

DESCRIPTION

Willseal FR-H provides a factory controlled, watertight, clean handling, UV stable, sound attenuating, energy efficient and fire rated joint seal in a single, unified installation process.

Willseal FR-H is designed to be used in horizontal expansion joints by itself, but it can be used behind any other expansion joint cover, plate or filler where joint depth allows. Because it is coated on both sides, it can be placed with either side exposed, adding to the versatility and increasing the aesthetic fireproof sealing options.

Willseal FR-H is a second generation, unified fire rated, sound, energy, and waterproof sealant system.

MATERIAL

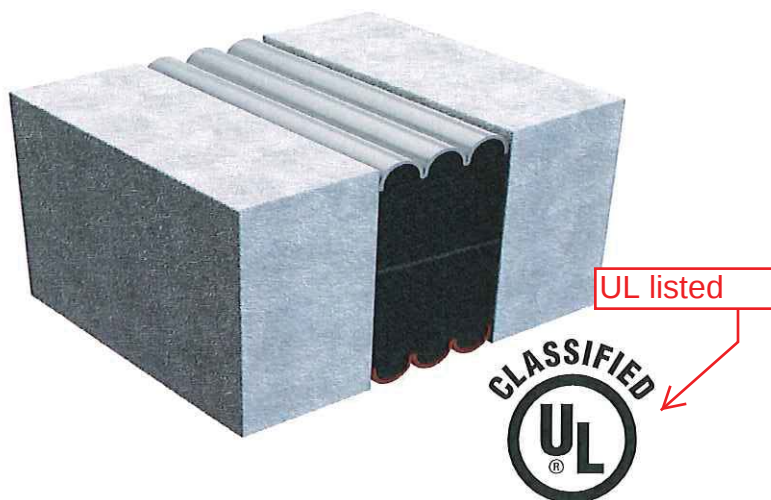
Willseal FR-H features a waterproof silicone face on each side of a fire-retardant impregnated foam sealant without the need for additional intumescent bellows. Willseal FR-H does not rely on the silicone face or intumescent bellows to provide its fire rating. This is an important safety improvement over first generation materials that are subject to vandalism or damage to the thin silicone/intumescent bellows.

The main function of the silicone face is to enhance the waterproofing nature of the sealant and provide a durable traffic rated seal. Willseal FR-H Type UC is supplied without silicone for use as a secondary seal.

Willseal FR-H is not made of thin, unbonded vertical layers that can delaminate with joint shear or thermal shock. In addition to UL 2079, Willseal FR-H has been independent lab tested to ASTM 330, 331, 283 & 547 for water and air penetration. It has been tested and passes TAS 202/203 requirements for hurricane force exposure. Contact Willseal for complete details.

AVAILABLE SIZES

- 1/2" (12mm) to 4 1/2" (112 mm)
- 2" depths only have a smoke barrier by request
- Depth of seal is 2", 3" or 4".
Refer to UL listings at www.ul.com



TESTED PHYSICAL PROPERTIES

Willseal FR-H has been tested and certified under UL 2079. It meets 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. Complete listings are available at www.ul.com.

It is also tested to ASTM E283, 330, 331 & 547 to confirm its sealing capabilities through its entire stated movement range. ASTM E90 testing has been completed to verify the sound attenuating properties of the system. Complete test results are available from Willseal technical support.

This material has been tested to UL 2079 and is manufactured under UL's Follow-Up Service. Willseal FR-H is manufactured in an ISO 9001:2008 facility. In addition to being proof of our commitment to overall quality, the system ensures that any change to form, fit, function or safety of the product will be documented and published.

FEATURES

- **Fire-Rated:** When properly installed, the fire retardant, impregnated foam provides a 2 or 3 hr horizontal fire rating in accordance with UL 2079.
- **Watertight:** Installed with tensionless bellows, which when installed with an optional silicone bead on the weather face, maintains a watertight seal.
- **Sound Attenuation:** Minimizes sound transfer which can occur at expansion joints and wide openings. Tested to ASTM E90.
- **Non-Invasive Anchoring:** There is no drilling or modifying the substrate required. This includes embedded pins, anchors, screws, bolts, tracks, rails, flanges or coverplates. The system is secured to the joint substrate by means of the internal recovery force of the foam, the epoxy adhesive, and the optional injected sealant bands at the joint face.

