



# Fire Protection Products



Date: January 1, 2008

Subject: General Certificate of Conformance for 3M Fire Protection Products

## Product Category: Through Penetration Firestop Products

*Fire Barrier CS-195+ Composite Sheet*  
*Fire Barrier FS-195+ Wrap Strip*  
*Fire Barrier Plastic Pipe Device (PPD)*  
*Fire Barrier Ultra Plastic Pipe Device (PPD)*  
*Fire Barrier Ultra RC Pack*  
*Fire Barrier Moldable Putty+ (MP+)*  
*Interam™ E-5 Series Mats*  
*Interam™ I-10 Series Mats*  
*Interam™ Ultra GS Strip*  
*Interam™ T-49 Tape*  
*Interam™ T-65 Tape*  
*Fire Barrier Cast-In Device & Accessories*  
*3M Fire Barrier Pillow*  
*3M Fire Barrier Self-Locking Pillow*  
*Fire Barrier Expantrol™ Flexible Intumescent Strip (E-FIS)*  
*Fire Barrier Pass-Through Device*  
*Fire Barrier RC-1 Restricting Collar*

*Ultra Fast Anchors*  
*Marine Fire Wrap*  
*Fire Barrier Sealant CP 25WB+ Caulk*  
*Fire Barrier Sealant IC 15WB Caulk*  
*Fire Barrier Sealant IC 15WB+ Caulk*  
*FireDam™ 150+ Caulk*  
*Fire Barrier Water Tight Sealant 3000 WT*  
*Fire Barrier Water Tight Sealant 1003 SL*  
*Fire Barrier Water Tight Sealant 1000 NS*  
*Fire Barrier Silicone Sealant 2000 N/S*  
*Fire Barrier Silicone Sealant 2000+*  
*Fire Block Sealant FB 136*  
*Interam™ FireDam™ 150 Caulk*  
*Fire Barrier Silicone RTV Foam 2001*  
*FireDam™ Spray 100*  
*FireDam™ Spray 200*  
*Fire Barrier Mortar*  
*Fire Barrier Packing Material*

### These products are tested to one or more of the following standards:

- ASTM E 119 (ANSI/UL 263) Fire Tests of Building Construction and Materials Time-Temperature Curve
- ASTM E 814 (ANSI /UL 1479) Fire Tests of Through-Penetration Fire Stops (under positive furnace pressure of minimum .01 inches of water column)
- ASTM E 84 (ANSI/UL 723) Surface Burning Characteristics of Building Materials
- ASTM E 1966 (ANSI / UL 2079) Test for Fire Resistance of Building Joint Systems
- NFPA 252 Standard Methods of Fire Test and Door Assemblies
- UBC Standard 7-2(97)
- IMO Res. A.754(18)
- ASTM E 2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus
- ASTM E 136 Standard Test Method for Behavior of Material in a Vertical Tube Furnace at 750° C
- ASTM C 1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings

No asbestos, PCB's, or lead are used or contained in these products.

Issued by:

Quality Manager or Designee

Product Service Manager, or Designee

## 3M Fire Protection Products

**DRYWALLER/CAULKER MATRIX OF UL TESTED AND APPROVED  
SYSTEMS FOR FIRESTOPPING HEAD-OF-WALL PARTITIONS FOR RATED  
GYPSUM & CONCRETE WALL CONSTRUCTION**

<b>Joints</b>	<b>Assembly</b>	<b>Rating</b>	<b>System Number</b>	<b>Products Used</b>
Head-of-Wall <b>(1" Joint)</b>	Gypsum Wall to Fluted Deck <b>25% Movement</b>	1 & 2 Hr.	HW-D-0020	FireDam Spray 200
Head-of-Wall <b>(1" Joint)</b>	Gypsum Wall to Concrete Deck <b>18.75% Movement</b>	1 & 2 Hr.	HW-D-0021	FireDam Spray 200
Head-of-Wall <b>(Parallel) Condition (1" Joint)</b>	Gypsum Wall to Fluted Deck <b>25% Movement</b>	1 & 2 Hr.	HW-D-0029	FireDam Spray 200
Head-of-Wall <b>(1" Joint)</b>	Gypsum Wall to Fluted Deck <b>18.75% Movement</b>	1 & 2 Hr.	HW-D-0178	FireDam 150+ Caulk
Head-of-Wall <b>(4" Joint)</b>	Gypsum Wall to <b>Fluted Deck</b> <b>25% Movement</b>	1 & 2 Hr.	HW-D-1059	FireDam Spray 200
Head-of-Wall <b>(1" Joint) Pipe Penetrations</b>	Gypsum Walls Fluted Deck <b>12.5% Movement</b>	1 & 2 Hr.	HW-D-0376	FireDam Spray 200
Head-of-Wall <b>(2" Joint) Sprayed Beam</b>	Gypsum Walls Fluted Deck <b>25% Movement</b>	1 & 2 Hr.	HW-D-0384	FireDam Spray 200
Bottom-of-Wall <b>(1" Joint)</b>	Gypsum to Concrete <b>Static</b>	1 & 2 Hr.	BW-S-0007	FB 150+ IC15WB FB3000WT
Head-of-Wall <b>(1" Joint) Parallel Condition</b>	Concrete Wall to Fluted Deck <b>18.75% Movement</b>	2 Hr.	HW-D-0030	FireDam Spray 200
Head-of-Wall <b>(2" Joint)</b>	Concrete Wall to Fluted Deck <b>18.75% Movement</b>	2 Hr.	HW-D-0040	FireDam Spray 200

Head-of-Wall <b>(1" Joint)</b>	Concrete Wall to Fluted Deck <b>25 % Movement</b>	4 Hr.	HW-D-0123	FireDam Spray 200
Head-of-Wall <b>(¾" Joint)</b> <b>Caulk Only</b>	Concrete Wall to Concrete Deck <b>16.6% Movement</b>	2 Hr.	HW-D-0169	FD 150+
Head-of-Wall <b>(1" Joint)</b> <b>Sprayed Beam Penetration</b>	Concrete Wall to Fluted Deck <b>12.5% Movement</b>	2 Hr.	HW-D-0248	FireDam Spray 200
Head-of-Wall <b>4" Joint</b>	Concrete Wall to Concrete Deck <b>18.75% Movement</b>	2 Hr.	HW-D-1010	FireDam Spray 200
Head-of-Wall <b>2" Joint</b>	Concrete Wall to Fluted Deck <b>12.5% Movement</b>	2 Hr.	HW-D-0379	FireDam Spray 200
Head-of-Wall <b>(2" Joint)</b> Sprayed Beam	Concrete Wall to Fluted Deck 25% Movement	2 Hr.	HW-D-0385	FireDam Spray 200

Updated 7-10-2007

## System No. HW-D-0020

January 20, 2006

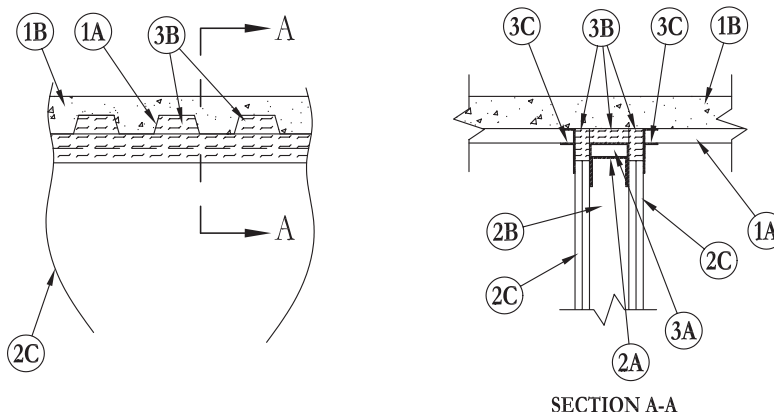
Assembly Ratings – 1 & 2 Hr (See Items 2 & 3B)

L Rating at Ambient – Less than 1 CFM/Lin Ft

L Rating at 400 F – Less than 1 CFM/Lin Ft

Nominal Joint Width – 1 In.

Class II Movement Capabilities – 25% Compression or Extension



SECTION A-A

1. **Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
  - A. **Steel Floor And Form Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor deck.
    - A1. **Spray Applied Fire Resistive Material\*** – (Optional, not shown) – Prior to the installation of the Deflective Channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C), the steel floor units may be sprayed with a min 5/16 in. (8 mm) thickness to max 11/16 in. (18 mm) thickness of fire resistive material  
**WR Grace & Co. Conn Construction Products Div.** – Type MK-6/HY.
  - B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
- 1A. **Roof Assembly** – (Not Shown) – As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. **The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly.** The roof assembly shall include the following construction features:
  - A. **Steel Roof Deck** – Max 3 in. (76 mm) deep galv steel fluted roof deck.
  - B. **Roof Insulation** – Max 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.
2. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
  - A. **Steel Floor And Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). When deflection channel (Item 3A) is used, ceiling runner to be provided with 3 in. (76 mm) flanges. Ceiling runner installed within the deflection channel with 1 in. (25 mm) gap maintained between the top of ceiling runner and top of deflection channel. When deflection channel is not used, flange height of ceiling runner shall be min 3/4 in. (19 mm) greater than nom joint width. Ceiling runner is installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC. When optional spray-applied fire resistive material is used on the steel deck and when deflection channel is not used, ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.
    - A1. **Light Gauge Framing\* – Slotted Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel deck, slotted ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.  
**METAL-LITE INC** – The System  
**SCAFCO STEEL STUD MANUFACTURING CO, SLIPTRACK SYSTEMS INC** – SLP-TRK
    - A2. **Light Gauge Framing\* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. (64 mm). Clipped ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel concrete anchors spaced 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on steel deck, clipped ceiling runner is secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.  
**TOTAL STEEL SOLUTIONS L L C** – Snap Trak
  - A3. **Light Gauge Framing – Floor and Ceiling Runners** – As an alternate to the ceiling and floor runners in Item 2A, 2A1 and 2A2, floor and ceiling runners to consist of galv steel channel sized to accommodate the **Light Gauge Framing\* Slotted Stud** (Item 2B1) or **Light Gauge Framing\* Slider C-Clip System** (Item 2B2). Floor and ceiling runners to be provided with min 1-1/4 in. and 3 in. (32 and 76 mm) flanges, respectively. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys

This material was extracted and drawn by 3M Fire Protection Products from the 2007 edition of the UL Fire Resistance Directory. c UL us

## System No. HW-D-0020 *continued*

with steel masonry anchors spaced max 12 in. (305 mm) OC. When ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel deck, ceiling runner is secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**STEELER INC** – Floor and Ceiling Runners

- A4. **Light Gauge Framing\* – Notched Ceiling Runner** – As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel deck, notched ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**DENMAR STEEL INC** – Type SCR

- B. **Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in (610 mm) OC.

- B1. **Light Gauge Framing\* – Slotted Studs** – Slotted steel stud to be used in conjunction with **Light Gauge Framing\* – Floor and Ceiling Runners** (Item 2A3). Slotted studs to be min 3-1/2 in. (89 mm) wide. Slotted steel studs cut 1 in. (25 mm) less in length than assembly height with bottom nesting in and secured to both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted steel stud spacing not to exceed 24 in. (610 mm) OC.

**STEELER INC** – Slotted Stud

- B2. **Light Gauge Framing\* – Slider C-Clip System** – As an alternate to the **Light Gauge Framing\* – Slotted Steel Studs** (Item 2B1), a Slider C-Clip System consisting of a C shaped steel clip with a slotted opening and a steel stud to be used in conjunction with **Light Gauge Framing – Floor and Ceiling Runners** (Item 2A3). Steel clips and studs to be min 3-1/2 in. (89 mm) wide. Steel clip inserted into inside flange of steel stud without attachment. Total length of steel stud cut 1 in. (25 mm) less than assembly height with bottom of steel stud nesting in and secured to floor runner. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Ceiling runner secured to steel C-Clip by means of No. 10 by 3/4 in. (19 mm) long pan head steel screw located 3/8 in. (10 mm) below top of ceiling runner. Top row of gypsum board screws shall be centered within the preformed slot of the C-Clip. Steel stud and steel clips spacing not to exceed 24 in. (610 mm) OC.

