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## Mineral wool

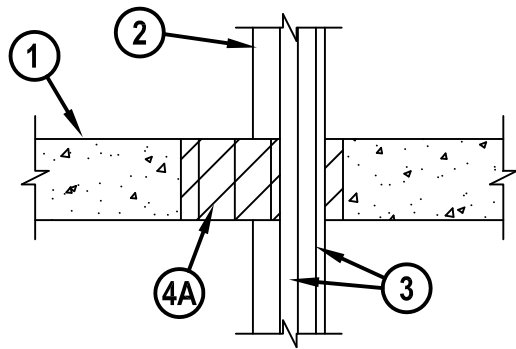
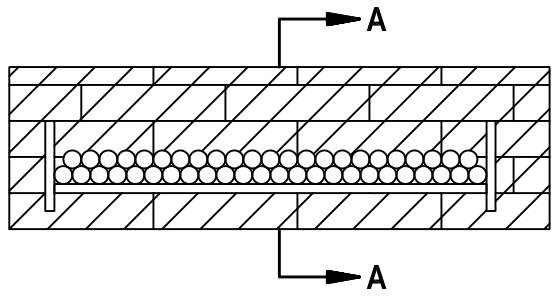
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Underwriters Laboratories, Inc.  
to UL 1479 and CAN/ULC-S115

### System No. C-AJ-4035

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 3 Hr
	FTH Rating — 0 Hr



**SECTION A-A**

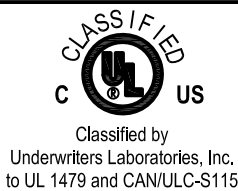
1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified Concrete Blocks\*. Max area of opening is 270 sq in (1742 cm<sup>2</sup>) with max dimension of 30 in. (762 mm).  
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Cable Tray\* — Max 24 in. (610 mm) wide by max 4 in. (102 mm) deep open-ladder or solid-back cable tray with channel-shaped side rails formed of 0.10 in. (2.54 mm) thick aluminum or 0.060 in. (1.52 mm) thick galv steel and with 1-1/2 in. (38 mm) wide by 1 in. (25 mm) channel shape rungs spaced 9 in. (229 mm) OC or a 0.029 in. (0.74 mm) thick steel solid back, respectively. The annular space between the cable tray and the periphery of the opening shall be min 1 in. (25 mm) to max 4 in. (102 mm). Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. Cables — Aggregate cross-sectional area of cables in cable tray to be max 40 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor or fiber optic cables may be used:
  - A. 1/C, 500 kcmil with thermoplastic insulation and PVC jacket.
  - B. 300 pair — No. 24 AWG cable with PVC insulation and jacket.
  - C. 24 fiberoptic cable with PVC subunit and jacket.
  - D. Three 1/C No. 12 AWG wire, insulated with polyvinyl chloride, in a nominal 3/4 in. (19 mm) flexible metal conduit.
4. Firestop System — The firestop system shall consist of the following:
  - A. Fill, Void or Cavity Material\* — Fire blocks installed with the long dimension placed horizontally within the opening, flush with bottom of floor assembly or centered within wall opening. In concrete block walls, fire block to fill entire thickness of wall opening unless wall is solid filled. Blocks to be firmly packed and completely fill the entire width and height of opening. Either one or a combination of the block specified below may be used.  
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS 657 Fire Block or CFS-BL Firestop Block
  - B. Fill, Void or Cavity Material\* -Sealant or Putty- Not Shown — Fill material to be forced into interstices of cables and between cables and cable trays to max extent possible on both surfaces of the penetration.  
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant, FS-ONE MAX Intumescent Sealant or CP618 Firestop Putty Stick.

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

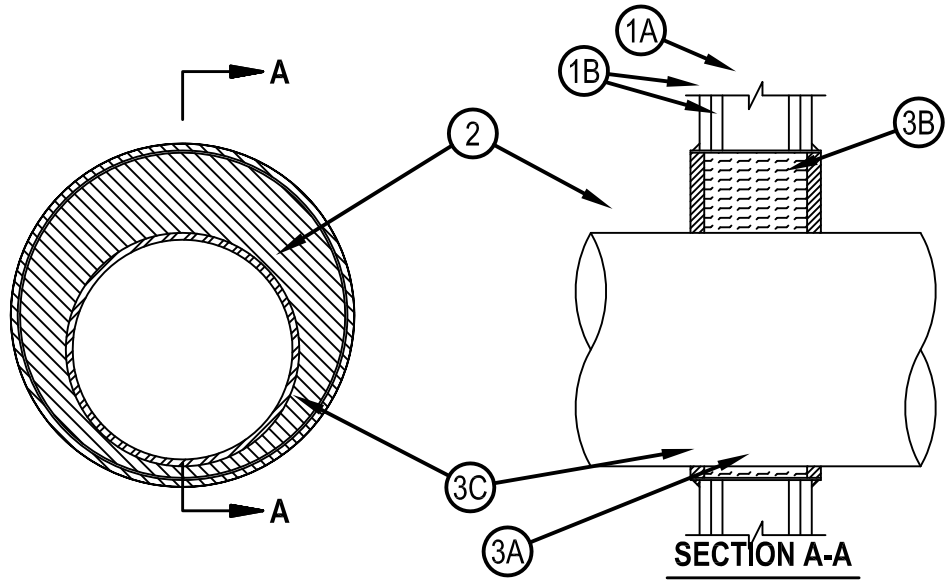


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# System No. W-L-1056



ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Rating — 2 Hr
L Rating At 400 F - 4 CFM/sq ft	FTH Rating — 0 Hr
	L Rating At Ambient - Less Than 1 CFM/sq ft
	L Rating At 400 F - 4 CFM/sq ft



- 1. Wall Assembly** — The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
  - A. Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
  - B. Gypsum Board\*** — Two layers of nom 5/8 in. (16 mm) thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 18-3/4 in. (476 mm).
- 2. Through Penetrants** — One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The annular space shall be min 3/4 in. (19 mm) to max 4-1/2 in. (114 mm). The following types and sizes of metallic pipes or tubing may be used:
  - A. Steel Pipe** — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - B. Iron Pipe** — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
  - C. Copper Tubing** — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
  - D. Copper Pipe** — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
- 3. Firestop System** — The firestop system shall consist of the following:
  - A. Metallic Sleeve** — Cylindrical sleeve fabricated from min 0.028 in. thick (24 gauge) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Length of steel sleeve to be 1 in. (25 mm) more than the overall thickness of the wall such that, when installed in circular opening, the ends of the sleeves project 1/2 in. (13 mm) from each surface of the wall. The diam of the openings cut in the gypsum wallboard layers on each side of the wall assembly to be 1-1/2 to 6 in. (38 to 152 mm) larger than outside diam of pipe such that, when the sleeve is installed, a 3/4 to 4-1/2 in. (19 to 114 mm) annular space will be present between the steel sleeve and the pipe around the entire circumference of the pipe. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.