ADVANTAGES

- Depending on application and UL listing, Willseal FR-H can be supplied with a silicone coating on one side, both sides, or uncoated for use as a secondary seal.
- Joint-Size Variation: Controlling uniform bellows appearance and the ability to handle variations in joint size through incremental sizing, are additional product features.
- Movement Capability: +/- 25% (50% total) or +/- 50% (100% total) of nominal joint size, depending on the material selected.
- Smoke Barrier: Willseal's innovative internal smoke barrier prevents toxic gases and fumes from penetrating the joint system.

DESIGN AND ASSEMBLY

Because 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 our UL listings in the UL 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 designer's discretion and responsibility for designing substrates as part of a fire rated assembly that meet applicable standards for the project.

The online 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.

UL Horizontal Listings (Floor to Floor)

Visit the Online Certifications Directory at www.ul.com for complete & most current listing information

- FF-D-0105
- FF-D-0094
- FF-D-0095
- FF-D-1121
- FF-D-1122
- FF-D-1123
- FF-D-1124

UL Horizontal Listings (Head of Wall)

- HW-D-0700
- HW-D-1101

INSTALLATION

(see supplied installation data for complete procedures)

- Manufactured in 6.5 LF (2M) sticks which can be joined in the field to factory fabricated 90° transitions. These factory fabricated 90° units are coated on both sides with the silicone coating allowing them to be installed as an upturn or downturn transition.
- Typically, transitions have a 6" long horizontal leg and a 12" vertical leg. Custom sizes are available to meet actual field conditions. Transitions end in an uncoated 90° miter to be adhered to another transition piece as used in walls-to-decks, treads and risers, parapets, curbs and other applications.
- In addition to ensuring watertightness, 90° transitions can sometimes allow for much faster and secure installation by eliminating field cutting at angles.
- Can be installed facing out from an exterior or interior wall and maintain its two or three hour fire-rating. When either (or both) faces have a field applied band of silicone, that face is watertight. Willseal FR-H is installed with an epoxy adhesive field applied to the sides of the Willseal FR-H and on the face of the joint substrate. Although required by other competitive, but lower performing systems, Willseal FR-H does not require the "injected bead" for its waterproof characteristics. The unions between each stick are made using a field applied silicone sealant at the silicone bellows and a UL approved sealant on the ends of the foam sealant.

WARRANTY

- Standard or project specific warranties are available from the manufacturer upon request. This product can only perform its designed function if it, and the joint gap into which it is installed, is properly sized for the anticipated joint movements in consideration of the movement capability of the product. This can vary based on the temperature at time of installation and should be considered to determine the mean joint dimension.
- Material must be installed in strict accordance with our installation instructions.

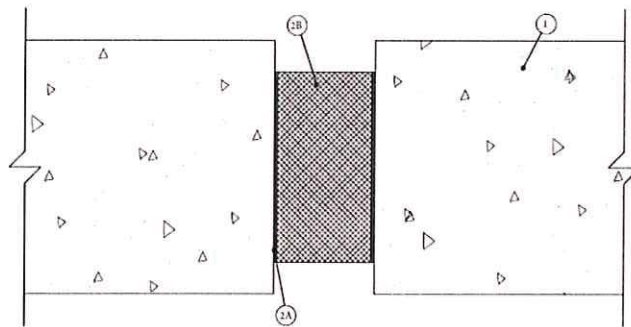


Willseal LLC • P: 800.274.2813 • F: 800.416.0550 • custserv@willseal.com • www.willseal.com