**STEELER INC** – Slider C Clip System

- C. **Gypsum Board\*** – Gypsum board sheets installed to a min total thickness of 5/8 in. and 1-1/4 in. (16 and 32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel floor or roof deck and the top row of screws shall be installed into the studs 3-1/2 in. (89 mm) below the lower surface the floor or roof deck. **The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.**

3. **Joint System – Max separation between bottom of floor or roof and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 25 percent compression or extension from its installed width.** – The joint system consists of a deflection channel, forming material and a fill material, as follows:

- A. **Deflection Channel** (Optional) – A nom 3-5/8 in. (92 mm) wide by 3 in. (76 mm) deep min 24 ga steel U-shaped channel. Deflection channel installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC. When optional spray-applied fire resistive material is used on the steel deck, deflection channel secured through spray-applied material to each valley of steel deck with min 1-1/2 in. (38 mm) long by min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1 in. (25 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.

- B. **Forming Material\*** – Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into flutes of the steel floor or roof deck between the top of the deflection channel or ceiling runner and the steel deck. Additional pieces of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation are to be cut to the contour of the flutes with an additional 1-3/8 in. (35 mm) high section at the bottom of the shapes to fill the 1 in. (25 mm) gap between the top of the gypsum board and bottom of the steel floor or roof deck. The additional pieces of mineral wool are compressed and firmly packed into the flutes and the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall and shall be a min 3/4 in. (19 mm) thick for 1 hr Rated Design and a min 1-1/2 in. (38 mm) thick for 2 hr Rated Design.

**FIBREX INSULATIONS INC** – FBX Safing Insulation

**IIG MINWOOL L L C** – MinWool-1200 Safing

**ROCK WOOL MANUFACTURING CO** – Delta Board or Delta-8

**ROXUL INC** – Type Safe

**THERMAFIBER INC** – Type SAF

- C. **Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry (1/8 in. or 3.2 mm wet) thickness of fill material sprayed or brushed on each side of the wall in the flutes of the steel floor or roof deck units and between the top of the gypsum board and the bottom of the steel floor or roof deck units to completely cover mineral wool and overlap a min of 1/2 in. (13 mm) into gypsum board and steel floor deck on both sides of wall. When the steel floor deck is coated with spray-applied material (Item A1), the fill material shall overlap min 2 in. (51 mm) onto the spray-applied material.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

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## System No. HW-D-0021

January 23, 2006

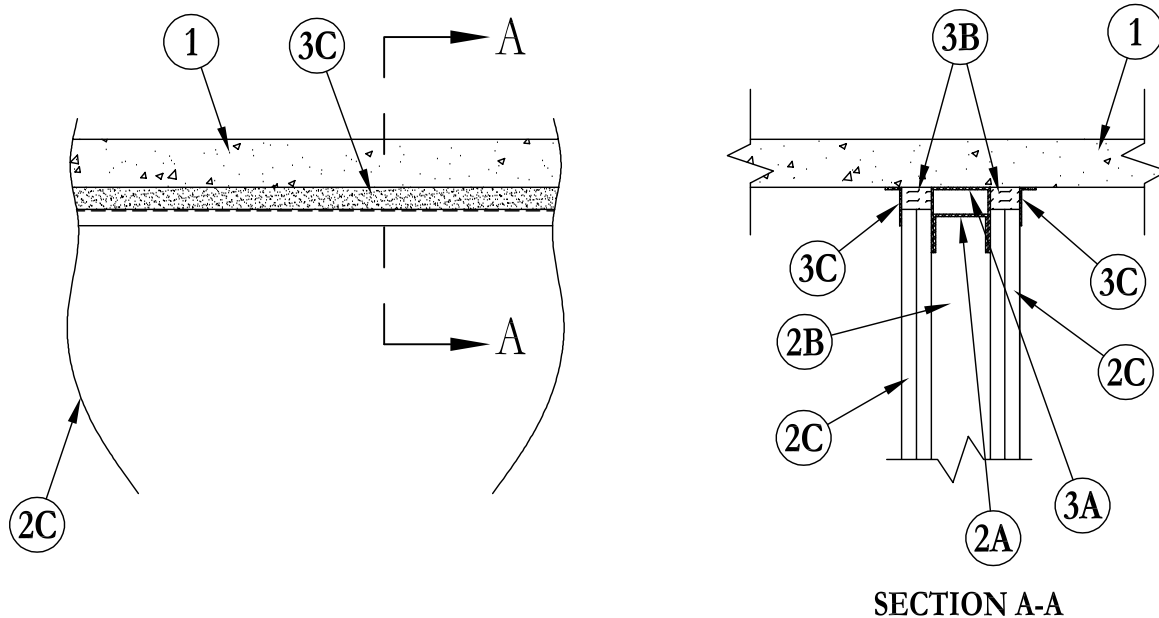
Assembly Ratings – 1 & 2 Hr (See Items 2 & 3A)

L Rating at Ambient – Less than 1 CFM/Lin Ft.

L Rating at 400 F – Less than 1 CFM/Lin Ft.

Nominal Joint Width – 1 in.

Class II Movement Capabilities – 19% Compression & Extension.



1. **Floor Assembly** – Min 4-1/2 in (114 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) structural concrete.
2. **Wall Assembly** – The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
  - A. **Steel Floor And Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 3 in. (76 mm) flanges. When U-shaped deflection channel (Item 3A) is used, ceiling runner installed within the deflection channel with 1 in. (25 mm) gap maintained between the top of ceiling runner and top of deflection channel. When deflection channel is not used, ceiling runner is secured to concrete floor slab with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC.
    - A1. **Light Gauge Framing\* – Slotted Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.

**METAL-LITE INC** – The System  
**SCAFCO STEEL STUD MANUFACTURING CO**  
**SLIPTRACK SYSTEMS INC** – SLP-TRK
    - A2. **Light Gauge Framing\* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. (64 mm). Clipped ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used.

**TOTAL STEEL SOLUTIONS L L C** – Snap Trak
    - A3. **Light Gauge Framing – Floor and Ceiling Runners** – As an alternate to the ceiling and floor runners in Item 2A, 2A1 and 2A2, floor and ceiling runners to consist of galv steel channel sized to accommodate the **Light Gauge Framing\* Slotted Stud** (Item 2B1) or **Light Gauge Framing\* Slider C-Clip System** (Item 2B2). Floor and ceiling runners to be provided with min 1-1/4 in. and 3 in. (32 and 76 mm) flanges, respectively. Ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 12 in. (305 mm) OC. When ceiling runner is used, deflection channel (Item 3A) shall not be used.

**STEELER INC** – Floor and Ceiling Runners
    - A4. **Light Gauge Framing\* – Notched Ceiling Runner** – As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used.

**DENMAR STEEL INC** – Type SCR

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## System No. HW-D-0021 *continued*

Construction Joints

Head of Wall

B. **Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in (610 mm) OC.

B1. **Light Gauge Framing\* – Slotted Studs** – Slotted steel stud to be used in conjunction with **Light Gauge Framing\* – Floor and Ceiling Runners** (Item 2A3). Slotted steel studs to be min 3-1/2 in. (89 mm) wide. Slotted steel studs cut 1 in. (25 mm) less in length than assembly height with bottom nesting in and secured to both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted steel stud spacing not to exceed 24 in. (610 mm) OC.

**STEELER INC** – Slotted Stud

B2. **Light Gauge Framing\* – Slider C-Clip System** – As an alternate to the **Light Gauge Framing\* – Slotted Steel Studs** (Item 2B1), a Slider C-Clip System consisting of a C shaped steel clip with a slotted opening and a steel stud to be used in conjunction with **Light Gauge Framing – Floor and Ceiling Runners** (Item 2A3). Steel clips and studs to be min 3-1/2 in. (89 mm) wide. Steel clip inserted into inside flange of steel stud without attachment. Total length of steel stud cut 1 in. less than assembly height with bottom of steel stud nesting in and secured to floor runner. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Ceiling runner secured to steel C-Clip by means of No. 10 by 3/4 in. (19 mm) long pan head steel screw located 3/8 in. (10 mm) below top of ceiling runner. Top row of gypsum board screws shall be centered within the preformed slot of the C-Clip. Steel stud and steel clips spacing not to exceed 24 in. (610 mm) OC.

**STEELER INC** – Slider C Clip System

C. **Gypsum Board\*** – Gypsum board sheets installed to a min total thickness of 5/8 in. and 1-1/4 in. (16 and 32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the lower surface of the floor and the top row of screws shall be installed into the studs 3-1/2 in. (89 mm) below the lower surface of the floor. **The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.**

3. **Joint System** – Max separation between bottom of floor and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 19 percent compression or extension from its installed width. The joint system consists of a deflection channel, forming material and a fill material, as follows:

A. **Deflection Channel** (Optional) – A nom 3-5/8 in. (92 mm) wide by 3 in. (76 mm) deep min 24 ga steel U-shaped channel. Deflection channel secured to concrete floor with steel masonry anchors spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1 in. (25 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.

B. **Forming Material\*** – Min 1-3/8 in. (35 mm) width of 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation compressed and firmly packed into the gap between the top of the gypsum board and bottom of the floor on both sides of the wall and shall be a min 3/4 in. (19 mm) thick for 1 hr Rated Design and a min 1-1/2 in. (38 mm) thick for 2 hr Rated Design.

**FIBREX INSULATIONS INC** – FBX Safing Insulation

**IIG MINWOOL L L C** – MinWool-1200 Safing

**ROCK WOOL MANUFACTURING CO** – Delta Board or Delta -8

**ROXUL INC** – Type Safe

**THERMAFIBER INC** – Type SAF

C. **Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry (1/8 in. or 3.2 mm wet) thickness of fill material sprayed or brushed on each side of the wall between the top of the gypsum board and the bottom of the floor to completely cover mineral wool and overlap a min of 1/2 in. (13 mm) onto gypsum board and floor on both sides of wall.

**3M COMPANY** – Firedam™ Spray 200

\*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2007 edition of the UL Fire Resistance Directory. 

## System No. HW-D-0029

January 23, 2006

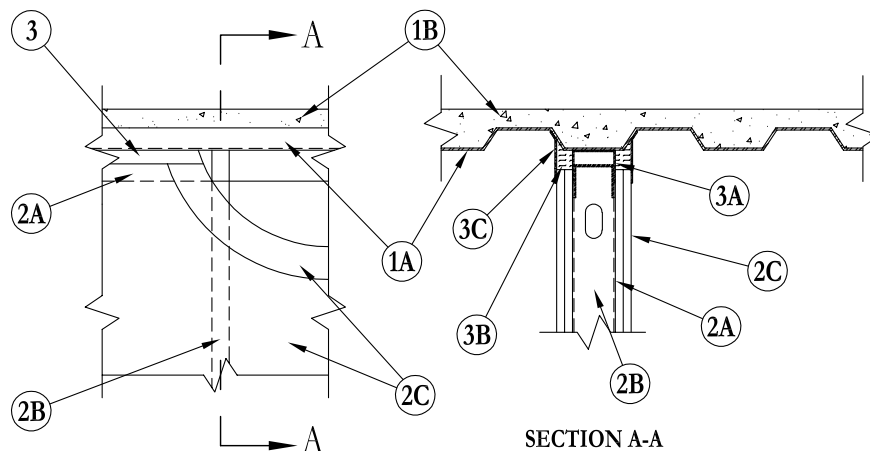
Assembly Ratings – 1 & 2 Hr (See Items 2 & 3B)

L Rating at Ambient – Less than 1 CFM/Lin Ft

L Rating at 400 F – Less than 1 CFM/Lin Ft

Nominal Joint Width – 1 In.

Class II Movement Capabilities – 25% Compression or Extension



1. **Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Form Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor deck.

A1. **Spray Applied Fire Resistive Material\*** – (Optional, not shown) – Prior to the installation of the Deflective Channel, Forming Material and Fill, Void or Cavity Materials (Items 3A and 3B), the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 11/16 in. (18 mm) thickness of fire resistive material.