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## System No. W-L-1056

WL 1056

B. Packing Material — Min 4 in. thickness of min 4.0 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.

C. Fill, Void or Cavity Material\* — Sealant — Min 3/4 in. (19 mm) thickness of tightly packed fill material applied within the annulus, flush with the ends of the steel sleeve. Additional fill material to be installed to the outer perimeter of the steel sleeve at its egress from the opening.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



**Hilti Firestop Systems**

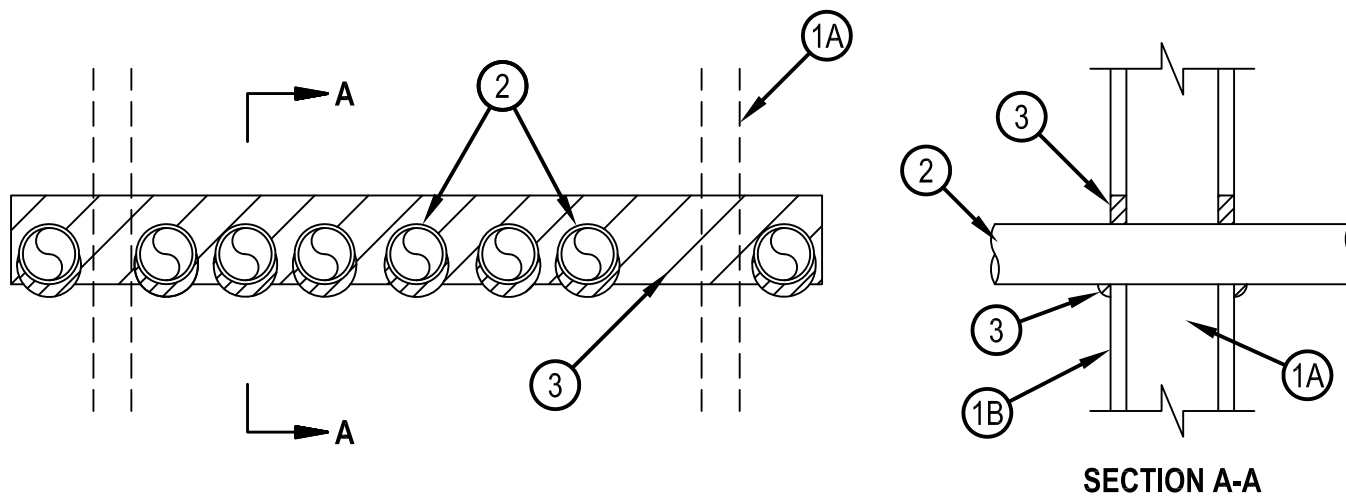
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January 23, 2015

# System No. W-L-1389



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to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Ratings — 1 and 2 Hr (See Items 1 and 3)
	FTH Rating — 0 Hr



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. Studs — Wall framing shall consist of min 3-5/8 in. (92 mm) wide steel studs spaced max 24 in. (610 mm) OC.
- B. Gypsum Board\* — Thickness, type, number of layers and fasteners, as specified in the individual Wall and Partition Design. Max height of opening is 3-1/2 in. (89 mm). Max width of opening is 32 in. (813 mm).

The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants — Multiple pipes or conduits installed in single layer array within the firestop system. The annular space between the pipes and conduits and the edges of the opening shall be min 0 in. (0 mm, point contact) to max 1-3/8 in. (35 mm). The separation between pipes and conduits to be a min 0 in. (0 mm, point contact) to a max 1-1/4 in. (32 mm). Pipes and conduits to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or conduits may be used:

- A. Steel Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. Conduit — Nom 2 in. (51 mm) diam (or smaller) rigid steel conduit or steel electrical metallic tubing (EMT).

3. Fill Void or Cavity Materials\* - Sealant — Min 5/8 in. (16 mm) thickness of fill material installed to completely fill annular space between pipes, conduits and gypsum flush with each surface of wall. Min 1/2 in. (13 mm) diam bead of fill material applied to the through penetrant/wall interface at the point contact locations on both sides of the wall. The 2 hour F, FH Ratings apply only when FS-ONE Sealant is used.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Hilti CP 606 Flexible Firestop Sealant or FS-ONE Sealant, FS-ONE MAX Intumescent Sealant


\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



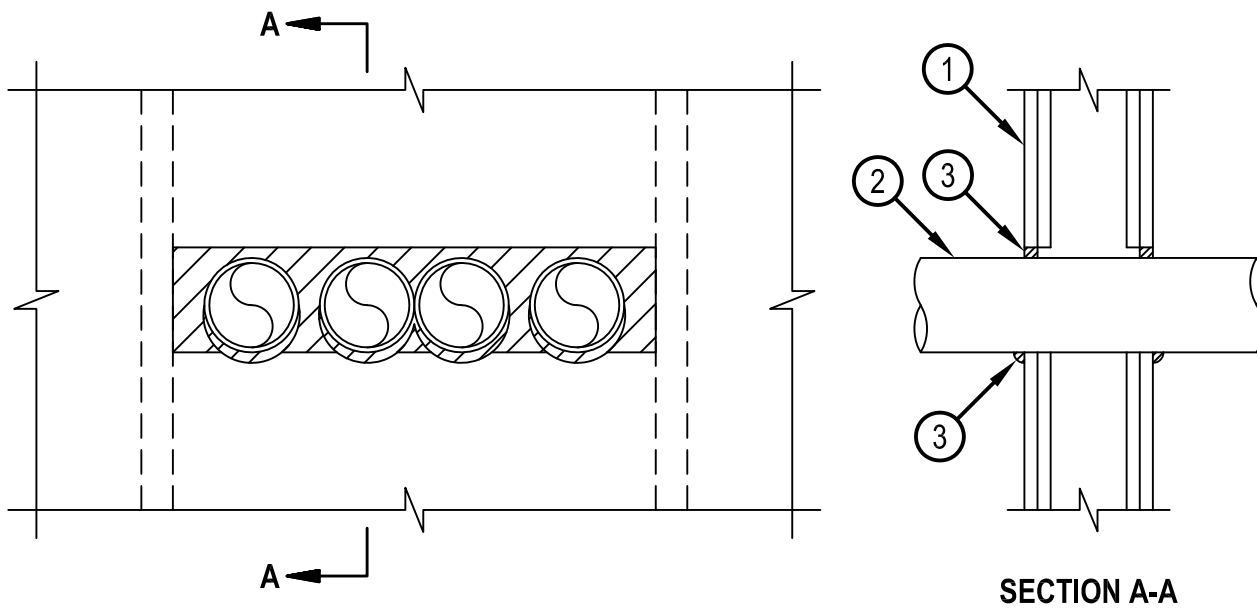
**Hilti Firestop Systems**

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January 22, 2015

# System No. W-L-1408

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 to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0 and 1/4 Hr (See Item 1)	FT Ratings — 0 and 1/4 Hr (See Item 1)
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Ratings — 0 and 1/4 Hr (See Item 1)



- Wall Assembly — The 1 and 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
    - Studs — Wall framing shall consist of min 3-5/8 in. (92 mm) wide steel studs spaced max 24 in. (610 mm) OC.
    - Gypsum Board\* — Thickness, type, number of layers and fasteners, as specified in the individual Wall and Partition Design. Max area or opening is 114 in.2 (735 cm<sup>2</sup>) with max height of 5 in. (127 mm) and max width of 23 in. (584 mm).