System No. FF-D-1124

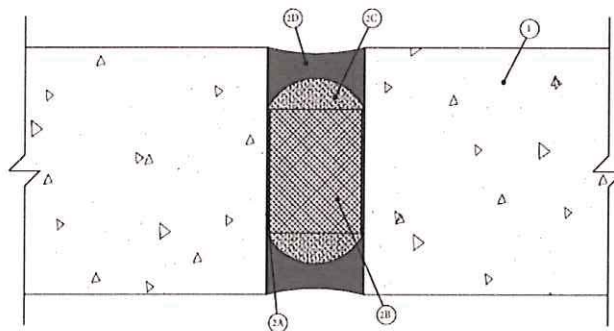
Nominal Joint Width - 2 to 3-3/4 in.

Configuration A:



- 1. Concrete
- 2A. Fire Rated Foam
- 2B. Epoxy Adhesive

Configuration B:



- 1. Concrete
- 2A. Epoxy Adhesive
- 2B. Fire Rated Foam
- 2C. Packing Material (Optional)
- 2D. Sealant Band



APPROVED

Certificate of Compliance

FM Approvals hereby certifies that the company shown below has met all the requirements contained in Approval Standard 4991, Approval of Firestop Contractors and is listed in the Approval Guide of FM Approvals. As a result, they are eligible to mark their firestop installations as Approved in accordance with said Approval Standard.

Company:

**Firestoppers, Inc
PO Box 525
Belleville, IL 62222**

APPROVAL REPORT: 3031887

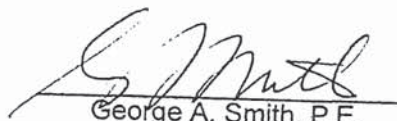
DATED: April 16, 2008

Said Approval is subject to satisfactory field performance and continuing follow-up Facilities and Procedures Audits.

For more than 160 years FM Approvals has partnered with business and industry to reduce property losses.



Member of the FM Global Group


George A. Smith, P.E.
Director, Asst. Vice President

Product schedule

NGG LTD

NGG LTD, INCORPORATED
1850 Grapghire Road Suite 202
St. Louis, Missouri 63146
Tel 314-336-2519
Fax 314-336-2261

Professional Seal

Revised	By	Date	Description
1	11/19/16	11/19/16	REV. DIMENSIONS
2	11/19/16	11/19/16	REV. DIMENSIONS
3	11/19/16	11/19/16	REV. DIMENSIONS
4	11/19/16	11/19/16	REV. DIMENSIONS
5	11/19/16	11/19/16	REV. DIMENSIONS

Proprietary Notice
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Project Name
WRIGHT UNIVERSITY
Location
St. Louis, Missouri
Architect
CANNON DESIGN
Location
St. Louis, Missouri

Contractor
FABC
Location
St. Louis, Missouri
Owner
WRIGHT UNIVERSITY
Location
St. Louis, Missouri