**W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV** – Type MK-6/HY

B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

- 1A. **Roof Assembly** – (Not Shown) – As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. **The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly.** The roof assembly shall include the following construction features:

A. **Steel Roof Deck** – Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation** – Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

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

A. **Steel Floor And Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). When deflection channel (Item 3A) is used, ceiling runner to be provided with 3 in. (76 mm) flanges. Ceiling runner installed within the deflection channel with 1 in. (25 mm) gap maintained between the top of ceiling runner and top of deflection channel. When deflection channel is not used, flange height of ceiling runner shall be min 3/4 in. (19 mm) greater than nom joint width. Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC. When optional spray-applied fire resistive material is used on the steel deck and when deflection channel is not used, ceiling runner is secured through spray-applied material to valley of floor steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

A1. **Light Gauge Framing\* – Slotted Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel floor slotted ceiling runner secured through spray-applied material to valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**METAL-LITE INC** – The System

**SCAFCO STEEL STUD MANUFACTURING CO, SLIPTRACK SYSTEMS INC** – SLP-TRK

A2. **Light Gauge Framing\* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. Clipped ceiling runner installed parallel to direction of steel deck, centered on valley, and secured with steel masonry anchors spaced 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on steel deck, clipped ceiling runner secured through spray-applied material to valleys of the steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**TOTAL STEEL SOLUTIONS L L C** – Snap Trak

This material was extracted and drawn by 3M Fire Protection Products from the 2007 edition of the UL Fire Resistance Directory. 



## System No. HW-D-0029 *continued*

Construction Joints

Head of Wall

- A3. **Light Gauge Framing –Floor and Ceiling Runners** – As an alternate to the ceiling and floor runners in Item 2A, 2A1 and 2A2, floor and ceiling runners to consist of galv steel channel sized to accommodate the **Light Gauge Framing\* Slotted Stud** (Item 2B1) or **Light Gauge Framing\* Slider C-Clip System** (Item 2B2). Floor and ceiling runners to be provided with min 1-1/4 in. and 3 in. (32 and 76 mm) flanges, respectively. Ceiling runner installed parallel to direction of steel deck, centered beneath valley, and secured with steel masonry anchors spaced max 12 in. (305 mm) OC. When ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on steel deck, ceiling runner secured through spray-applied material to valley of the steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**STEELER INC** – Floor and Ceiling Runners

- A4. **Light Gauge Framing\* – Notched Ceiling Runner** – As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed parallel to direction of steel centered on valley, and secured with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel deck, notched ceiling runner secured through spray-applied material to valley of deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**DENMAR STEEL INC** – Type SCR

- B. **Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.
- B1. **Light Gauge Framing\* – Slotted Studs** – Slotted steel stud to be used in conjunction with **Light Gauge Framing\* – Floor and Ceiling Runners** (Item 2A3). Slotted steel studs to be min 3-1/2 in. (89 mm) wide. Slotted studs cut 1 in. (25 mm) less in length than assembly height with bottom nesting in and secured to both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted stud spacing not to exceed 24 in. (610 mm) OC.

**STEELER INC** – Slotted Stud

- B2. **Light Gauge Framing\* – Slider C-Clip System** – As an alternate to the **Light Gauge Framing\* – Slotted Steel Studs** (Item 2B1), a Slider C-Clip System consisting of a C shaped steel clip with a slotted opening and a steel stud to be used in conjunction with **Light Gauge Framing –Floor and Ceiling Runners** (Item 2A3). Steel clips and studs to be min 3-1/2 in. (89 mm) wide. Steel clip inserted into inside flange of steel stud without attachment. Total length of steel stud cut 1 in. (25 mm) less than assembly height with bottom of steel stud nesting in and secured to floor runner. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Ceiling runner secured to steel C-Clip by means of No. 10 by 3/4 in. (19 mm) long pan head steel screw located 3/8 in. (10 mm) below top of ceiling runner. Top row of gypsum board screws shall be centered within the preformed slot of the C-Clip. Steel stud and steel clips spacing not to exceed 24 in. (610 mm) OC.

**STEELER INC** – Slider C Clip System

- C. **Gypsum Board\*** – Gypsum board sheets installed to a min total thickness of 5/8 in. and 1-1/4 in. (16 and 32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel floor or roof deck and the top row of screws shall be installed into the studs 3-1/2 in. (89 mm) below the lower surface of the floor. **The hourly rating of the joint system is equal to the hourly fire rating of the wall.**

3. **Joint System – Max separation between bottom of floor or roof and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 25 percent compression or extension from its installed width.** The joint system consists of an optional deflection channel, forming material and a fill material, as follows:

- A. **Deflection Channel** – (Optional) – A nom 3-5/8 in. (92 mm) wide by 3 in. (76 mm) deep min 24 ga steel U-shaped channel. Deflection channel installed parallel to direction of steel deck, centered beneath valley and secured with steel masonry anchors or by welds spaced max 24 in. (610 mm) OC. When optional spray- applied fire resistive material is used on the steel deck, deflection channel secured through spray- applied material to valley of steel deck with min 1-1/2 in. (38 mm) long by min 3/16 in. (5 mm) diam steel masonry anchors spaced a max 24 in. (610 mm) OC . The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1 in. (25 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.
- B. **Forming Material\*** – Min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation to be cut a min of 20 percent wider than the gap between the top of the gypsum board and bottom of the steel floor or roof deck . The mineral wool is to be compressed and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor or roof deck on both sides of the wall and shall be min 3/4 in. (19 mm) thick for 1 hr Rated Design and min 1-1/2 in. (38 mm) thick for 2 hr Rated Design.

**FIBREX INSULATIONS INC** – FBX Safing Insulation

**IIG MINWOOL L L C** – MinWool-1200 Safing

**ROCK WOOL MANUFACTURING CO** – Delta Board or Delta-8

**ROXUL INC** – Type Safe

**THERMAFIBER INC** – Type SAF

- C. **Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry thickness (1/8 in. or 3.2 mm wet thickness) of fill material sprayed or brushed on each side of the wall between the top of the gypsum board and the bottom of the steel floor or roof deck to completely cover mineral wool and overlap a min of 1/2 in. (13 mm) onto gypsum board and steel deck on both sides of wall. When the steel deck is coated with spray applied Material (Item A1), the fill material shall overlap min 2 in. (51 mm) onto the spray applied material.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2007 edition of the UL Fire Resistance Directory. 

**System No. HW-D-0178**

August 21, 2002

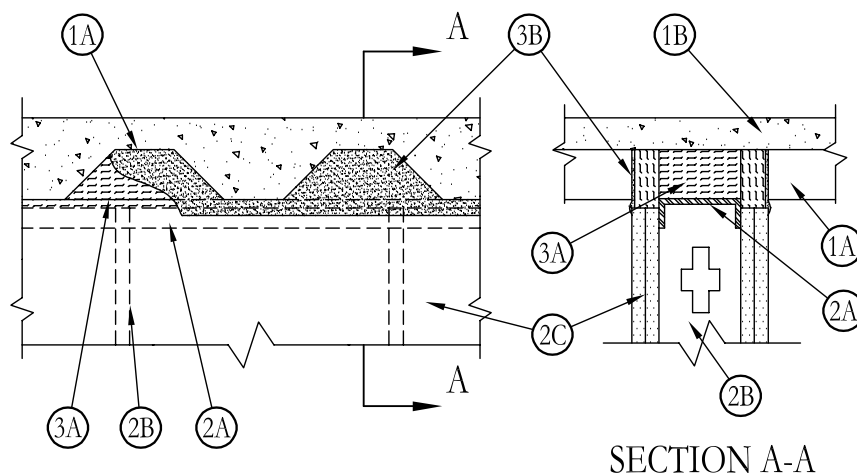
Assembly Rating – 1 and 2 Hr (See Items 2 and 3)

L Rating At Ambient – 4 CFM/Lin Ft

L Rating At 400 F – 6 CFM/Lin Ft

Nominal Joint Width – 1 In.

Class II Movement Capabilities – 18.75% Compression or Extension



- Floor Assembly** – The fire rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

- Steel Floor and Form Units\*** – Max 3 in. deep galv steel fluted units.
- Concrete** – Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.

- 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 series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- Steel Floor and Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs. Ceiling runner to be provided with min 1-1/4 in. flanges. Ceiling runner secured to valleys of steel floor units with steel fasteners or by welds spaced max 12 in. OC.
  - Light Gauge Framing\* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. Clipped ceiling runner installed perpendicular to direction of fluted steel floor units and secured to valleys with steel fasteners spaced max 12 in. OC.

**TOTAL STEEL SOLUTIONS L L C** – Snap Trak

- Studs** – Steel studs to be min 3-1/2 in. wide. Studs cut 5/8 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. Stud spacing not to exceed 24 in.
- Gypsum Board\*** – Gypsum board sheets installed to a min total thickness of 5/8 in. and 1-1/4 in. on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. gap shall be maintained between the top of the gypsum board and the bottom of the steel floor units and the top row of screws shall be installed into the studs 1 in. below the bottom of the ceiling runner.

**The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.**

- Joint System** – Max width of joint (at time of installation of joint system) is 1 in. The joint system is designed to accommodate a max 18.75 percent compression or extension from its installed width. The joint system shall consist of the following:

- Forming Material\*** – Min 4 in. thickness of min 4 pcf mineral wool batt insulation cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into flutes of the steel floor units between the top of the ceiling runner and the steel deck and compressed in thickness to be flush with vertical leg of ceiling runner on both sides. Additional pieces of min 4 pcf mineral wool batt insulation are to be cut to the contour of the flutes with an additional 1-3/8 in. high section at the bottom of the shapes to fill the 1 in. gap between the top of the wallboard and bottom of the steel floor units. The additional pieces of mineral wool are to be cut to min 3/4 and 1-1/2 in. thick for 1 and 2 hr rated assemblies, respectively and compressed and firmly packed into the flutes and the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall and compressed in thickness to be recessed from each surface of the wall to accommodate the required thickness of fill material.

**FIBREX INSULATIONS INC** – FBX Safing Insulation

**IIG MINWOOL L L C** – Safing Insulation/MW

**ROCK WOOL MANUFACTURING CO** – Delta Safing Board

**THERMAFIBER L L C** – Type SAF

- Fill, Void or Cavity Material\* – Caulk** – Min 1/4 in. thickness of caulk installed on each side of the wall in the flutes of the steel floor units and between the top of the wall and the bottom of the steel floor units, flush with each surface of the gypsum board. An additional min 1/8 in. thickness of caulk to overlap onto gypsum board a min 1/2 in.

**3M COMPANY** – FireDam 150+

\*Bearing the UL Classification Mark

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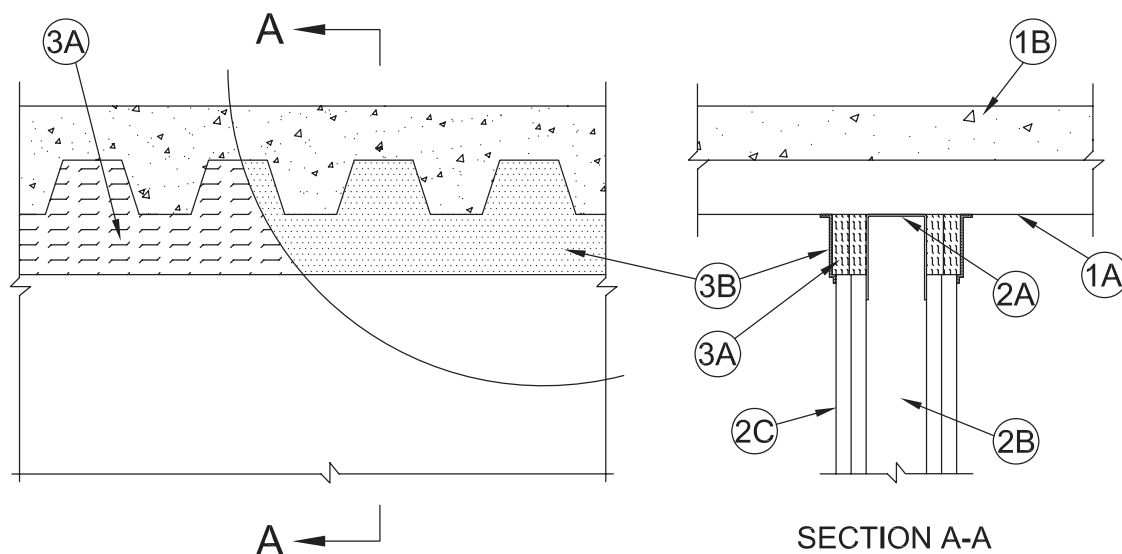
## System No. HW-D-1059

February 16, 2007

Assembly Ratings – 1 and 2 Hr (See Item 2)

Nominal Joint Width – 4 In.