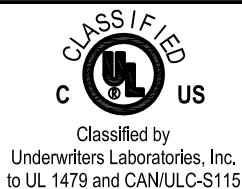
The hourly F, FH Ratings of the firestop system are equal to the hourly rating of the wall. The hourly T, FT, FTH Ratings of the firestop system is 0 hr and 1/4 hr when installed in 1 hr and 2 hr fire rated wall assemblies, respectively.
  - Through Penetrants — Multiple pipes or conduits installed in single layer array within the firestop system. The annular space between the pipes and conduits and the edges of the opening shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm). The separation between pipes and conduits to be a min 0 in. (0 mm, point contact) to a max 1-1/2 in. (38 mm). Pipes and conduits to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or conduits may be used:
    - Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
    - Conduit — Nom 4 in. (102 mm) diam (or smaller) rigid steel conduit or steel electrical metallic tubing (EMT).
  - Fill Void or Cavity Materials\* - Sealant — Min 5/8 in. (16 mm) thickness of fill material installed to completely fill annular space between pipes, conduits and gypsum flush with each surface of wall. Min 1/2 in. (13 mm) diam bead of fill material applied to the through penetrant/wall interface at the point contact locations on both sides of the wall.  
 HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, or FS-ONE MAX Intumescent Sealant
- \* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



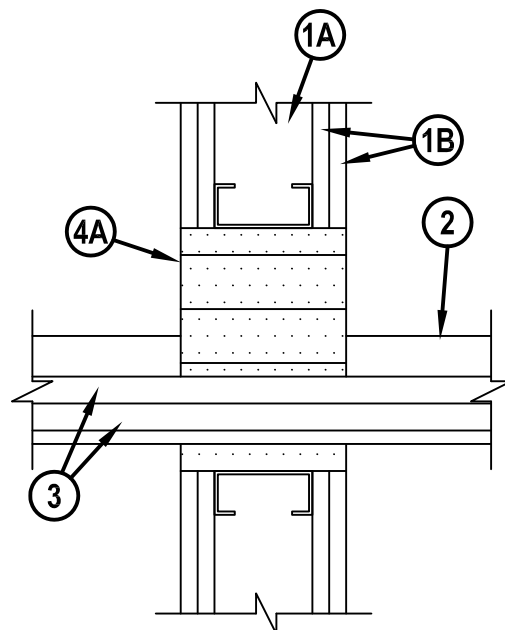
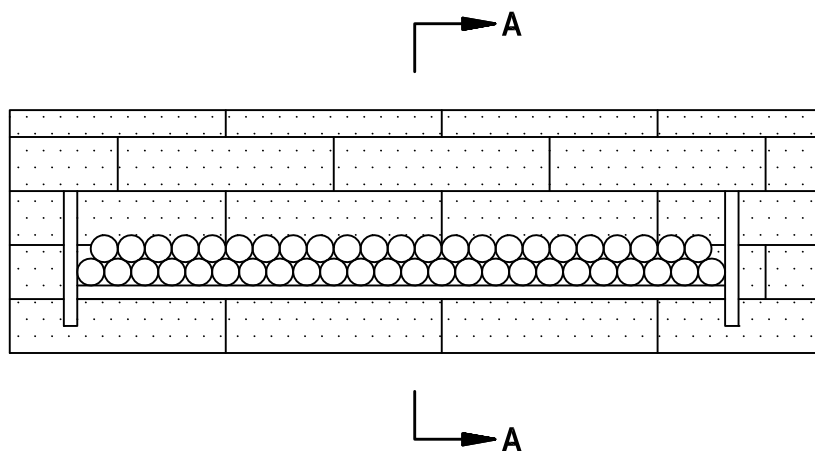
**Hilti Firestop Systems**

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 January 26, 2015

# System No. W-L-4011



ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — 5 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — 2 CFM/sq ft	FTH Rating — 0 Hr
	L Rating At Ambient — 5 CFM/sq ft
	L Rating At 400 F — 2 CFM/sq ft



**SECTION A-A**

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. (51 mm) by 4 in. (102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. Additional framing member shall be installed in stud cavity containing through-penetrating item to form a rectangular box around penetrant.
- B. Gypsum Board\* — 5/8 in. (16 mm) thick, 4 ft (1219 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Max size of opening 9 in. (229 mm) by 30 in. (762 mm).

The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.  
Min finished wall thickness is 5 in. (127 mm).

2. Cable Tray\* — Max 24 in. (610 mm) wide by max 6 in. (152 mm) deep open-ladder or solid-back cable tray with channel-shaped side rails formed of 0.10 in. (2.54 mm) thick aluminum or 0.060 in. (1.54 mm) thick steel and with 1-1/2 in. (38 mm) wide by 1 in. (25 mm) channel shape rungs spaced 9 in. (229 mm) OC or a 0.029 in. (0.74 mm) thick steel solid back, respectively. The annular space between the cable tray and the periphery of the opening shall be min 0 in. (point contact) to max 4 in. (102 mm). Cable tray to be rigidly supported on both sides of floor or wall assembly.



**Hilti Firestop Systems**

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3. Cables — Aggregate cross-sectional area of cables in cable tray to be max 45 percent of the cross-sectional area of the cable tray based on a max 5 in. (127 mm) cable loading depth. Any combination of the following types and sizes of copper conductor cables may be used:

- A. 1/C, 750 kcmil (or smaller) power cable with EPR insulation and PVC jacket.
- B. 300 pair — No. 24 AWG cable with PVC insulation and jacket
- C. Twenty-four fiberoptic cable with PVC subunit and jacket.
- D. Max three 1/C, No. 12 AWG wire, insulated with polyvinyl chloride, in a nom 3/4 in. (19 mm) Flexible Metal Conduit+.

4. Firestop System — The firestop system shall consist of the following:

A. Fill, Void or Cavity Material\* - Fire Blocks — For walls incorporating max 3-5/8 in. (92 mm) steel studs or max 2 in. (51 mm) by 4 in. (102 mm) wood studs, fire block installed with 5 in. (127 mm) dimension projecting through and centered in opening. For walls constructed of larger steel or wood studs, fire block installed with long dimension passing through and centered in opening. Blocks may or may not be cut flush with both surfaces of wall. When multiple layers of gypsum board are used, blocks may be recessed 1/2 in. (13 mm) from surface of wall. Blocks firmly packed within opening. Either one or a combination of the block types specified below may be used.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-657 Fire Block or CFS-BL Firestop Block

B. Fill, Void or Cavity Material\* - Sealant or Putty (Not shown) — Fill material to be forced into interstices of cables and between cables and cable trays to max extent possible on both surfaces of the penetration.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP618 Firestop Putty Stick (Note: L Ratings apply only when FS-One Sealant is used)

+Bearing the UL Listing Mark

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.