Drawn Date
08/10/16

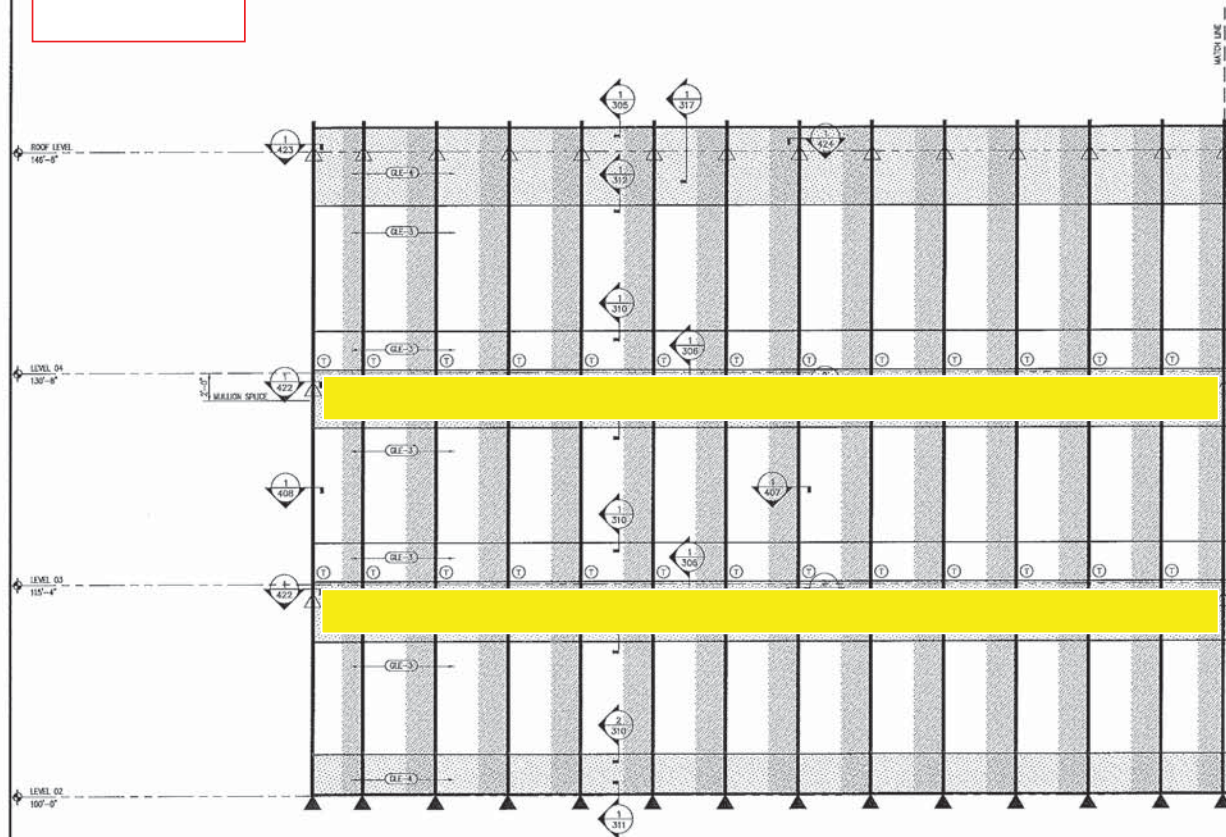
Scale
AS NOTED

NGG Project No.

Drawing Title
EMBED TITLE SHEET

Drawn By
IY

Sheet No.
205



1 WEST ELEVATION
Scale: 3/4"=1'-0"

3 SECTION
Scale: 3/4"=1'-0"
ARCH REF: 1/A0402



2 PLAN
Scale: 3/4"=1'-0"

NGG LTD

NGG LTD, INCORPORATED
1850 Craigshire Road Suite 202
St. Louis, Missouri 63146
Tel 314-356-8045
Fax 314-356-0521

Professional Seal

NO.	REVISION	DATE	BY	CHKD.	DESCRIPTION
1		12/9/08	TY		
2		10/2/08	TY		
3		8/11/08	TY		

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Project Name
WESTERN UNIVERSITY
Location
St. Louis, Missouri