Class II Movement Capabilities – 25% Compression or Extension



- Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the UL Fire Resistance Directory. The hourly fire rating of the floor assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The floor assembly shall include the following construction features:
  - Steel Floor and Floor Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor units.
  - Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
- Wall Assembly** – The 1 or 2 hr fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
  - Steel Floor and Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of min 24 gauge galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with flanges sized a min of 1-1/2 in. (38 mm) longer than the nominal joint width. The ceiling runner is secured to steel floor units with steel fasteners or welds spaced max 24 in. (610 mm) OC.
  - Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1-1/4 in. (32 mm) to 1-1/2 in. (38 mm) less in length than assembly height with bottom nesting in and secured to floor runner. Studs to nest in ceiling runner without attachment.
  - Gypsum Board\*** – Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory except that a max 4 in. (102 mm) gap shall be maintained between the top of the gypsum board and the bottom plane of the steel deck on both sides of wall assembly. For 1 hr fire rated walls, a min 4 in. (102 mm) wide strip of 5/8 in. (16 mm) thick gypsum board shall be installed flush with the top edge of the gypsum board along its entire length on both sides of the wall to create a nominal 1-1/4 in. (32 mm) wide ledge to support the bottom edge of the forming material (Item 3A). The screws attaching the gypsum board to the studs along the top of the wall shall be located 1-1/2 in. (38 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner.

**The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.**
- Joint System** – Max separation between bottom plane of steel floor unit and top of gypsum board (at time of installation of joint system) is 4 in. (102 mm). The joint system is designed to accommodate a max 25 percent compression or extension from its installed width as measured between the bottom plane of the steel floor unit and the top of the gypsum board. The joint system shall consist of forming and fill materials, as follows:
  - Forming Material\*** – Nom 8 pcf (128 kg/m<sup>3</sup>) mineral wool batt insulation. Sections of mineral wool batt cut to a width equal to the thickness of the wall assembly at its top edge and tightly packed into the areas of the fluted deck above the ceiling runner, flush with both surfaces of wall. Additional 1-1/2 in. (38 mm) wide by 2 in. (51 mm) thick sections of nom 8 pcf (128 kg/m<sup>3</sup>) mineral wool batt insulation are compressed 37 percent in the thickness direction and installed to completely fill the gap above the top of the gypsum board on both sides of the wall. As an option for the 1 hr assembly rating, nom 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation may be used in the gap above the top of the gypsum board.

**FIBREX INSULATIONS INC** – FBX Safing Insulation  
**ROCK WOOL MANUFACTURING CO** – Delta 8  
**ROXUL INC** – SAFE
  - Fill, Void or Cavity Material\* – Sealant** – Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the gypsum board and a min 1 in. (25 mm) onto the steel floor unit on each side of the wall.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

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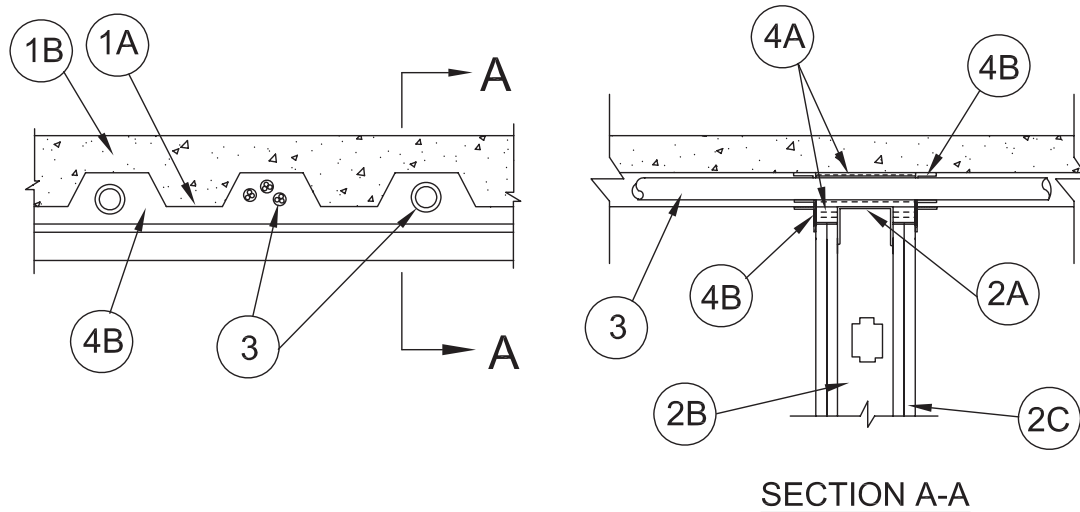
**System No. HW-D-0376**

October 26, 2006

Assembly Rating – 1 and 2 Hr (See Item 2)

Nominal Joint Width – 2 In.

Class II Movement Capabilities – 13% Compression or Extension



1. **Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Steel Floor and Form Units\*** – Max 3 in. (76 mm) deep galv steel fluted units.
- B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

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

- A. **Steel Floor and Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 3/4 in. (19 mm) greater than nom joint width. Ceiling runner installed perpendicular to direction of fluted steel floor units and secured with steel fasteners or by welds spaced max 24 in. (610 mm) OC.

- A1. **Light Gauge Framing\* – Slotted Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 3/4 in. (19 mm) greater than nom joint width. Slotted ceiling runner installed perpendicular to direction of fluted steel floor units and secured to valleys with steel fasteners spaced max 24 in. (610 mm) OC.

SLIPTRACK SYSTEMS INC – SLP-TRK

- A2. **Light Gauge Framing\* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 3/4 in. (19 mm) greater than nom joint width. Clipped ceiling runner installed perpendicular to direction of fluted steel floor units and secured to valleys with steel fasteners spaced max 24 in. (610 mm) OC.

TOTAL STEEL SOLUTIONS L L C – Snap Trak

- B. **Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.
- C. **Gypsum Board\*** – Gypsum board sheets installed to a min total thickness of 5/8 in. (16 mm) and 1-1/4 in. (32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a max 2 in. (51 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel floor units and the top row of screws shall be installed into the studs 3-1/2 in. (89 mm) below the lower surface of the floor.

**The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.**

3. **Through Penetrants** – A max of one nonmetallic or metallic pipe or conduit or a max of three cables may be installed within the individual areas of the flutes of the steel deck above the ceiling runner. Annular space between the penetrants and the steel deck or top of ceiling runner shall be min 1/2 in. (13 mm). Penetrants to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic or metallic pipe or conduit or cables may be used:

- A. **Metallic Pipes** – The following types and sizes may be used:
  1. **Steel Pipe** – Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
  2. **Conduit** – Nom 1-1/2 in. (38 mm) diam (or smaller) electrical metallic tubing or rigid steel conduit.

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## System No. HW-D-0376 *continued*

- B. **Nonmetallic Pipes** – The following types and sizes may be used:
1. **Polyvinyl Chloride (PVC) Pipe** – Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) piping systems.
  2. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 1-1/2 in. (38 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
  3. **Rigid Nonmetallic Conduit++** – Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).
- C. **Cables** – A max of three cables may be used. A min 1/2 in. (13 mm) annular space must be maintained between cables. Max 3C with ground No. 12 AWG (or smaller) MC (BX) copper cables with polyvinyl chloride insulation.
4. **Joint System** – Max separation between bottom of floor and top of wall is 2 in. The joint system is designed to accommodate a max 25 percent compression or extension from its installed width. The joint system consists of a forming material and a fill material, as follows:
- A. **Forming Material\*** – Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into flutes of the steel floor units between the top of the ceiling runner and the steel deck and tightly packed around the individual penetrants. Additional pieces of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation are to be cut to the contour of the flutes with an additional 1-3/4 in. (44 mm) high section at the bottom of the shapes to fill the 2 in. (51 mm) gap between the top of the gypsum board and the bottom of the steel floor units. The additional pieces of mineral wool are compressed and firmly packed into the flutes and around the penetrants and into the gap between the top of the gypsum board and the bottom of the steel floor units on both sides of the wall. The additional pieces shall be a 3/4 in. (19 mm) thick for a 1 hr rated design and a 1-1/2 in. (38 mm) thick for a 2 hr rated design.
- FIBREX INSULATIONS INC** – FBX Safing Insulation  
**IIG MINWOOL L L C** – MinWool-1200 Safing  
**ROCK WOOL MANUFACTURING CO** – Delta Board or Delta-8  
**ROXUL INC** – Type Safe
- B. **Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or brushed on each side of the wall in the flutes of the steel floor units and between the top of the gypsum board and the bottom of the steel floor units to completely cover mineral wool and overlap a min of 1/2 in. (13 mm) onto gypsum board and a min 1 in. (25 mm) onto steel deck and penetrants on both sides of wall.
- 3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

Construction Joints

Head of Wall

HW-D

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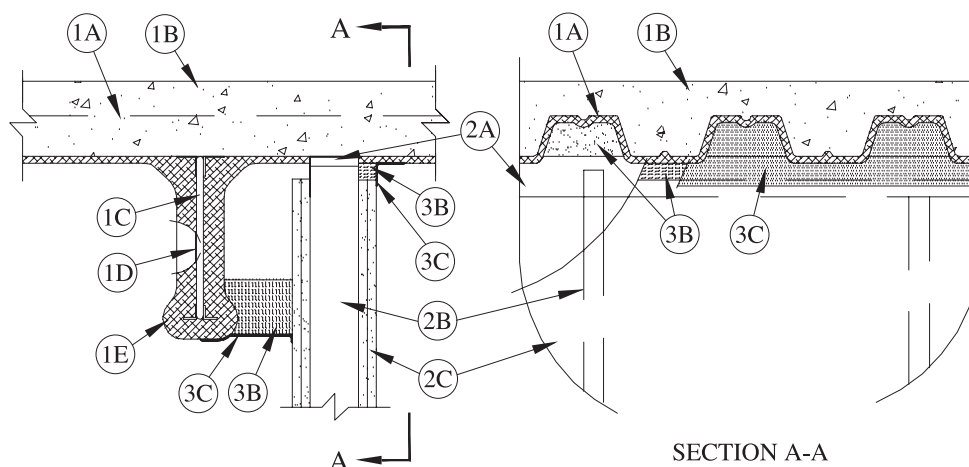
## System No. HW-D-0384

January 31, 2006

Assembly Ratings – 1 and 2 Hr (See Item 2)

Nominal Joint Width – 2 In.

Class II Movement Capabilities – 25% Compression or Extension



1. **Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D800 Series Floor-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the floor assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The floor assembly shall include the following construction features:

- A. **Steel Floor and Floor Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor units.
- B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
- C. **Structural Steel Support** – Steel beam or open-web steel joist, as specified in the individual D700 or D800 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and 2 to 6 in. (51 to 152 mm) from wall assembly.
- D. **Steel Lath** – When structural steel support (Item 1C) consists of open-web steel joists, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 to 3.4 lb per sq yd (0.9 to 1.8 kg/m<sup>2</sup>) shall be installed to completely cover one side of each joist which is located within 6 in. (152 mm) of wall assembly. The lath shall be secured with steel tie wire and shall be fully covered with spray applied fire resistive material.
- E. **Spray-Applied Fire Resistive Material\*** – After installation of the ceiling runner (Item 2A) or deflection track (Item 3A, if used), steel floor units and structural steel supports to be sprayed with the thickness of material specified in the individual D700 or D800 Series Design. The flutes of the steel floor units above the structural steel supports and above the ceiling runner (Item 2A) or deflection channel (Item 3A) shall be filled with spray-applied fire resistive material. As an alternate, the spray-applied fire resistive material in the flutes above the ceiling runner may be applied to follow the contour of the steel floor units. Excess material shall be removed from the flanges of the ceiling runner or deflection track beyond the required thickness of spray-applied fire resistive material on the steel floor units.