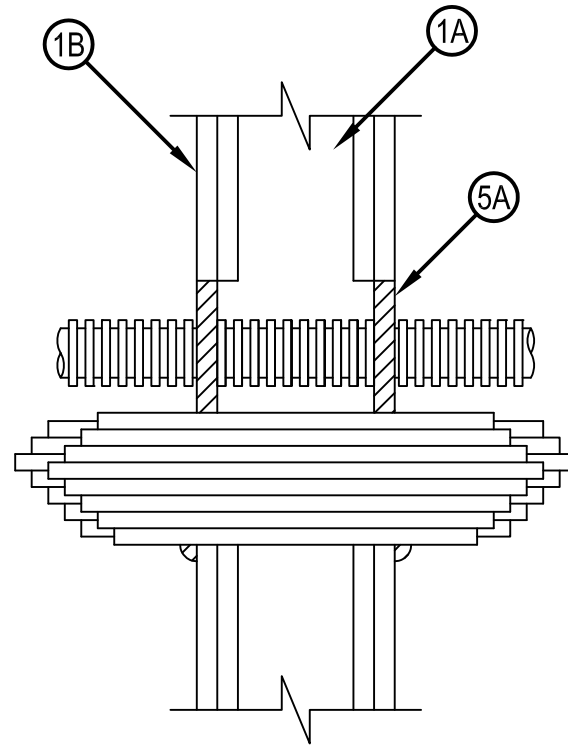
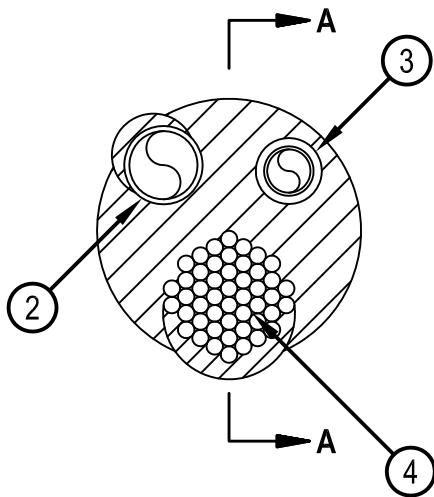


Classified by  
Underwriters Laboratories, Inc.  
to UL 1479

## System No. W-L-8071

WL 8071

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr (See Item 1)	F Rating — 1 and 2 Hr (See Item 1)
T Rating — 0 and 1/2 Hr (See Item 2D)	FT Rating — 0 and 1/2 Hr (See Item 2D)
	FH Rating — 1 and 2 Hr (See Item 1)
	FTH Rating — 0 and 1/2 Hr (See Item 2D)



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. Gypsum Board\* — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 8 in. (203 mm).

The F and FH Ratings of the firestop system are dependent on the hourly fire rating of the wall assembly.



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## System No. W-L-8071

WL 8071

2. Metallic Penetrants — One or more metallic pipes, conduits or tubing installed concentrically or eccentrically within the opening. Annular space between metallic penetrants and periphery of opening to be min 0 in. (point contact) to max 2 in. (51 mm). Annular space between metallic penetrants, nonmetallic penetrant and cables to be min 1/2 in. (13 mm) to max 1-1/2 in. (38 mm). Metallic pipes, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be installed within the opening:

- A. Steel Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. Iron Pipe — Nom 2 in. (51 mm) diam (or smaller) cast or ductile iron pipe.
- C. Conduit — Nom 2 in. (51 mm) diam (or smaller) rigid steel conduit or electrical metallic tubing (EMT).
- D. Through Penetrating Product\* — Flexible Metal Piping — The following types of steel flexible metal gas piping may be used:
  - 1.) Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.  
OMEGA FLEX INC
  - 2.) Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.  
GASTITE, DIV OF TITFLEX
  - 3.) Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.  
WARD MFG L L C

The T, FT, FTH Ratings of the firestop system are 1/2 hr except that when Item 2D is used, the T Rating is 0 hr.

3. Electrical Nonmetallic Tubing (ENT)+ — Nom 2 in. (51 mm) diam (or smaller) ENT formed of PVC, installed in accordance with Article 331 of the National Electrical Code (NFPA No. 70). Max one ENT installed concentrically or eccentrically within the opening. Annular space between ENT and periphery of opening to be min 1/4 in. (6 mm) to max 2 in. (51 mm). Annular space between ENT and metallic penetrants or cables to be min 1/2 in. (13 mm) to max 1-1/2 in. (38 mm). ENT to be rigidly supported on both sides of the wall assembly.

See Electrical Nonmetallic Tubing (FKHU) in UL Electrical Construction Materials Directory for names of manufacturers.

4. Cables — Nom 4 in. (102 mm) diam (or smaller) tight bundle of cables. Cable bundle spaced 0 in. (point contact) to 2 in. (51 mm) from periphery of opening. Cable bundle to be rigidly supported on both sides of wall assembly. Any combination of the following types and sizes of cables may be used:

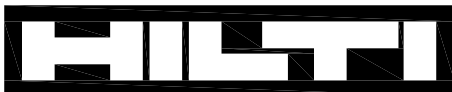
- A. Max 200 pair No. 24 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacket materials.
- B. Max 1/C No. 500 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.
- C. Max 3/C with ground No. 2/0 AWG (or smaller) aluminum conductor SER cables with PVC insulation and jacket.
- D. Max 3/C No. 8 AWG (or smaller) copper conductor metal clad cable.
- E. Max 4 pair No. 24 AWG (or smaller) copper conductor communication cable.
- F. Max RG/U coaxial cable with fluorinated ethylene insulation and jacket.

5. Firestop System — The firestop system shall consist of the following:

- A. Fill, Void or Cavity Material\* - Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus flush with both surfaces of wall. At point contact locations, apply a min 1/2 in. (13 mm) diam bead of fill material at the penetrant/gypsum board interface.  
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

+Bearing the UL Listing Mark



**Hilti Firestop Systems**

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Underwriters Laboratories, Inc.  
January 28, 2015

## Firestop Block (CFS-BL)

### Product description

- Ready-to-use, intumescent flexible block designed to seal medium to large size openings

### Product features

- Integrated "Grid-Tech" increases Annular Space up to 12"
- Suitable for re-penetration or new penetrations
- Economical to use with short installation times
- Easy installation — no special tools required
- Ideal for use in floors — no forming required
- One sided wall systems available
- Halogen, asbestos and solvent free
- Operational immediately after installation
- Smoke resistant

### Areas of application

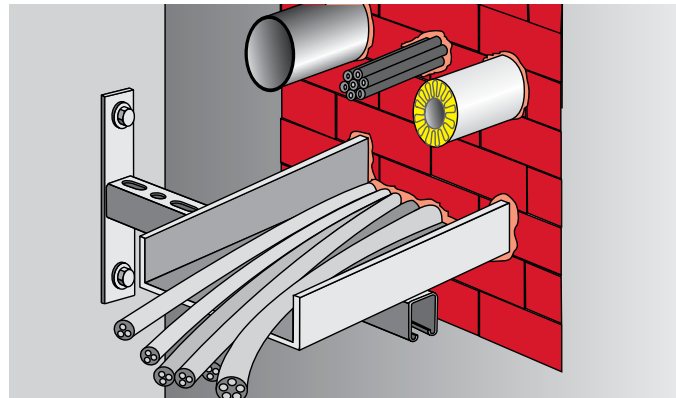
- Sealing single or multiple penetrations in small to large openings
- Temporary or permanent sealing of cables and cable tray penetrations
- Temporary or permanent sealing of insulated and non-insulated metallic pipes and combustible pipe penetrations

### For use with

- Walls (UL tested up to max. opening 72" x 36")
- Floors (UL tested up to max. opening 72" x 36")
- Concrete, porous concrete, masonry and gypsum wall assemblies
- Wall assemblies rated up to 4 hours
- Floor assemblies rated up to 3 hours

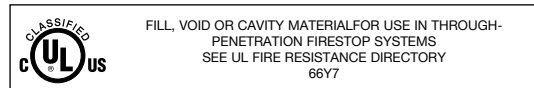
### Examples

- Completely dust and fiber free rooms and places where electrical installations are frequently used (ie: computer centers, hospitals, laboratories, etc.)
- New buildings in the construction phase and during renovation
- Large openings containing multiple penetrations as found in production bays, warehouses, hospitals etc.