Architect
CANNON DESIGN
Location
St. Louis, Missouri

Contractor
PARCO
Location
St. Louis, Missouri

Owner
WESTERN UNIVERSITY
Location
St. Louis, Missouri

Drawn Date
08/10/16

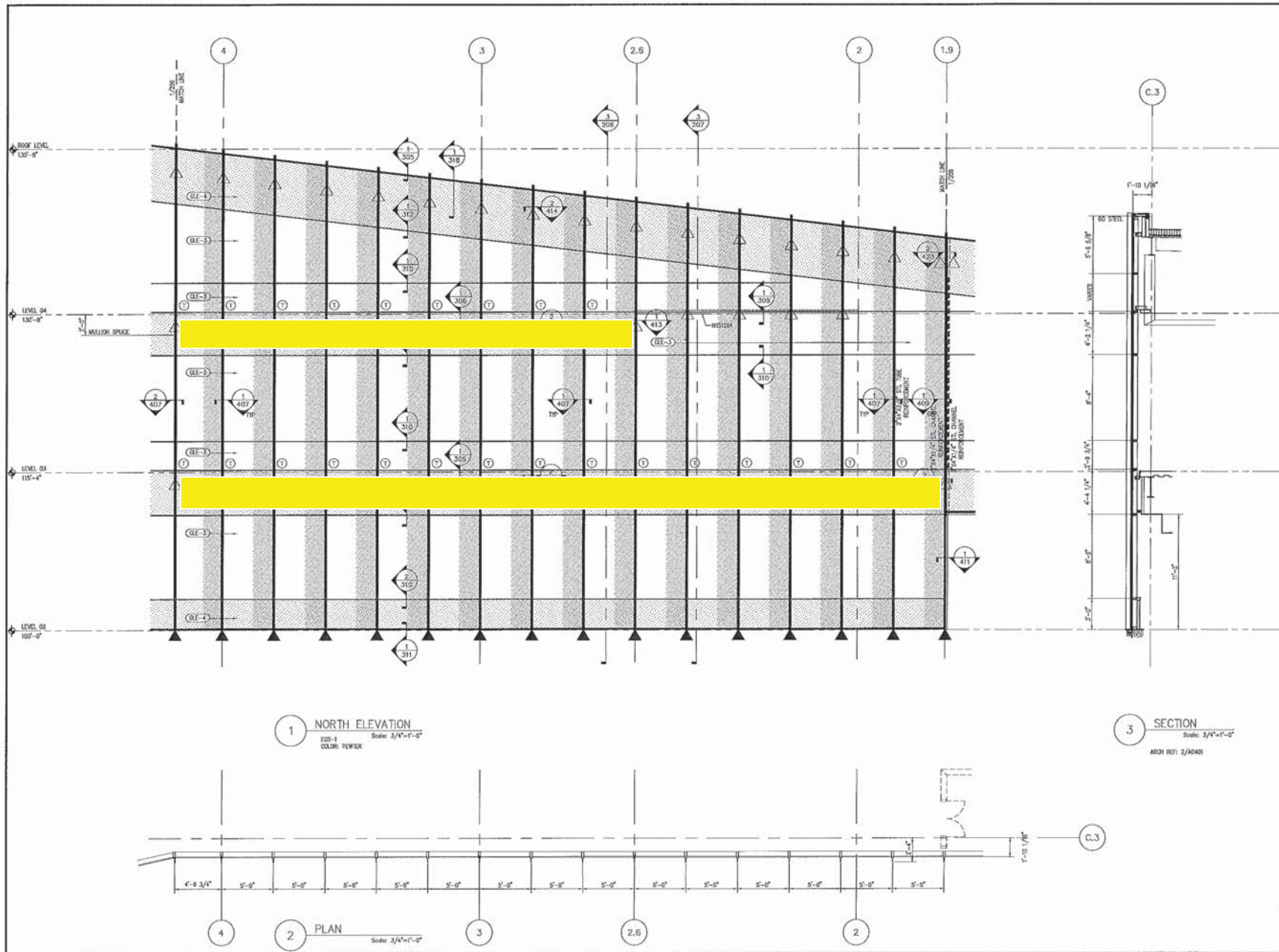
Scale
AS NOTED

NGG Project No.

Drawing Title
EMBED TITLE SHEET

Drawn By
TY

Sheet No.
207



NGG LTD

NGG LTD, INCORPORATED
1800 Creighton Road Suite 202
St. Louis, Missouri 63144
Tel 314-338-8515
Fax 314-338-2521

Professional Seal

Submittal/Revision	Description	Date	By	App.
1	200 STATIONING	11/16/16	TY	
2	200 STATIONING	12/2/16	TY	
3	200 STATIONING	8/2/16	TY	

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Project Name

WESTER UNIVERSITY

Location

St. Louis, Missouri

Architect

CANNON DESIGN

Location

St. Louis, Missouri

Contractor

FABC

Location

St. Louis, Missouri

Owner

WESTER UNIVERSITY

Location

St. Louis, Missouri

Drawn Date

06/16/16

Scale

AS NOTED

NGG Project No.