W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV – Type MK-6/HY

- 1A. **Roof Assembly** – (Not Shown) – As an alternate to the floor assembly (Item 1), a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 or P800 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the roof assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The roof assembly shall include the following construction features:

- A. **Steel Roof Deck** – Max 3 in. (76 mm) deep galv steel fluted roof deck.
- B. **Roof Insulation – Mineral and Fiber Board\*** – Min 3/4 in. (19 mm) thick boards applied in one or more layers directly over steel roof deck or over gypsum board sheathing laid atop steel roof deck.
- C. **Roof Covering\*** – Hot-mopped or cold-application materials compatible with mineral and fiber board insulation.
- D. **Structural Steel Support** – Steel beam or open-web steel joist, as specified in the individual P700 or P800 Series Roof-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and min 2 in. (51 mm) to max 6 in. (152 mm) from wall assembly.
- E. **Steel Lath** – When structural steel support (Item 1D) consists of open-web steel joists, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 to 3.4 lb per sq yd (0.9 to 1.8 kg/m<sup>2</sup>) shall be installed to completely cover one side of each joist which is located within 6 in. (152 mm) of wall assembly. The lath shall be secured with steel tie wire and shall be fully covered with spray applied fire resistive material.
- F. **Spray-Applied Fire Resistive Material\*** – After installation of the ceiling runner (Item 2A) or deflection track (Item 3A, if used), steel roof deck and structural steel supports to be sprayed with a thickness of spray applied fire resistive material as specified in the individual P700 or P800 Series Roof-Ceiling design. The flutes of the steel deck above the structural steel supports and above the ceiling runner (Item 2A) or deflection channel (Item 3A) shall be filled with spray-applied fire resistive material. As an alternate, the spray-applied fire resistive material in the flutes above the ceiling runner may be applied to follow the contour of the steel roof deck. Excess material shall be removed from the flanges of the ceiling runner or deflection track beyond the required thickness of spray-applied fire resistive material on the steel roof deck.

W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV – Type MK-6/HY

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## System No. HW-D-0384 *continued*

Construction Joints

Head of Wall

2. **Wall Assembly** – The 1 or 2 hr fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
- A. **Steel Floor and Ceiling Runners** – Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with min 2 in. (51 mm) to max 3 in. (76 mm) flanges. When deflection channel (Item 3A) is used, flange height of ceiling runner is to be equal to or greater than flange height of deflection channel and the ceiling runner is to nest within the deflection channel with a 3/4 in. to 1 in. (19 to 25 mm) gap maintained between the top of the ceiling runner and the top of the deflection channel. When deflection channel is not used, ceiling runner is secured to steel floor units (Item 1A) with steel fasteners or welds spaced max 24 in. (610 mm) OC. Ceiling runner or deflection track to be installed parallel with structural steel support and located such that a max clearance of 4 in. (102 mm) is present between the finished wall and the spray-applied fire resistive material at the lowest elevation of the structural steel support.
- A1. **Light Gauge Framing\* – Slotted Ceiling Runner** – As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Ceiling runner secured to valleys with steel fasteners spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.  
**SLIPTRACK SYSTEMS INC – SLP-TRK**
- A2. **Light Gauge Framing\* – Clipped Ceiling Runner** – As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. (64 mm). Clipped ceiling runner secured with steel fasteners spaced max 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used.  
**TOTAL STEEL SOLUTIONS L L C – Snap Trak**
- B. **Studs** – Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 3/4 in. to 1 in. (19 to 25 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When deflection channel (Item 3A) is used, steel studs attached to ceiling runner (Item 2A) with sheet metal screws located 3/4 in. (19 mm) below the bottom of the deflection channel. When deflection channel is not used, studs to nest in ceiling runner without attachment.
- C. **Gypsum Board\*** – Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory except that a max 2 in. (51 mm) gap shall be maintained between the top of the gypsum board and the bottom plane of the spray applied fire resistive material on the steel deck, on both sides of the wall assembly. The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 in. (25 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner or into the optional deflection channel. Where the top of the wall assembly is inaccessible above the lowest elevation of the structural steel support, the gypsum board attachment screws may be omitted.

**The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.**

3. **Joint System** – Max separation between bottom plane of steel floor unit and top of gypsum board (at time of installation of joint system) is 2 in. (51 mm). Max separation between spray applied fire resistive material on structural support member and surface of wall is min 1 in. (25 mm) to max 4 in. (102 mm). The joint system is designed to accommodate a max 25 percent compression or extension from its installed width as measured between the bottom plane of the spray-applied fire resistive material on the steel floor unit and the top of the gypsum board. The joint system shall consist of forming and fill materials, with or without a deflection channel (Item 3A), as follows:
- A. **Deflection Channel** – (Optional, Not Shown) – Max 2 in. (51 mm) deep min 24 gauge galv steel channel sized to accommodate ceiling runner (Item 2A). Deflection channel to be installed parallel with structural steel support and located such that a max clearance of 4 in. (102 mm) is present between the finished wall and the spray-applied fire resistive material at the lowest elevation of the structural steel support. Deflection channel secured to steel floor units with steel fasteners or welds spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 3/4 in. to 1 in. (19 to 25 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner nests inside the deflection channel without attachment.
- B. **Forming Material\*** – Nom 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation. Sections of mineral wool batt cut to a width of 4 in. (102 mm) and stacked to attain a thickness which is 50 percent greater than the width of the linear gap between the spray applied fire resistive material on the structural steel member and the surface of the wall assembly. Stacked sections of mineral wool compressed 33 percent in thickness and installed cut edge first into linear gap until the bottom edge is flush with the bottom surface of the spray applied fire resistive material on the structural steel member. When the spray-applied fire resistive material in the flutes above the wall follows the contour of the steel deck, sections of mineral wool batt cut to the shape of the fluted deck and stacked to a min 6 in. (152 mm) thickness shall be installed in the flutes of the steel floor or roof deck between the top of the deflection channel and the spray-applied fire resistive material. The mineral wool batt insulation is to be installed flush with the gypsum board surface on the side of the wall opposite the structural steel support. Additional sections of mineral wool batt insulation are compressed 50 percent in thickness and are installed cut edge first to completely fill the gap above the top of the gypsum board.  
**FIBREX INSULATIONS INC – FBX Safing Insulation**  
**ROCK WOOL MANUFACTURING CO – Delta Board**  
**ROXUL INC – SAFE**
- C. **Fill, Void or Cavity Material\* – Sealant** – Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the gypsum board and a min 2 in. (51 mm) onto the spray applied material (Item 1C) on the steel floor unit or on the structural steel support member on each side of the wall.

**3M COMPANY – FireDam™ Spray 200**

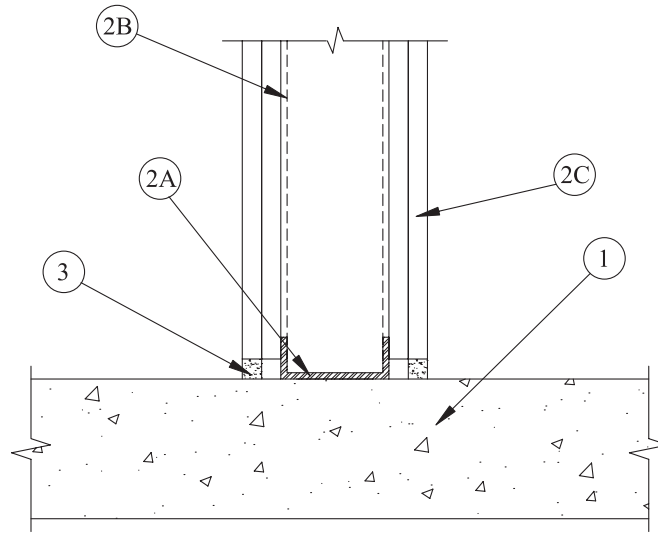
\*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2007 edition of the UL Fire Resistance Directory. 

## System No. BW-S-0007

May 18, 2005

Assembly Ratings – 1 and 2 Hr (See Item 2)  
L Rating at Ambient – Less Than 1 CFM/lin ft  
L Rating at 400° F – Less Than 1 CFM/lin ft  
Joint Width – 1 in. Max



- Floor 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>) structural concrete. Floor may also be constructed of any 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units**\*. See **Precast Concrete Units** category in the Fire Resistance Directory for names of manufacturers.
- Wall Assembly** – The 1 or 2 h fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory. In addition, the wall may incorporate a head-of-wall joint system constructed as specified in the HW Series Joint Systems in the UL Fire Resistance Directory. The wall shall include the following construction features:
  - Steel Floor Runner** – Floor runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2C). Floor runners to be provided with min 1-1/4 in. (32 mm) flanges. Runners secured with steel fasteners spaced 12 in. (305 mm) OC.
  - Studs** – Steel studs to be min 3-1/2 in. wide. (89 mm) Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in, resting on and fastened to floor runner with sheet metal screws. Stud spacing not to exceed 24 in. (610 mm) OC.
  - Gypsum Board**\* – Gypsum board installed to a min total thickness of 5/8 or 1-1/4 in. (16 or 32 mm) on each side of wall for a 1 or 2 hr rated wall, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that a max 1 in. (25 mm) gap shall be maintained between the bottom of gypsum board and top of concrete floor.

**The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.**
- Fill, Void or Cavity Material\*** – **Caulk or Sealant** – Max separation between top of floor and bottom of gypsum board is 1 in. (25 mm). Min 5/8 in. (16 mm) thickness of fill material installed on each side of the wall between the bottom of the gypsum board and the top of the concrete floor, flush with each surface of the wall.

**3M COMPANY** – FB1000 NS, FB-2000, FB-2000+, FB-3000 WT sealant, FireDam 150+, IC 15WB+, CP 25WB+ caulk

\*Bearing the UL Classification Mark

Construction Joints

Bottom of Wall Static

BWS

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## System No. HW-D-0030

January 31, 2006

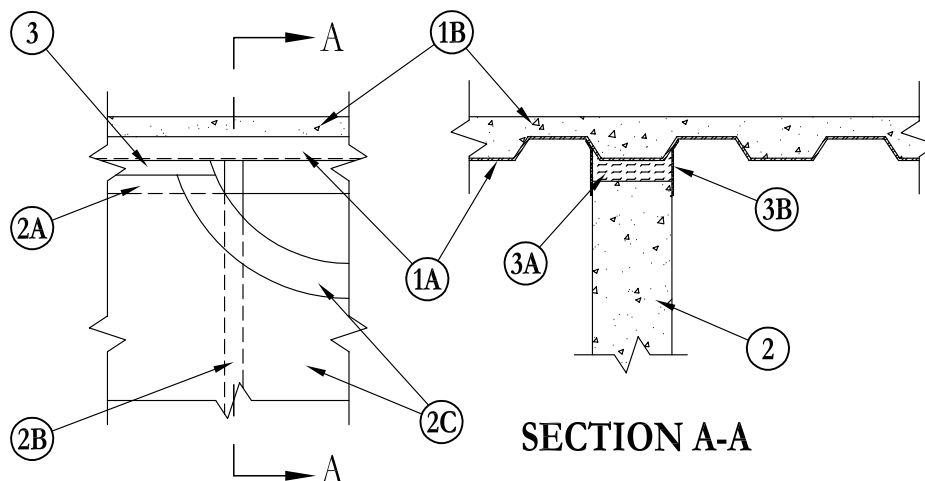
Assembly Rating – 2 Hr

L Rating at Ambient – Less than 1 CFM/Lin Ft

L Rating at 400 F – Less than 1 CFM/Lin Ft

Nominal Joint Width – 1 In.

Class II Movement Capabilities – 19% Compression or Extension



1. **Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
  - A. **Steel Floor And Form Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor deck.
    - A1. **Spray Applied Fire Resistive Material\*** – (Optional, not shown) – Prior to the installation of the Forming Material and Fill, Void or Cavity Materials (Items 3A and 3B), the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 11/16 in. (17 mm) thickness of fire resistive material.

**W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV** – Type MK-6/HY.
  - B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
- 1A. **Roof Assembly** – (Not Shown) – As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 or P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. **The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly.** The roof assembly shall include the following construction features:
  - A. **Steel Roof Deck** – Max 3 in. (76 mm) deep galv steel fluted roof deck.
  - B. **Roof Insulation** – (P 900 Series) – Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.
  - C. **Roof Insulation – Mineral and Fiber Board\*** – (P 700 Series) – Min 3/4 in. (19 mm) thick boards applied in one or more layers directly over steel or over gypsum board sheathing laid atop steel roof deck.
  - D. **Spray Applied Fire Resistive Material\*** – (P700 Series, not shown) – Prior to the installation of the Deflective Channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C), the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 11/16 in. (17 mm) thickness of fire resistive material.

**W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV** – Type MK-6/HY.
2. **Wall Assembly** – Min 6-1/8 in. (156 mm) thick steel-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\***.