Technical Data*	CFS-BL
<b>Color</b>	Red
<b>Application temperature</b>	40° F to 104° F (5° C to 40° C)
<b>Temperature resistance</b>	5° F to 140° F (-15° C to 60° C)
<b>Intumescent activation</b>	Approx. 392° F (200° C)
<b>Expansion ratio (unrestricted)</b>	Up to 1:3
<b>Surface burning characteristics (ASTM E 84-10b)</b>	Flame Spread Index: 10 Smoke Development Index: 15
<b>Sound transmission classification (ASTM E 90)</b>	STC Rating: 52
<b>Tested in accordance with</b> • UL 1479 • ASTM E 814 • ASTM E 84	

\*At 73°F (23°C) and 50% relative humidity



## Installation instructions for Firestop Block CFS-BL

### Notice

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information

### Opening

- Clean the opening. Penetration and penetration supporting structures must be installed in compliance with local building and electrical standards.

### Application of Firestop Blocks

- If no penetrations are located, build up Firestop Block CFS-BL, firmly seated, within opening.
- If penetrations are located, build up Firestop Block CFS-BL, firmly seated, while cutting blocks with a knife to suit the placed penetrations.
- Finish building up Firestop Blocks until entire opening is filled.
- Completely fill cable spaces, gaps between blocks and pipes, and joints with FS-ONE Firestop Sealant (as required).
- For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the identification plate and fasten it in a visible position next to the seal.

### Re-installing cables or other penetrations

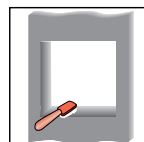
- Remove or cut the block from the seal.
- Install the penetrant and re-lay the block in compliance with the approval. Fill gaps and spaces with FS-ONE Firestop Sealant (as required).  
Single cables can be run through joints between blocks or a hole can be drilled through a block using a sharpened piece of metal pipe or tubing.

### Not for use

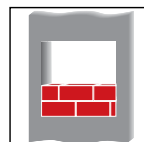
- In wet rooms, outdoors or exposed to the weather or UV radiation (can be done only after applying an additional silicone coating, i.e. CP 601S).

### Storage

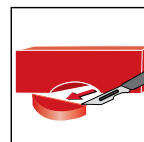
- Store only in the original packaging in a location protected from moisture and direct sunlight



1. Clean opening.



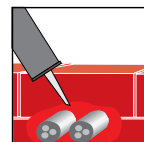
2a. Build up blocks



2b. Cut blocks to size for penetrations in place



3. Build up blocks



4. Fill gaps with FS-ONE, CP 617 or CP 618 putty (as required).



5. Fasten identification plate in place (if required)



**Hilti Firestop**  
Saving lives  
through innovation  
and education

**Hilti. Outperform. Outlast.**

# Certificate of Compliance

Certificate Number **20111214-R13240**  
Report Reference **File R13240**  
Issue Date **2011 December 14**

Page 1 of 1



*Issued to:* **Hilti Construction Chemicals, Div of Hilti Inc.**  
5400 S 122<sup>nd</sup> East Ave  
Tulsa, OK 74146

*This is to certify that representative samples of* **Fill, Void or Cavity Materials**  
**CFS-BL Firestop Block**


*Have been investigated by Underwriters Laboratories in accordance with the Standard(s) indicated on this Certificate.*

*Standard(s) for Safety:* **ANSI/UL 1479, "Fire Tests of Through-Penetration Firestops,"**  
**CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems."**  
Third Edition revised March 1, 2010

*Additional Information:* See UL On-line Certification Directory at [WWW.UL.COM](http://WWW.UL.COM) for additional information.

CFS-BL Firestop Block for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

**Only those products bearing the UL Classification Mark should be considered as being covered by UL's Classification and Follow-Up Service.**

The UL Classification Mark includes: UL in a circle symbol:  with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and, the product category name (product identity) as indicated in the appropriate UL Directory.

**Look for the UL Classification Mark on the product**

**William R. Carney**  
**Director, North American Certification Programs**

Underwriters Laboratories Inc.

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

For questions, please contact a local UL Customer Service Representative at <http://www.ul.com/global/eng/pages/corporate/contactus>



## 1 Identification of the substance/mixture and of the company/undertaking

• **Product identifier**

• **Trade name:**

Hilti Firestop Block CFS-BL / CFS-BL P

Hilti Firestop Plug CFS-PL

Hilti Firestop Cable Collar CFS-CC / CFS-RCC / CFS-RCC EXT

Hilti Firestop Module Box CFS-MB

Hilti Firestop Cushion CFS-CU

Hilti Firestop Board CP 675

Hilti Firestop Speed Sleeve CFS-SL

Hilti Firestop Retrofit Sleeve CFS-SL RK

Hilti Firestop Sleeve Kit CFS-SL SK

Hilti Firestop Gangplate CFS-SL GP

Hilti Firestop Cable Module CFS-T

Hilti Firestop Filler Module CFS-T FB

Hilti Firestop Plug Seal CFS-T RR

Hilti Firestop Plug Seal CFS-T RRS

Hilti Firestop Wedge Seal CFS-T WD120

Hilti Firestop Cast-In Device CFS-CID

Hilti Firestop Drop-In Device CFS-DID

Hilti Foil Tapes CS-FT all

Hilti Multifunctional Tapes CS-MFT all

Hilti Joint Sealing Tapes CS-JST all

Hilti Firestop Top Track Seal CFS-TTS

CP 651N

CP 653

CP 657

CP 658

CP 680

CP 681

• **Application of the substance / the preparation:** Construction chemicals

Refer to Hilti product literature, technical data sheets, 3<sup>rd</sup> party published listings and national approvals for specific application information. For more details please contact your local Hilti organization through <http://www.hilti.com>.

• **Manufacturer/Supplier:**

Hilti AG  
Feldkircherstr. 100  
Postfach 333  
FL-9494 Schaan  
Liechtenstein

Customer Service  
Phone +423 (0)844 84 84 85  
Fax +423 (0)844 84 84 86

## 2 Other information

A Material Safety Data Sheet is not required due to the classification of these products as “articles” according to Regulation (EC) No. 1907/2006 of 18 December 2006 / 29CFR 1910.1200 (U.S.A.). Consequently, these products are exempted from CLP / OSHA Labeling and MSDS requirements.

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **Informing department:**

chemicals.hse@hilti.com  
Tel.: +423 234 3004  
FAX.: +423 234 3462



September 24, 2015

To Whom It May Concern:

**Re: Hilti CFS-BL, Firestop Block – LEED Info.**

Item Number:

2030020

The CFS-BL is manufactured in Kaufering, Germany.

