a watertight seal.

Fire-Rated – The fire-retardant-impregnated foam, when properly installed, ensures a 2-hour fire protection in accordance with UL-2079.

Sound Attenuation – Emshield WFR2 minimizes sound transfer which often occurs at the expansion gap. The tested results for 1 1/2" WFR2 in an STC 68 / OITC 51 wall are an **STC value of 64** and an **OITC value of 52**.

Non-Invasive Anchoring – There are no hard metal-to-substrate connections with Emshield WFR2. This includes embedded pins, anchors, screws, bolts or tracks, trays or rails, flanges or coverplates. The system is locked to the joint faces by means of the 1) backpressure of the foam; 2) the epoxy adhesive, and 3) the injected sealant bands at the joint face.

Movement Capability – Up to 6-inches (100mm): +50% and -50% (100% total) of nominal material size.

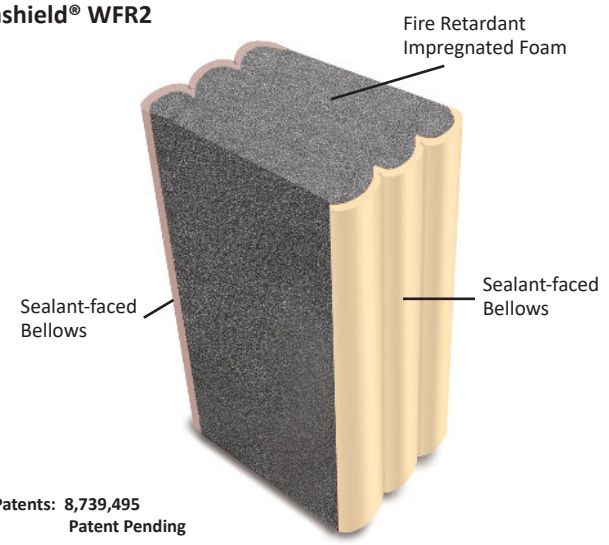
Joint-Size Variation – Uniform bellows appearance, and the ability to handle variations in joint size through size-switching, are among other system features.

Factory-Fabricated Terminations and Transitions – as in all Emseal expansion joint systems, continuity of seal through changes in plane and direction is an essential performance differentiator.

Emshield WFR2 is manufactured in straight-run sticks which can be joined in the field to custom, factory-fabricated transition pieces, or to Emseal's patented "Universal-90" or Transitions. These are factory-fabricated single-piece 90° units which are coated on both sides with sealant coating allowing them to be installed as an upturn or downturn transition. Each has a 6-inch long horizontal leg and a 12-inch vertical leg. Transitions end in an uncoated 90° cut to be adhered to another transition piece as used in walls-to-decks, treads and risers, parapets, curbs and other applications.

In addition to guaranteeing watertightness, Emseal's factory-fabricated transitions allow for much faster and secure installation by eliminating field cutting and joining.

Emshield® WFR2



US Patents: 8,739,495
Patent Pending

c UL us

UL Systems
WW-D-0091 WW-D-0092
WW-D-1079 WW-D-1081
HW-D-0615 HW-D-1090
WW-D-1158 WW-D-1159

WFR2 System Sizing

Supplied Stick Length	Nominal Material Size (Joint Size @ Mean Temp.)	Depth of Seal
6.56 LF (2M)	1/2 " (12mm)	4"(100mm)
	3/4" (20mm)	
	1 " (25mm)	
	1 1/4" (30mm)	
	1 1/2" (40mm)	
	1 3/4" (45mm)	
	2 " (50mm)	
	2 1/4" (55mm)	
	2 1/2" (65mm)	
	2 3/4" (70mm)	
	3 " (75mm)	
	3 1/4" (85mm)	
	3 1/2" (90mm)	
	3 3/4" (95mm)	
	4 " (100mm)	
	4 1/4" (105mm)	
	4 1/2" (115mm)	
	4 3/4" (120mm)	
	5 " (125mm)	
	5 1/4" (130mm)	
	5 1/2" (140mm)	
	5 3/4" (145mm)	
	6 " (150mm)	

NOTE: Product Code begins with WFR2 designation.
[e.g. WFR2-0100 = 1-inch (25mm) WFR2]

Performance

Capable of movements of:

Up to 6-inches (100mm): +50% and -50% (100% total) of nominal material size.

Standard sizes from 1/2" (12mm) to 6" (150mm).

Depth of Seal for all sizes = WFR2: 4" (100mm)

Substrates must be solid, parallel and plumb.

Note: Substrates must be capable of resisting, without deflection, 2.5 psi backpressure from the foam across the area of contact as determined by the supplied materials' nominal dimensions. Consult Sika Emseal

Colors

The two sealant faces of Emshield WFR2 can be manufactured of different colors to blend with their respective wall surfaces. Emshield WFR2 is available in a wide range of standard colors. Other custom sealant colors are available after consulting with Sika Emseal.

Testing and Standards

Emshield WFR2 has been tested and certified under UL 2079. Both meet the requirements of ASTM E1966, ASTM E119 and ASTM E1399. UL 2079, like ASTM E1966, was developed to encompass the fire testing of ASTM E119 and movement cycling regime of ASTM E1399.
Emshield products have additionally been tested to ASTM-E283, E-330, and E-331 at levels to prove resistance to hurricane-force wind and rain. Sound Attenuation (E90-09), (STC) E413-04 – STC rating: 62 in STC 68 wall, tested to ASTM E90. OITC rating: 52 in OITC 52 wall, tested to ASTM E90. And R-value: 1.03 per inch depth at nominal joint size compression, tested to ASTM C518. S

Laminations: Emshield WFR2 has passed UL 2079 when configured with either vertical, compression-bonded laminations OR with horizontal, adhesive-bonded laminations. The orientation or presence of laminations in any form is inconsequential to the performance of the product under the UL2079 testing criteria.

Design/System/Construction/Assembly

This material has been tested to UL/ULC 2079 and is manufactured under UL's Follow-Up Service. The material is being supplied as a fire-rated component of a wall assembly.

It has been tested to UL 2079 in assemblies as depicted in Emseal's various listings in the UL Online Certifications Directory. Use of this material in assembly configurations other than depicted in the named UL listings will not encumber or lower the resistance of the deck or wall assembly but is done so at the designers' discretion and responsibility for designing substrates as part of a fire rated assembly that meet applicable standards for the project. Similarly, the published information in the UL Listings cannot always address every construction nuance encountered in the field. Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Listed or Classified products or materials. Authorities Having Jurisdiction should be consulted before construction to ensure that specific adjacent substrates and assemblies are detailed and constructed to meet local fire-rating requirements.

CAD & Guide Specs

Guide Specifications and **CAD details** are available online at **emseal.com** or by **contacting Sika Emseal**.

Warranty

Standard or project-specific warranties are available from Sika Emseal on request. This product can only perform its designed function if it, and the joint-gap into which it is installed, is sized to suit anticipated joint movements in consideration of the movement capability of the product and in consideration of the temperature at time of installation, and if it is installed in strict accordance with Emseal's installation instructions.

Availability & Price

Emshield® WFR2 is available for shipment domestically and internationally. Prices are available from local representatives and/or directly from the manufacturer. The product range is continually being updated, and accordingly Emseal reserves the right to modify or withdraw any product without prior notice.

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Product Data Sheet
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