See **Concrete Blocks** (CAZT) category in Fire Resistance Directory for names of manufacturers.
3. **Joint System** – Max separation between bottom of floor or roof and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 19 percent compression or extension from its installed width. The joint system consists of a forming material and a fill material, as follows:
  - A. **Forming Material\*** – Min 6-1/2 in. (165 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation cut a min of 20 percent wider than the gap between the top of the wall and bottom of the steel floor or roof deck. Mineral wool to be compressed and firmly packed into the gap between the top of the wall and bottom of the steel floor or roof deck.

**IIG MINWOOL L L C** – MinWool-1200 Safing  
**ROCK WOOL MANUFACTURING CO** – Delta Board or Delta-8  
**ROXUL INC** – Type Safe  
**THERMAFIBER INC** – Type SAF
  - B. **Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or brushed on each side of the wall between the top of the wall and the bottom of the steel floor or roof deck to completely cover mineral wool and overlap a min of 1/2 in. (13 mm) onto wall and steel floor or roof deck on both sides of wall. When the steel floor or roof deck is coated with spray applied material, the fill material shall overlap min 2 in. (51 mm) onto the spray applied material.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

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## System No. HW-D-0040

January 31, 2006

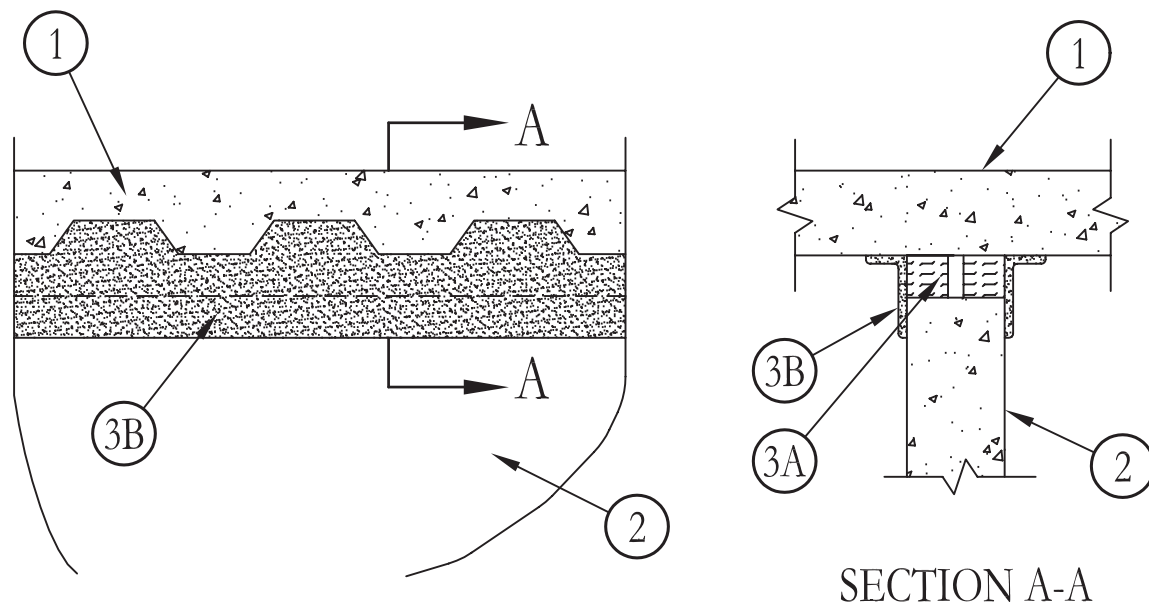
Assembly Rating – 2 Hr

L Rating At Ambient – Less Than 1 CFM/LIN Ft

L Rating At 400 F – Less Than 1 CFM/LIN Ft

Nominal Joint Width – 2 In.

Class II Movement Capabilities – 19% Compression Or Extension



- Floor Assembly** – The fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
  - Steel Floor and Form Units\*** – Max 3 in. (76 mm) deep galv fluted units.
    - Spray Applied Fire Resistive Material\*** – (Optional, not shown) – Prior to the installation of the Forming Material and Fill, Void or Cavity Materials (Items 3A, 3B), the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 11/16 in. (17 mm) thickness of fire resistive material.

**W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV** – Type MK-6/HY.
  - Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
- Wall Assembly** – Min 7-1/2 in. (191 mm) thick 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**.

See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
- Joint System** – Max separation between bottom of floor and top of wall is 2 in. (51 mm). The joint system is designed to accommodate a max 19 percent compression or extension from its installed width. The joint system consists of a forming material and a fill material, as follows:
  - Forming Material\*** – Min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation compressed and firmly packed into the flutes and the gap between the top of the wall and bottom of the floor on both sides of the wall. Pieces of batt to be cut a min thickness of 3 in. (76 mm) to the shape of the deck approximately 25 percent larger than the area of the flutes with additional min 4 in. (102 mm) wide sections of a thickness at least 50 percent larger than gap between the top of the wall and bottom of the steel floor units. Mineral wool to be compressed and firmly packed into the flutes and compressed in thickness and inserted edge first into the gap between the top of the wall and bottom of the steel floor units, flush with both sides of wall.

**IIG MINWOOL L L C** – MinWool-1200 Safing  
**ROCK WOOL MANUFACTURING CO** – Delta Safing Board  
**ROXUL INC** – Type Safe  
**THERMAFIBER INC** – Type SAF
  - Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or brushed on each side of the wall in the flutes of the steel floor units and between the top of the wall and the bottom of the floor to completely cover mineral wool and overlap a min of 1/2 in. (13 mm) onto wall and floor on both sides of wall. When the steel deck is coated with spray applied material (Item A1), the fill material shall overlap min 2 in. (51 mm) onto the spray applied material.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

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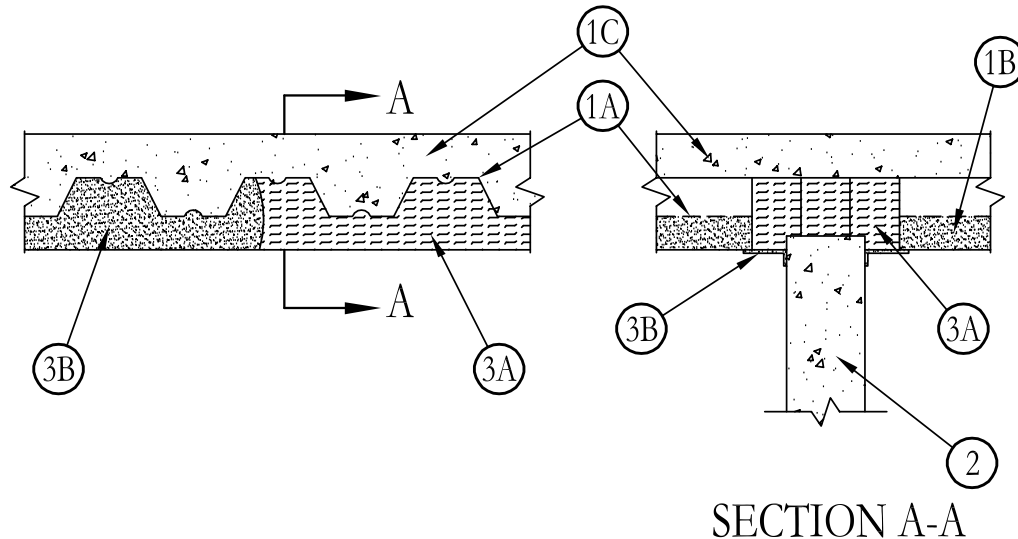
**System No. HW-D-0123**

July 12, 2006

Assembly Rating – 3 or 4 Hr (See Item 1)

Nominal Joint Width - 1 In.

Class II Movement Capabilities - 25% Compression or Extension



SECTION A-A

1. **Floor Assembly** – The fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
  - A. **Steel Floor and Form Units\*** – Max 2 in. (51 mm) deep galv steel fluted units.
  - B. **Spray Applied Fire Resistive Material\*** – The steel floor units shall be sprayed with a min 2 in. (51 mm) thickness of fire resistive material. The spray applied fire resistive material is to be removed from the steel deck for the installation of the joint system (Item 3) such that the steel deck is bare over the wall and extending 2 in. (51 mm) beyond the surface of the gypsum lboard on both sides of the wall.  
**W R GRACE & CO - CONN** – Type MK-6/HY
  - C. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.  
**The hourly F Rating is equal to the 3 or 4 hr Assembly Rating of the D700 or D900 Series Floor-Ceiling design.**
2. **Wall Assembly** – Min 6-1/2 in. (165 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of UL Classified **Concrete Blocks**.  
 See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
3. **Joint System** – Max separation between bottom of floor and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 25 percent compression or extension from its installed width. The joint system consists of a forming material and a fill material, as follows:
  - A. **Forming Material\*** – Min 3-5/8 in. (92 mm) thickness of min 8 pcf (128 kg/m<sup>3</sup>) density mineral wool batt insulation cut to the shape of the fluted deck, approximately 20 percent larger than the area of the flutes and compressed into flutes of the steel floor units between the top of the wall and the steel deck. Additional pieces of min 3-1/2 in. (89 mm) thick, min 8 pcf (128 kg/m<sup>3</sup>) mineral wool batt insulation are to be cut to the contour of the flutes with an additional 1-3/8 in. (35 mm) high section at the bottom of the shapes to fill the 1 in. (25 mm) gap between the top of the wall and bottom of the steel floor units. The additional pieces of mineral wool are compressed and firmly packed into the flutes and the gap between the top of the wall and bottom of the steel floor units on both sides of the wall and shall extend 2 in. (51 mm) beyond the wall surfaces.  
**IIG MINWOOL L L C** – MinWool-1200 Safing  
**THERMAFIBER INC** – Type SAF  
**ROCK WOOL MANUFACTURING CO** – Delta Safing Board
  - B. **Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or brushed on each side of the wall in the flutes of the steel floor units and between the top of the wall and the bottom of the steel floor units to completely cover mineral wool and overlap a min of 1 in. (25 mm) onto wall and a min of 3 in. (76 mm) onto the spray applied fire resistive material on both sides of wall.  
**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

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## System No. HW-D-0169

August 03, 2001

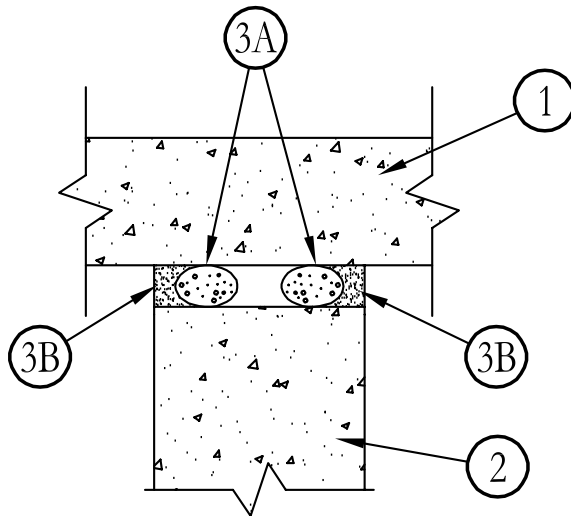
Assembly Rating – 2 Hr

L Rating At Ambient – 4 CFM/Lin Ft

L Rating At 400 F – 6 CFM/Lin Ft

Nominal Joint Width – 3/4 In.

Class II Movement Capabilities – 16.6% Compression or Extension



1. **Floor Assembly** – Min 4-1/2 in. thick lightweight or normal weight (100-150 pcf) concrete.
2. **Wall Assembly** – Min 7-1/2 in. thick UL Classified Concrete Blocks\* or min 7-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.  
See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. **Joint System** – Max separation between bottom of floor and top of wall is 3/4 in. The joint system is designed to accommodate a max 16.6 percent compression or extension from its installed width. Max width of joint 3/4 in. The joint system consists of the following:
  - A. **Packing Material** – Nom 1 in. diam polyethylene backer rod compressed and installed into joint. Packing material to be recessed from each surface of wall as required to accommodate the required thickness of fill material.
  - B. **Fill, Void or Cavity Material\* – Caulk** – Min 1/2 in. thickness of fill material installed within joints on each side of the wall, flush with each surface of the wall.