There is no post-consumer or post-industrial content in CFS-BL and it cannot be recycled. The CFS-BL does not contain any Rapidly Renewable Materials. The VOC content for CFS-BL is 5.4 grams/liter.

CFS-BL is not regulated as a hazardous waste by the Federal EPA Standards. The regulations for the disposal of non-regulated industrial waste can vary from state to state and even city to city. For this reason, you should consult your local and state regulatory agencies for direction on disposal.

Please feel free to contact me at (918) 872-3704 if you have questions.

Sincerely,

Jerry Metcalf MPH, CHMM  
Sr. Mgr. Safety/Environmental  
Hilti Inc.  
918 872 3704  
[jerry.metcalf@hilti.com](mailto:jerry.metcalf@hilti.com)

Rev. Date: 9/24/15

The manufacturing plant location on this certificate has been provided for LEEDS reporting purposes only. It should never be used for Country of Origin certification or a representation of compliance/non-compliance with Buy American or Buy America requirements, as those requirements differ.

The manufacturing plant location(s) identified on the certificate represent standard Hilti catalog products only. "Specially" produced non-catalog Hilti products may have differing manufacturing plant locations.

Contact your Hilti representative in cases of "specially" produced products for a custom LEEDS certificates

Hilti, Inc.  
5400 South 122<sup>nd</sup> East Avenue  
Tulsa, OK 74146

1-800-879-8000  
[www.hilti.com](http://www.hilti.com)

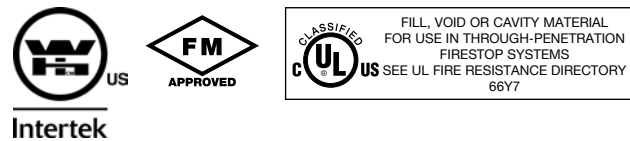
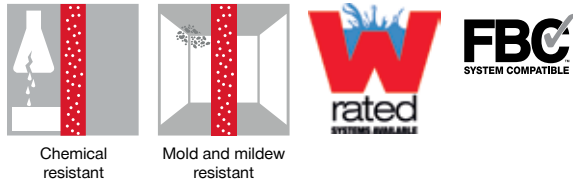
## High-performance intumescent firestop sealant FS-ONE MAX

### Applications

- For effectively sealing most common through penetrations in a variety of base materials
- For use on concrete, masonry and drywall
- Mixed and multiple penetrations
- Metal pipe penetrations: copper, steel and EMT
- Insulated metal pipe penetrations: steel and copper
- Plastic pipe penetrations: closed or vented

### Advantages

- US-produced: "Buy American" compliant
- One product for a variety of common through penetrations
- Cost-effective, easy-to-use solution
- Water-based and paintable
- Industry-leading VOC results
- Ethylene glycol-free



Technical data	
Chemical basis	Water-based acrylic dispersion
Approx. Density	84.3 lb/ft <sup>3</sup>
Color	Red
Application temperature range	41 - 104 °F
Approx. cure time <sup>1)</sup>	4 mm/3 days
Temperature resistance range	-4 to 212 °F
Mold and mildew performance	Class 0 (ASTM G21-96)
Mold and mildew resistance	Yes
Surface burning characteristics UL 723 (ASTM E84)	Flame spread: 0 Smoke development: 10
Tested in accordance with	UL 1479, ASTM E814, ASTM E84, CAN/ ULC-S115, ASTM G21, ASTM E90
California State fire marshal approval	CSFM Listing 4485-1200:0108 for FS-ONE MAX Intumescent Firestop Sealant
Expansion ratio (unrestricted, up to)	1:5

<sup>1)</sup> at 75°F/24°C, 50% relative humidity



Order Designation	Package Content	Item number
FS-ONE MAX 20oz foil (3 case + disp)	1x Foil pack dispenser manual CS 270-P1, 75x Firestop sealant FS-ONE MAX 20 oz foil	3530252
FS-ONE MAX 10oz tube (1 case)	12x Firestop sealant FS-ONE MAX 10 oz cartridge	3530249
FS-ONE MAX 5 gallon (18 pails)	18x Firestop sealant FS-ONE MAX 5 gallon pail	3530263
FS-ONE MAX 20oz foil (1 case)	25x Firestop sealant FS-ONE MAX 20 oz foil	3530250
FS-ONE MAX 20oz foil (3 cases)	75x Firestop sealant FS-ONE MAX 20 oz foil	3530251
FS-ONE MAX 20oz Foil-Pallet	600x FSONE-MAX 20 oz foil, 290x Bulk Shipping Condition	3534713
FS-ONE MAX 10 oz cartridge		2101531
FS-ONE MAX 5 gallon pail		2101533



Date: June 22, 2015

Subject: **Buy American Certification**

Product: Firestop sealant FS-ONE MAX 10.1OZ Cartridge (Item #2101531)  
Firestop sealant FS-ONE MAX 20.0OZ Foil (Item #2101532)  
Firestop sealant FS-ONE MAX 5GAL Pail (Item #2101533)

To Whom it May Concern:

Hilti, Inc. certifies that the above referenced product(s) as described on the Purchase Order identified above, is (are) a domestic end product (as defined in FAR Subpart 25.1, "Buy American Act--Supplies"), or satisfies the preference for domestic construction material (as defined in FAR Subpart 25.2, "Buy American Act--Construction Materials").

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas M. Horan", is positioned above the printed name.

Thomas M. Horan, QA Manager

Buyamericanfsonemax.doc

**Hilti, Inc.**  
5400 South 122nd East Avenue  
Tulsa, OK 74121 USA

T (918) 872-3000 | F 800-879-7000  
[www.hilti.com](http://www.hilti.com)



# FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 12/17/2015


Revision date: 12/17/2015

Supersedes: 12/17/2015

Version: 1.2

## SECTION 1: Identification

### 1.1. Identification

Product form	Mixture
Name	FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL
Product code	BU Chemicals
Chemical structure	

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

Hilti, Inc.  
Legacy Tower, Suite 1000  
75024 Plano - USA  
T +1 9724035800  
1-800-879-8000 toll free - F +1 918 254 0522

#### Supplier

Hilti, Inc.  
Legacy Tower, Suite 1000  
75024 Plano - USA  
T +1 9724035800  
1-800-879-8000 toll free - F +1 918 254 0522

#### Department issuing data specification sheet

Hilti AG  
Feldkircherstraße 100  
9494 Schaan - Liechtenstein  
T +423 234 2111  
[chemicals.hse@hilti.com](mailto:chemicals.hse@hilti.com)

### 1.4. Emergency telephone number

Emergency number	Chem-Trec Tel.: 1 800 424 9300 (USA, PR, Virgin Islands, Canada) Tel.: 703 527 3887 (Other countries) +1 918 8723000 1-800-879-8000 toll free
------------------	---

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### GHS-US classification

Not classified

### 2.2. Label elements

#### GHS-US labelling

No labelling applicable

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

# FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

#### 3.2. Mixture

Name	Product identifier	%	GHS-US classification
Quartz	(CAS No) 14808-60-7	2.5 - 5	Carc. 1A, H350

Full text of H-statements: see section 16

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures after inhalation	Get medical advice/attention if you feel unwell.
First-aid measures after skin contact	Wash skin with plenty of water. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	Get medical advice/attention if you feel unwell.