Drawing Title

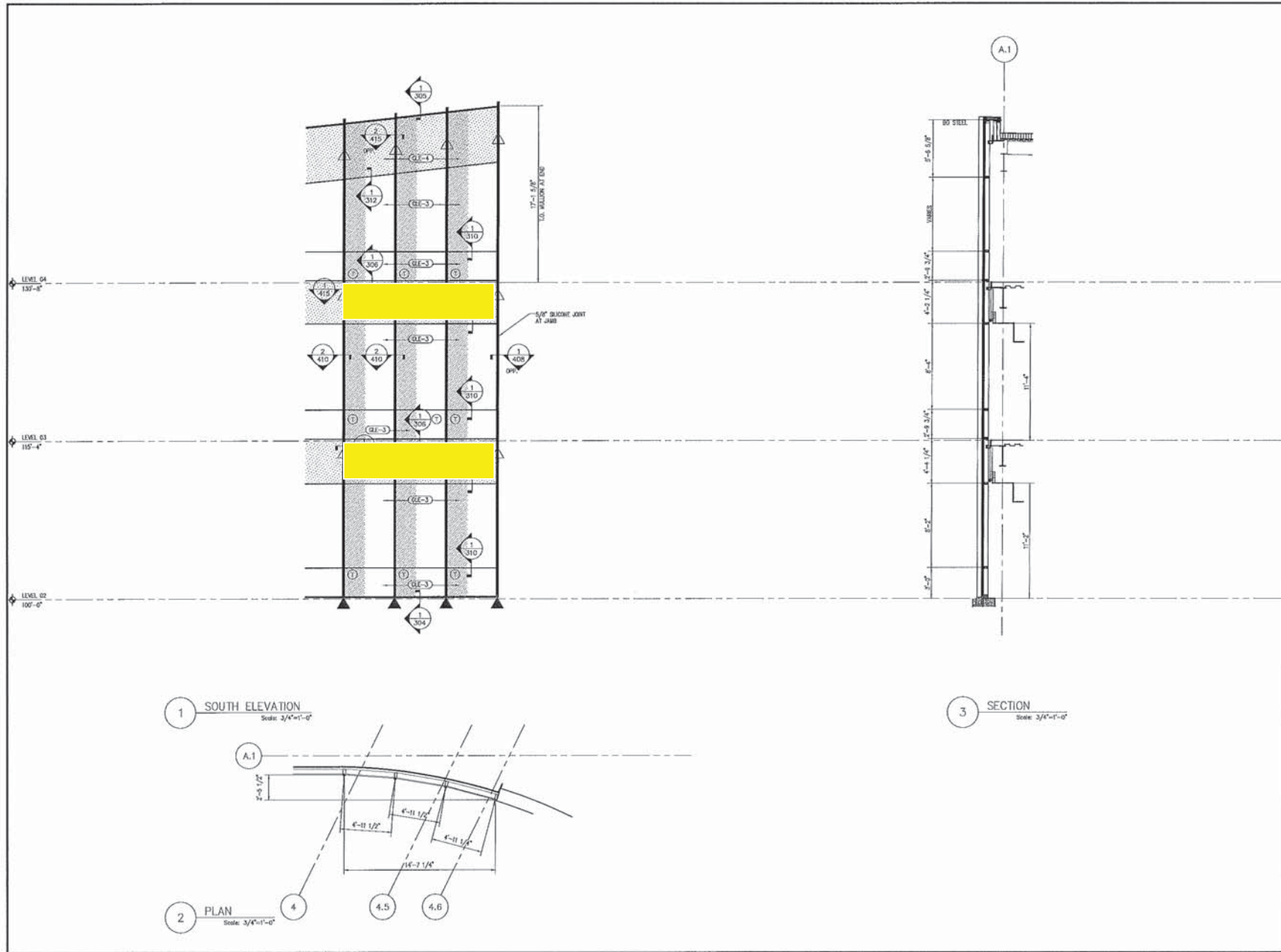
EMBED TITLE SHEET

Drawn By

TY

Sheet No.