**3M COMPANY** – FireDam 150+

\*Bearing the UL Classification Mark

Construction Joints

Head of Wall

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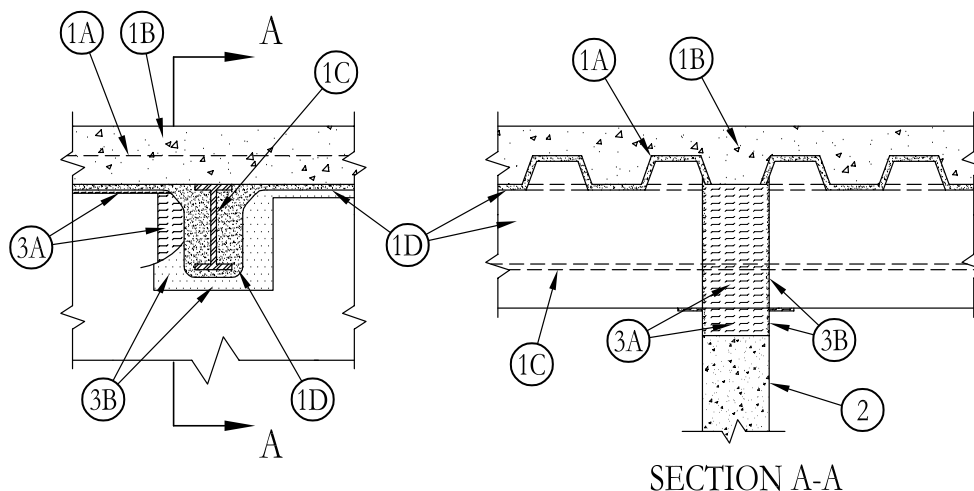
## System No. HW-D-0248

January 31, 2006

Assembly Rating – 2 Hr

Nominal Joint Width – 1 in.

Class II Movement Capabilities – 13% Compression or Extension



- Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
  - Steel Floor and Floor Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor units.
  - Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
  - Structural Steel Support** – (Optional) – Steel beam or open-web steel joist, as specified in the individual D700 or D900 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented perpendicular to wall assembly. Where open-web steel joists pass through the fire rated wall, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 to 3.4 lb per sq yd (0.9 to 1.8 kg/m<sup>2</sup>) shall be secured to one side of each joist with steel tie wire and the lath shall be fully covered with spray applied fire resistive material with no min thickness requirement.
  - Spray-Applied Fire Resistive Material\*** – Steel floor units and structural steel supports to be sprayed in accordance with the specifications in the individual D700 Series Design or the structural steel supports to be sprayed in accordance with the specifications in the individual D900 Series Design.

**W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV** – Type MK-6/HY

- Wall Assembly** – Min 6-1/8 in. (156 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall shall be installed parallel to the flutes of the steel floor and form units. A min clearance of 1 in. (25 mm) to a max clearance of 3 in. (76 mm) shall be maintained between the wall and the spray applied fire resistive material on the two sides of the structural support member. Wall may also be constructed of any UL Classified **Concrete Blocks\***.  
See **Concrete Blocks (CAZT)** category in Fire Resistance Directory for names of manufacturers.
- Joint System** – Max separation between bottom of the spray applied fire resistive material on the lowest portion of steel floor units and top of wall (at time of installation of joint system) is 1 in. (25 mm) when D700 series assembly is used. Max separation between bottom of the steel floor units and top of gypsum board (at time of installation of joint system) is 1 in. (25 mm) when D900 series assembly is used. Max separation between spray applied fire resistive material on bottom of structural support member and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 13 percent compression or extension from it's installed width as measured between the spray applied fire resistive material on the steel floor units and the top of wall. The joint system shall consist of forming and fill materials, as follows:

- Forming Material\*** – Nom 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation cut to a min 6-1/8 in. (156 mm) length, compressed a min of 25 percent in thickness and installed cut edge first to completely fill the gap above the wall, flush with both surfaces of wall. Additional nom 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation compressed a min of 25 percent in thickness to be installed to completely fill the flutes of the steel floor and form units located above wall. Nom 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation cut to a min 6-1/8 in. (156 mm) length, compressed a min of 25 percent in thickness and installed cut edge first to completely fill the gap between the spray applied fire resistive material on the structural steel member and the wall.

**FIBREX INSULATIONS INC** – FBX Safing Insulation  
**IIG MINWOOL L L C** – MinWool-1200 Safing  
**ROCK WOOL MANUFACTURING CO** – Delta Board  
**ROXUL INC** – Type Safe  
**THERMAFIBER INC** – Type SAF

- Fill, Void or Cavity Material\*** – Min 1/16 in. dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the wall and a min 2 in. (51 mm) onto the deck or the spray applied material (Item 1C) on the steel floor unit and on the structural steel support member on both sides of wall.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

This material was extracted and drawn by 3M Fire Protection Products from the 2007 edition of the UL Fire Resistance Directory. 

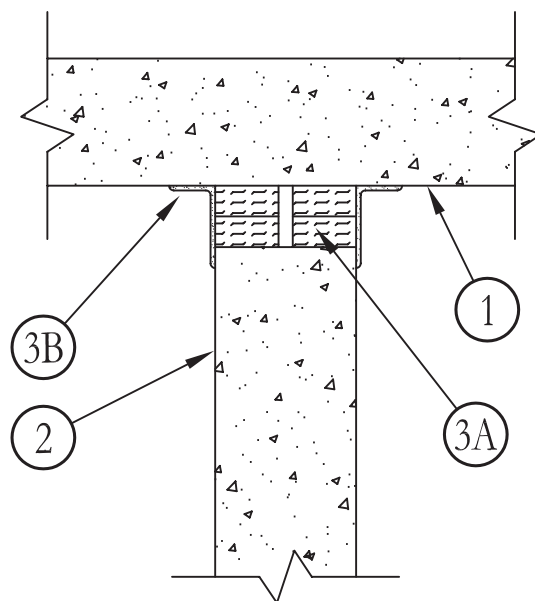
## System No. HW-D-1010

January 31, 2006

Assembly Rating – 2 Hr

Nominal Joint Width – 4 In.

Class II Movement Capabilities – 19% Compression Or Extension



SECTION A-A

1. **Floor Assembly** – Min 4-1/2 in. (114 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) structural concrete.
2. **Wall Assembly** – Min 7-1/2 in. 191 mm) thick 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**.  
See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. **Joint System** – Max separation between bottom of floor and top of wall is 4 in. (102 mm). The joint system is designed to accommodate a max 19 percent compression or extension from its installed width. The joint system consists of a forming material and a fill material, as follows:
  - A. **Forming Material\*** – Min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation compressed and firmly packed into the gap between the top of the wall and bottom of the floor on both sides of the wall. Sections of min 3 in. (76 mm) wide strips of batts to be stacked on top of each other to form an overall thickness two times the thickness of the nominal joint width and installed edge-first such that the batt sections are compressed min 50 percent and installed flush with both surfaces of wall.  
**IIG MINWOOL L L C** – MinWool-1200 Safing  
**ROCK WOOL MANUFACTURING CO** – Delta Safing Board  
**ROXUL INC** – Type Safe  
**THERMAFIBER INC** – Type SAF
  - B. **Fill, Void or Cavity Material\*** – Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or brushed on each side of the wall between the top of the wall and the bottom of the floor to completely cover mineral wool and overlap a min of 1/2 in. (13 mm) onto wall and floor on both sides of wall.  
**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

Construction Joints

Head of Wall

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**System No. HW-D-0379**

January 31, 2006

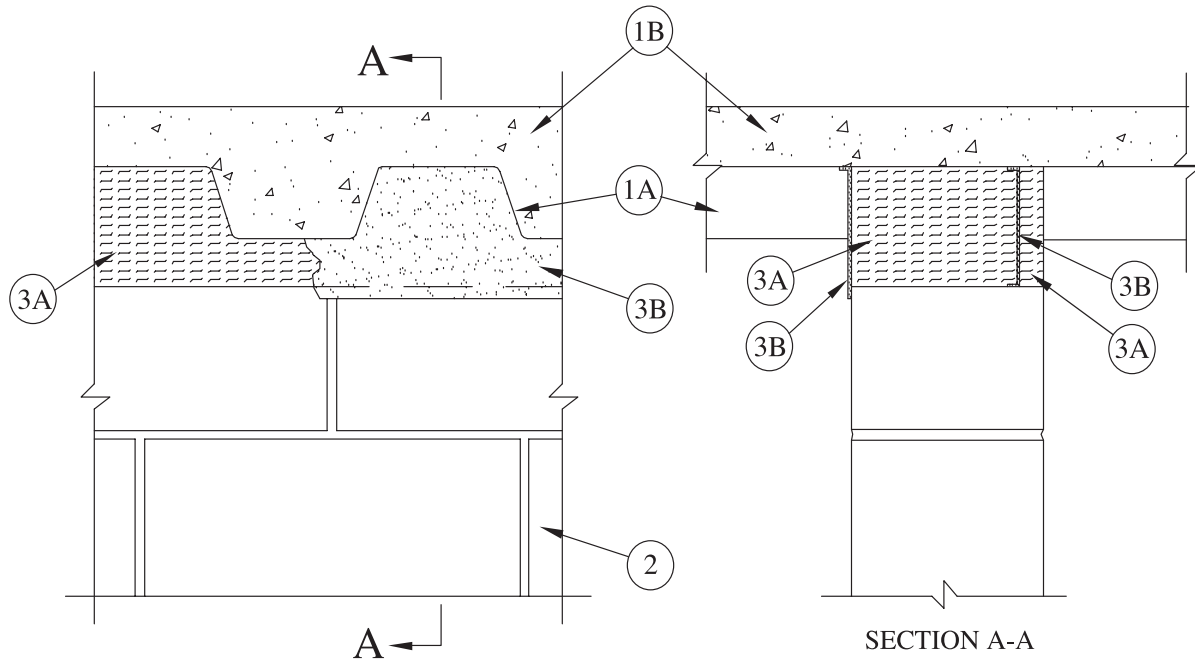
Assembly Rating – 2 Hr

L Rating At Ambient – Less Than 1 CFM/Lin Ft

L Rating At 400°F – Less Than 1 CFM/Lin Ft

Nominal Joint Width – 2 in.

Class II Movement Capabilities – 13% Compression or Extension



1. **Floor Assembly** – The fire rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in a manner described in the individual D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
  - A. **Steel Floor And Form Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor units.
  - B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
2. **Wall Assembly** – Min 7-1/2 in. (191 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) structural concrete. Wall may also be constructed of any UL Classified **Concrete Blocks\***.  
See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
3. **Joint System** – Max width of joint (at time of installation of joint system) is 2 in. (51 mm). The joint system is designed to be installed from only one side of the wall due to the opposite side of the wall being inaccessible. The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:
  - A. **Forming Material\*** – Min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation cut into strips, compressed approximately 25 percent in thickness, and installed to fill the max 2 in. (51 mm) gap between the top of the wall and the bottom of the fluted steel floor units. Additional pieces of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation cut to the shape of the fluted deck, approximately 20 percent larger than the area of the flutes, firmly packed into the flutes. The strips and shaped pieces of mineral wool batt insulation installed on the inaccessible side of the wall are to be 1 in. to 2 in. (25 to 51 mm) wide and are to be installed flush with the inaccessible surface of the wall. After application of the sealant (Item 3B) on the surface of the mineral wool batt packing material above the top plane of the wall, additional strips and shaped pieces of the mineral wool batt insulation are to be installed to fill the remainder of the joint opening above the wall, flush with the accessible surface of the wall.
 