#### 4.2. Most important symptoms and effects, both acute and delayed

No additional information available

#### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media Water spray. Dry powder. Foam. Carbon dioxide.

#### 5.2. Special hazards arising from the substance or mixture

Reactivity The product is non-reactive under normal conditions of use, storage and transport.

#### 5.3. Advice for firefighters

Protection during firefighting Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

No additional information available

##### 6.1.2. For emergency responders

Protective equipment For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

No additional information available

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up Recover mechanically the product.

#### 6.4. Reference to other sections

For further information refer to section 13.

# FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling	Wear personal protective equipment.
Hygiene measures	Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Keep cool. Store in a dry place.
Storage temperature	41 - 77 °F

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Quartz (14808-60-7)		
OSHA	Remark (OSHA)	(3) See Table Z-3.

#### 8.2. Exposure controls

Personal protective equipment Protective clothing. Safety glasses. Gloves.



Hand protection	Protective gloves. EN 374.
Eye protection	Safety glasses. EN 166. EN 170.
Skin and body protection	Wear suitable protective clothing.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Pasty.
Colour	red
Odour	characteristic
Odour threshold	Not determined
pH	≈ 7.85
Melting point	Not applicable
Freezing point	No data available
Boiling point	No data available
Flash point	Not applicable
Relative evaporation rate (butylacetate=1)	No data available
Flammability (solid, gas)	No data available
Explosive limits	No data available
Explosive properties	No data available
Oxidising properties	No data available
Vapour pressure	No data available
Relative density	No data available
Relative vapour density at 20 °C	No data available
Density	≈ 1.35 g/cm³
Molecular mass	Not determined

# FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Solubility	No data available
Log Pow	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available

### 9.2. Other information

VOC content	9 g/l
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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity	Not classified
Skin corrosion/irritation	Not classified pH: ≈ 7.85
Serious eye damage/irritation	Not classified pH: ≈ 7.85
Respiratory or skin sensitisation	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified

Quartz (14808-60-7)	
IARC group	1 - Carcinogenic to humans
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Not classified



# FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Transport hazard class(es) (RID) Not applicable

### 14.4. Packing group

Packing group (ADR)	Not applicable
Packing group (IMDG)	Not applicable
Packing group (IATA)	Not applicable
Packing group (ADN)	Not applicable
Packing group (RID)	Not applicable

### 14.5. Environmental hazards

Dangerous for the environment	No
Marine pollutant	No
Other information	No supplementary information available

### 14.6. Special precautions for user

**- Overland transport**

**- Transport by sea**

No data available

**- Air transport**

No data available

**- Inland waterway transport**

Carriage prohibited (ADN)	No
Not subject to ADN	No

**- Rail transport**

Carriage prohibited (RID)	No
---------------------------	----

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

**Quartz (14808-60-7)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

**CANADA**

**FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL**

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
----------------------	---

**EU-Regulations**

No additional information available

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Not classified

**National regulations**

# FS-ONE MAX; Hilti Firestop Filler Mastic CFS-FIL

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

**Quartz (14808-60-7)**

Listed on IARC (International Agency for Research on Cancer)

**15.3. US State regulations**

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

**SECTION 16: Other information**

Revision date 12/17/2015

Full text of H-statements:

Carc. 1A	Carcinogenicity, Category 1A
H350	May cause cancer

HMIS III Rating

Health 0 Minimal Hazard - No significant risk to health  
 Flammability 0 Minimal Hazard - Materials that will not burn  
 Physical 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.  
 Personal Protection B  
 B - Safety glasses, Gloves

SDS\_US\_Hilti

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*



August 26, 2015

To Whom It May Concern:

Re: **Hilti FS-ONE Max Firestop – LEED Info.**

Item Numbers:

2101531
2101532
2101533

The Hilti FS-ONE MAX Firestop is manufactured in the United States

There is no post-consumer or post-industrial content in FS-ONE MAX and it cannot be recycled. The VOC content for FS-ONE MAX is 9 grams/liter.

FS-ONE MAX is not regulated as a hazardous waste by the Federal EPA Standards. The regulations for the disposal of non-regulated industrial waste can vary from state to state and even city to city. For this reason, you should consult your local and state regulatory agencies for direction on disposal.

Please feel free to contact me at (918) 872-3704 if you have questions.

Sincerely,

Jerry Metcalf MPH, CHMM  
Sr. Manager, Safety/Environmental  
Hilti Inc  
(918) 872 3704  
[jerry.metcalf@hilti.com](mailto:jerry.metcalf@hilti.com)

Rev. Date: 7/31/15

The manufacturing plant location on this certificate has been provided for LEEDS reporting purposes only. It should never be used for Country of Origin certification or a representation of compliance/non-compliance with Buy American or Buy America requirements, as those requirements differ.

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Contact your Hilti representative in cases of "specially" produced products for a custom LEEDS certificates.

Hilti, Inc.  
5400 South 122<sup>nd</sup> East Avenue  
Tulsa, OK 74146

1-800-879-8000  
[www.hilti.com](http://www.hilti.com)



# Fire Containment Insulation

# Thermafiber® Safing™

- + Exceptional performance in Perimeter Fire Containment Systems
- + Provides life saving fire protection in rated assemblies
- + Fire resistant to temperatures above 2,000°F (1,093°C)
- + Easy to fabricate for through penetrations and firestopping
- + Conserves energy, reduces greenhouse gas emissions
- + Resists moisture
- + Controls noise and sound

LEED® v2009 Green Building Credits				
Minimum 70% Recycled Content <sup>1</sup>	Energy & Atmosphere	Materials & Resources	Indoor Environmental Quality	Innovation in Design
	1	2.1, 2.2 4.1, 4.2 5.1, 5.2	9	1



Thermafiber Safing and FireSpan® insulation provide the critical components of the perimeter fire containment system in the 111 South Wacker Building in Chicago, IL. Thermafiber insulation also contributed to the building's LEED® Gold Rating.



Thermafiber® Safing™ is compression fitted between FireSpan® insulation and the concrete slab edge to create a perimeter fire containment system.



# Thermafiber® Safing™ Insulation

## Description:

THERMAFIBER Safing™ products are designed to provide life saving fire protection in perimeter fire containment systems, floor and wall penetrations, construction joints, and other firestopping applications. These products are noncombustible, moisture-resistant, noncorrosive, nondeteriorating, mildew-proof and vermin-proof. Thermafiber Safing provides thermal insulation, fire protection, and acoustical control in many different UL and Intertek (formerly OPL) listed fire containment assemblies of 1, 2, and 3-hr ratings.

## Product Options:

- Safing 4.0 pcf, 2" or greater thickness, is available with or without a vapor retarding foil facing.
  - Safing 6.0 pcf, 1.5" or greater thickness, is available with or without a vapor retarding foil facing.
  - Recycled Content Options<sup>1</sup>:
    - EPA Choice Fiber (US Government Buildings)..... Minimum 75%
    - Standard Fiber..... 70%
- <sup>1</sup>Recycled content options other than Standard must be specified at time of order.