212



Material Safety Data Sheet

WILLSEAL

WILLSEAL FR-V & FR-H

Version 1.

REVISION DATE: 07/19/2013

SECTION 1 – PRODUCT IDENTIFICATION

Trade Name	: WILLSEAL FR-V & FR-H
Product Code	: FR Expansion Joint
Company	: Willseal LLC
	34 Executive Drive
	Hudson, NH 03051
Telephone	: (800) 274-2813 8:00 – 5:00 EST
Emergency Phone	: (800) 848-1120 8:00 – 5:00 EST

SECTION 2 – HAZARDOUS IDENTIFICATION

Classification : Not Hazardous

SECTION 3 – COMPOSITION

Polyurethane foam impregnated with acrylic polymers.

Dow® Corning/Pecora silicone used on both faces. See Dow® Corning/Pecora MSDS

SECTION 4 – FIRST AID MEASURES

Flush eyes with water

Use soap and water to remove any residue left on skin. After prolonged exposure, residue left on skin may cause irritation

Do not ingest

SECTION 5 – FIRE FIGHTING MEASURES

Extinguishing Media	: water
Special Hazards	: Toxic gases form when foam is burned: Nitrogen Oxides (NOx), Hydrogen Cyanide (hydrocyanic acid)
Advice for firefighters	: Self-contained respirator (breathing apparatus)

SECTION 6 – ACCIDENTAL RELEASE MEASURE

Dispose of in accordance with local regulations. All components are non-toxic and should be accepted in landfills

Material Safety Data Sheet

WILLSEAL

WILLSEAL FR-V & FR-H

Version 1.

REVISION DATE: 07/19/2013

SECTION 7 – HANDLING AND STORAGE

Safe Handling Precautions : No special measures are required

Fire & Explosion Precautions : No special measures are required

Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers

: Store in a dry place. Do not store at temperatures over 40°C

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory protection : Not Required

Eye Protection : Not Required

Skin Protection : Gloves are suggested, but not required.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State : Solid

Color : Grey

Odor : Odorless

Flammability : Not applicable

Explosivity : Not Explosive

Density : 0.4g/cm³

Water Solubility : None

SECTION 10 – STABILITY AND REACTIVITY

Conditions to avoid : Thermal decomposition (at temperature in °C) > 150°C

Incompatible Materials : No special measures are required

Hazardous decomposition products : Carbon Monoxide, Hydrogen Cyanide (hydrocyanic acid), Nitrogen Oxides (NO_x)

Additional Information : Does not contain dangerous substances or preparation intended to be released under normal or reasonably foreseeable conditions of use

Material Safety Data Sheet

WILLSEAL**WILLSEAL FR-V & FR-H**

Version 1.

REVISION DATE: 07/19/2013

SECTION 11 – TOXOLOGICAL INFORMATION

Irritant and corrosive effects	: Not an irritant
Sensitization	: Not Sensitizing
Repeated Dose Toxicity	: Not Sensitizing
Sensation	: None

SECTION 12 – ECOLOGICAL INFORMATION

Unknown

SECTION 13 – DISPOSAL CONSIDERATIONS

Disposable in a landfill, double check with local regulations

SECTION 14 – TRANSPORT INFORMATION

Safe for non-hazardous shipping

SECTION 15 – REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

SECTION 16 – OTHER INFORMATION

Data Sources	: According to EC directives or the corresponding national regulations the product does not have to be labeled.
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The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport, and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

The information contained herein is furnished without warranty, representation or license of any kind, except that it is accurate to the best knowledge of Willseal LLC or obtained from sources believed by Willseal LLC to be accurate, Willseal LLC does not assume any legal responsibility for use of or reliance upon such information. Before using Willseal LLC products, read all labels, product data sheets and applicable Material Safety Data Sheets © 2013 Willseal LLC