## Installation:

All firestopping insulation should be installed per the architectural specification or system specific test description. All firestopping Safing insulation should be installed per the listed assembly.

- Perimeter Installation: Safing™ insulation should be compression fitted between the slab edge and the FireSpan curtain wall insulation, leaving no voids.
- Penetration Application: Safing insulation should be cut slightly larger than the opening and compression fitted into the opening, leaving no voids.
- Construction Joint Application: Safing insulation should be compression fitted into the joint opening, leaving no voids.

## Standard Sizes:

	Thickness*	Widths**	Lengths**
Safing 4.0 pcf	1" - 7"	16", 24", 36"	48", 60"
Safing 6.0 pcf	1" - 7"	16", 24", 36"	48", 60"
Tolerances	+1/4" - 1/8"	±1/8"	±1/2"

\*Thicknesses are available in 1/2" increments. \*\*Custom sizes are available upon request.

## Technical Data:

Product Designation	Actual Density	Tested to ASTM C 518		Tested to ASTM E 84			
		"k" @ 75° [24°C] BTU.in/hr.sq. ft. °F	"R" value per inch of thickness***	Unfaced		Foil Faced	
				Flame Spread	Smoke Developed	Flame Spread	Smoke Developed
Safing	4.0 pcf	0.24	'R'= 4.2	0	0	25	0
Safing	6.0 pcf	0.24	'R'= 4.2	0	0	25	0

\*\*\*R = thickness divided by 'k'

## Fire-Containment Tests Per ASTM E 2307

Safing™ insulation is a critical component of any perimeter fire containment system. Thermafiber® has performed decades of testing in all of the containment systems listed below. For more complete test information, see SA707, THERMAFIBER Life-Safety Fire Containment Systems technical catalog or UL® and Intertek® (formerly OPL) Directories. For a full listing of containment systems visit [www.thermafiber.com](http://www.thermafiber.com) and click on Fire Rated Assemblies. UL Reference = TYPE SAF

- Aluminum Spandrel Curtain Wall Fire Containment
- Steel Stud-Framed/Gypsum Sheathing Curtain Wall Fire Containment
- Glass Spandrel Curtain Wall Fire Containment
- Granite Spandrel Curtain Wall Fire Containment
- Precast Concrete Spandrel

## Standards Compliance:

Safing™ Insulation meets the following:

ASTM C 665	Non-corrosive, Type I, III
ASTM C 612	Type IA, IB, II
ASTM E 136	Rated Non-combustible per NFPA Standard 220
CAN/ULC S114	Complies
ASTM E 96	Unfaced, 50 Perms as tested
ASTM E 96	Foil Faced, 0.02 Perms as tested
ASTM C 1104	Absorbs less than 1% by volume
CAN/ULC S102	Flame Spread 0, Smoke Developed 0
ASTM E 814 or UL 1479	Safing Insulation used in conjunction with an approved fill, void, or cavity material sealant or other approved material in through – penetration firestop systems - Complies
UL 2079	Safing Insulation used in conjunction with an approved fill, void or cavity material in construction joint systems - Complies
CAN/ULC S115	Complies

Safing products are approved by: **New York City Board of Standards & Appeals** – (under BSA 39-74-SM & accepted by MEA-209-82-M, Vol. 4).

## Thermafiber® Insolutions®:

Thermafiber offers industry leading technical and engineering assistance to architects, specifiers, and contractors. These services include CAD drawings, engineering judgments, LEED® Credit Information, product recommendations, and customized products. Contact our technical services department at 1-888-834-2371, or email [technicalservice@owenscorning.com](mailto:technicalservice@owenscorning.com)

## For Further Information:

For additional information about these or other Thermafiber products contact us at 1-888-834-2371 or visit our website [www.thermafiber.com](http://www.thermafiber.com).

## Notice:

THERMAFIBER, Inc. shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. THERMAFIBER liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing within thirty (30) days from date it was or reasonably should have been discovered.

## Submittal Approvals:

Job Name	
Contractor	Date



## CERTIFICATE OF COMPLIANCE

**CERTIFICATE NUMBER:** 20040809-R10905

**ISSUE DATE:** August 9, 2004

Page 1 of 1

**Issued to:** Thermafiber Inc.  
3711 W Mill St Ext  
Wabash, IN 46992

**Report Reference:** R10905


**This is to Certify that  
representative samples of:** Forning Material, designated as Type SAF mineral wool batts.

**Have been investigated by Underwriters Laboratories Inc.® in accordance with the Standard(s) indicated  
on this Certificate.**

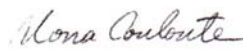
**Standard(s) for Safety:** ANSI/UL 1479, Fire Tests of Through-Penetration Firestops. ANSI/UL 2079,  
Test for Fires Resistance of Building Joint Systems. ASTM E2307-04, Standard  
Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems  
Using Intermediate-Scale, Multi-story Test Apparatus


**Additional Information:** Type SAF mineral wool batts for use as a forming material for use in various  
Through-Penetration FireStop Systems, Joint Systems and Perimeter Fire Barrier  
Systems as Specified in UL's Fire Resistance Directory Volume 2.

**Only those products bearing the UL Classification Marking should be considered as being  
covered by UL's Classification and Follow-Up Service.**

The UL Classification Marking includes: UL in a circle symbol:  with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and, the product category name (product identity) as indicated in the appropriate UL Directory.

**LOOK FOR THE UL CLASSIFICATION MARKING ON THE PRODUCT!**

**Engineer:**  
Mona Couloute   
Underwriters Laboratories Inc.

**Review Engineer:**  
Chris Johnson   
Underwriters Laboratories Inc.





September 24, 2015

To Whom It May Concern:

Re: **Hilti Mineral Wool-LEED Information**

Item Number:

236993

The Hilti Mineral Wool is manufactured in Wabash, Indiana.

The post-consumer recycled content in the Hilti Mineral Wool is 0%. The pre-consumer recycled content in the Hilti Mineral Wool is 90%. There is no detectable VOC content in this product.

Hilti Mineral Wool is not regulated as a hazardous waste by the Federal EPA Standards. The regulations for the disposal of non-regulated industrial waste can vary from state to state and even city to city. For this reason, you should consult your local and state regulatory agencies for direction on disposal.

Please feel free to contact me at (918) 872-3704 if you have questions.

Sincerely,

Jerry Metcalf MPH, CHMM  
Sr. Manager, Safety/Environmental  
Hilti Inc.  
918 872 3704  
[jerry.metcalf@hilti.com](mailto:jerry.metcalf@hilti.com)

Rev. Date: 9/24/15

The manufacturing plant location on this certificate has been provided for LEEDS reporting purposes only. It should never be used for Country of Origin certification or a representation of compliance/non-compliance with Buy American or Buy America requirements, as those requirements differ.

The manufacturing plant location(s) identified on the certificate represent standard Hilti catalog products only. "Specially" produced non-catalog Hilti products may have differing manufacturing plant locations.

Contact your Hilti representative in cases of "specially" produced products for a custom LEEDS certificates.

Hilti, Inc.  
5400 South 122<sup>nd</sup> East Avenue  
Tulsa, OK 74146

1-800-879-8000  
[www.hilti.com](http://www.hilti.com)