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB	
PROJECT NAME	
8274 BIG BEND BLVD	
ADDRESS	
NUMBER	
WEBSTER UNIVERSITY	
OWNER	
CANNON DESIGN	
ARCHITECT / ENGINEER	
Devin Gates	
SUBMITTED BY	
0784460-004	
CONTRACTOR / CM SUBMITTAL NO.	CANNON DESIGN SUBMITTAL NO.
	0784460
DRAWING / DETAIL REFERENCE	SPECIFICATION SECTION / PARAGRAPH
MANUFACTURER / SUPPLIER	ITEM / PRODUCT ID
REQUIRED DATE	PRIORITY
	CRITICAL

ITEM BEING SUBMITTED (check only one)

- | | | |
|--|--|--|
| ☒ Shop Drawings | ☐ Certification / | ☐ Coordination Drawing |
| ☐ Samples | ☐ Qualifications | ☐ Calculations |
| (_____ copies) | ☐ Record Documents | ☐ Schedules |
| ☐ LEED Submittal | ☐ Product Data | ☐ O&M Manuals |
| ☐ Other _____ | | |

ITEM BEING SUBMITTED FOR (check only one)

- ☒ Action ☐ Information Only ☐ Record

REMARKS OR DEVIATIONS

Product data and engineering judgement for firesafing at dynamic conditions only.

CONTRACTOR / CM CERTIFICATION (SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)



PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:

Devin D. Gates

Devin Gates	3/30/17
REVIEWED BY	DATE

To be completed by Reviewer

07 8446-004
CANNON DESIGN SUBMITTAL NUMBER
3/30/17
RECEIVED DATE

- ☐ A. No Exceptions Taken
No further review of submittal is required.
- ☐ B. Make Corrections Noted
Incorporate corrections in work; resubmission is not required.
- ☐ C. Revise and Resubmit
Revise as noted, and resubmit for review.
- ☐ D. Rejected
Submittal is not in compliance with Contract Documents; provide new submittal.
- ☒ E. For Record / Information Only
Submittal was reviewed for Record / Information purposes only.
- ☐ F. Not Required for Review
Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS

☐ See attached sheet(s) for additional comments

SEE ATTACHED COMMENTS.

Kelvin Patel	04/03/17
REVIEWED BY	DATE

Digitally signed by Kelvin Patel
DN: C=US, E=kpatel@cannondesign.com, O=Cannon Design,
OU=Architect, CN=Kelvin Patel
Date: 2017.04.03 13:33:17 -0500

A/E COMMENTS:

This engineering judgment (EJ) does not appear to include the back-pan and insulation mounted to and protecting the curtain wall spandrel. The fire resistive joint system EJ must be comprehensive including both the connection to the slab and the fire protection at the spandrel. The engineering judgment should be signed by a fire protection engineer, the one submitted does not appear to be signed by a fire protection engineer.

Additionally, the fire protection engineer should be considering the continuity of the fire resistive joint as it terminates and transitions to joints beyond this application area. Compatibility with adjacent systems and products will need to be verified by the construction management team as well as transition details should be provided as part of the engineering judgment.

Finally, as referenced in the engineering judgment itself, the final engineering judgment documents shall be approved by the local Authorities Having Jurisdiction (AHJ) and a record of this approval must be submitted for record as part of the submittal process.

We believe the AHJ may have issues approving the provided engineering judgment for reasons (not limited to) those listed below;

- 1.The EJ should be written and signed by a fire protection engineer.
- 2.The EJ should address the continuity of the protection between the EJ designated system and the adjacent systems.
- 3.The compatibility of components or products in EJ system and adjacent systems is addressed at transitions.
- 4.The EJ should address transition details between designated system it transitions.
- 5.The submitted EJ indicates it does not address the structural integrity of the joint in a fire. We believe this is a key performance requirement of interest to an AHJ.....that the joint will perform in a fire.