**FIBREX INSULATIONS INC** – FBX Safing Insulation  
**ROCK WOOL MANUFACTURING CO** – Delta Board or Delta-8  
**ROXUL INC** – SAFE
  - B. **Fill, Void or Cavity Material\* – Sealant** – Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray applied over the forming material. The fill material sprayed on the nom 1 in. to 2 in. (25 to 51 mm) thickness of forming material located on the inaccessible side of the wall is to lap a min of 1 in. (25 mm) onto the steel deck and onto the top surface of the wall. The fill material sprayed on the forming material on the accessible side of the wall is to overlap a min of 1/2 in. (13 mm) onto the wall and a min of 1 in. (25 mm) onto the steel floor unit on either side of the wall.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

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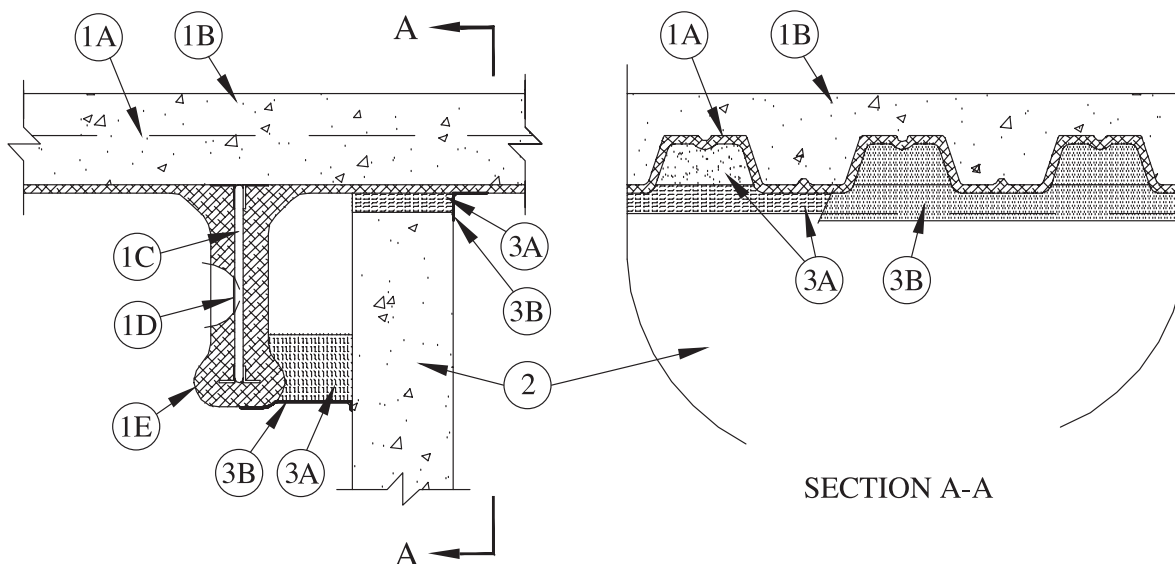
## System No. HW-D-0385

January 31, 2006

Assembly Rating – 2 Hr

Nominal Joint Width – 2 In.

Class II Movement Capabilities – 25% Compression or Extension



1. **Floor Assembly** – The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D800 Series Floor-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the floor assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The floor assembly shall include the following construction features:

- A. **Steel Floor and Floor Units\*** – Max 3 in. (76 mm) deep galv steel fluted floor units.
- B. **Concrete** – Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
- C. **Structural Steel Support** – Steel beam or open-web steel joist, as specified in the individual D700 or D800 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and min 2 in. (51 mm) to max 6 in. (152 mm) from wall assembly.
- D. **Steel Lath** – When structural steel support (Item 1C) consists of open-web steel joists, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 to 3.4 lb per sq yd (0.9 to 1.8 kg/m<sup>2</sup>) shall be installed to completely cover one side of each joist which is located within 6 in. (152 mm) of wall assembly. The lath shall be secured with steel tie wire and shall be fully covered with spray applied fire resistive material.
- E. **Spray-Applied Fire Resistive Material\*** – Steel floor units and structural steel supports to be sprayed with the thickness of material specified in the individual D700 or D800 Series Design. The flutes of the steel floor units above the structural steel supports shall be filled with spray-applied fire resistive material. The spray-applied fire resistive material in the flutes above the wall shall be applied to follow the contour of the steel floor units.

W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV – Type MK-6/HY

- 1A. **Roof Assembly** – (Not Shown) – As an alternate to the floor assembly (Item 1), a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 or P800 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the roof assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The roof assembly shall include the following construction features:

- A. **Steel Roof Deck** – Max 3 in. (76 mm) deep galv steel fluted roof deck.
- B. **Roof Insulation – Mineral and Fiber Board\*** – Min 3/4 in. (19 mm) thick boards applied in one or more layers directly over steel roof deck or over gypsum board sheathing laid atop steel roof deck.
- C. **Roof Covering\*** – Hot-mopped or cold-application materials compatible with mineral and fiber board insulation.
- D. **Structural Steel Support** – Steel beam or open-web steel joist, as specified in the individual P700 or P800 Series Roof-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and min 2 in. (51 mm) to max 6 in. (152 mm) from wall assembly.
- E. **Steel Lath** – When structural steel support (Item 1D) consists of open-web steel joists, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 to 3.4 lb per sq yd (0.9 to 1.8 kg/m<sup>2</sup>) shall be installed to completely cover one side of each joist which is located within 6 in. (152 mm) of wall assembly. The lath shall be secured with steel tie wire and shall be fully covered with spray applied fire resistive material.
- F. **Spray-Applied Fire Resistive Material\*** – Steel roof deck and structural steel supports to be sprayed with a thickness of spray applied fire resistive material as specified in the individual P700 or P800 Series Roof-Ceiling design. The flutes of the steel deck above the structural steel supports shall be filled with spray-applied fire resistive material. The spray-applied fire resistive material in the flutes above the wall shall be applied to follow the contour of the steel roof deck.

W R GRACE & CO - CONN, CONSTRUCTION PRODUCTS DIV – Type MK-6/HY

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## System No. HW-D-0385 *continued*

Construction Joints

2. **Wall Assembly** – Min 6 in. (152 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) structural concrete. Wall may also be constructed of any UL Classified **Concrete Blocks**\*.  
See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
3. **Joint System** – Max separation between bottom plane of spray-applied fire resistive material on the steel floor unit and the top of the gypsum board (at time of installation of joint system) is 1 in. (25 mm). Separation distance between spray applied fire resistive material on structural support member and surface of wall is min 1 in. (25 mm) to max 4 in. (102 mm). The joint system is designed to accommodate a max 25 percent compression or extension from its installed width as measured between the bottom plane of the spray-applied fire resistive material on the steel floor unit and the top of the wall. The joint system shall consist of forming and fill materials, as follows:
  - A. **Forming Material**\* – Nom 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation. Sections of mineral wool batt cut to a width of 4 in. (102 mm) and stacked to attain a thickness which is 50 percent greater than the width of the linear gap between the spray applied fire resistive material on the structural steel member and the surface of the wall assembly. Stacked sections of mineral wool compressed 33 percent in thickness and installed cut edge first into linear gap until the bottom edge is flush with the bottom surface of the spray applied fire resistive material on the structural steel member. On the opposite side of the wall, sections of mineral wool batt insulation cut to the width of the wall inserted edge-first between the top of the wall and the spray-applied fire resistive material on the valleys of the steel deck, compressed approx 50 percent in thickness beneath each valley and flush with the wall surface. Additional pieces of mineral wool batt cut to the shape of the steel deck flute, stacked to a min 6 in. (152 mm) thickness and installed in the flutes above the wall flush with the wall surface.

**FIBREX INSULATIONS INC** – FBX Safing Insulation  
**ROCK WOOL MANUFACTURING CO** – Delta Board  
**ROXUL INC** – SAFE
  - B. **Fill, Void or Cavity Material**\* – **Sealant** – Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the wall surface and a min of 2 in. (51 mm) onto the spray-applied fire resistive material on each side of the wall.

**3M COMPANY** – FireDam™ Spray 200

\*Bearing the UL Classification Mark

Head of Wall

HW-D

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# FireDam™ Spray 200



Listed  
Reference our Directory  
at [www.opl.com](http://www.opl.com)  
15654-2



FILL, VOID OR CAVITY MATERIALS. FOR USE IN JOINT SYSTEMS AND THROUGH-PENETRATION FIRESTOP SYSTEMS. SEE UL DIRECTORY OF PRODUCTS CERTIFIED FOR CANADA. SEE UL FIRE RESISTANCE DIRECTORY 9069



APPROVED  
SUBJECT TO THE CONDITIONS OF APPROVAL AS A WALL & FLOOR PENETRATION FIRE STOP WHEN INSTALLED AS DESCRIBED IN THE CURRENT EDITION OF THE FMRC APPROVAL GUIDE

## Product Data

### 1. Product Description

3M™ FireDam™ Spray 200 is sprayable water-based material, that dries to form a tough, elastomeric coating. This material when used as part of an assembly will firestop building joints, perimeter joints (curtain wall), and through penetration seals. 3M™ FireDam™ Spray 200, when installed properly, will control the transmission of fire, heat, and smoke before, during, and after exposure to fire.

#### 3M™ FireDam™ Spray 200 Features

- Superior adhesion to most construction materials
- Highly elastic--maintains performance with +/- 25% joint movement
- Broad range of applications--extensive portfolio of tested and listed building and perimeter joint systems
- Applied with conventional airless spray equipment
- Robust job site formula
  - Freeze/thaw resistant
  - Uniform seal formation in hot and cold drying conditions
- Low sag, thick coating build properties--stays where it's sprayed
- Paintable
- Easy water clean-up

### 2. Applications

Ideal for sealing building joints, through penetration seals, and perimeter joints. Helps limit the spread of noxious gas, smoke, and water. Maintains the integrity of the fire-rated construction.

### 3. Physical Properties

Product	Unit	Volume	Units/ Ctn.
FireDam	5 gallon	1155.0 cu. in.	1
Spray 200	(18.9 litre)	(18926.9 cu. cm)	

### 4. Specifications

#### Product

The coating is tested and listed by independent test agencies including UL and ITS Omega Point Laboratories. The coating complies with the requirements of IBC, BOCA, ICBO, SBCCI, and NFPA Code #101.

Building Joints: Have been fire tested and evaluated under the pass/fail criteria of ASTM E 1966 and UL 2079 at maximum extended joint width.

Perimeter Joints: Have been fire tested and evaluated under the pass/fail criteria of ASTM E2307 at maximum extended joint width.

Penetration Seals: Are capable of passing ASTM E 814/UL 1479 Standard Method for Through-Penetration Firestops up to 2 hours fire resistance rating.

#### Typically Specified Divisions

Division 7	Thermal and Moisture Protection
07840	Firestopping
07842	Fire Resistive Joint Systems



**5. Performance**  
**A. Typical Physical Properties**

Color: Gray  
 Non-Volatile Content: 50%  
 Viscosity: 40,000 cps  
 Coverage\*: 12.8 sq. ft./gallon (0.31 sq. m/litre)  
 Flash Point: None  
 ASTM E 84: Flame Spread: < 25  
 Smoke Development: < 50  
 Dry Time: < 4 hrs tack-free  
 @70°F (21°C)/50% R.H. 24 hrs fully dry

\*The coverage rate listed is calculated coverage based on 1/8 in. (3 mm) thick wet coating.

**B. Firestopping Properties**

Building Joints: Underwriters Laboratories Systems:  
 HWD0020, HWD0021, HWD0022, HWD0023, HWD0029,  
 HWD0030, HWD0031, HWD0038, HWD0040, HWD0101,  
 HWD0122, HWD0123, HWD0192, HWD0248, HWD0265,  
 HWD0376, HWD0379, HWD0384, HWD0385, HWD1010,  
 HWD1059, FFD0002, FFD1042, FFD0014, FWD0004,  
 FWD0011, FWD1040

Penetration Seals: Underwriters Laboratories System:  
 CAJ1275, CAJ1275, CAJ8106, WL8033, WL8034

Perimeter Joints: Omega Point Laboratories Systems:  
 CEJ113P, CEJ114P, CEJ115P, CEJ116P, CEJ119P, CEP120,  
 CEJ121P, CEJ122P, CEJ123P, CEJ124P, CEJ125P, CEJ126P,  
 CEJ158P, CEJ159P, CEJ160P, CEJ161P, CEJ162P, CEJ163P,  
 CEJ164P, CEJ165P, CEJ166P, CEJ167P, CEJ168P, CEJ169P,  
 CEJ234P, CEJ238P, CEJ266P, CEJ267P, CEJ288P, CEJ289P,  
 CEJ311P, CEJ312P, CEJ313P, CEJ350P, CEJ370P

**C. Firestopping Code Requirements**

ICBO Uniform Building Code (2003 Edition)	SBCCI Standard Building Code (1997 Edition)	BOCA Basic/National Building Code (1996 Edition)	NFPA Life Safety Code 101 (2006 Edition)
702 DEFINITIONS	104.2.4 PLANS MUST SHOW HOW INTEGRITY IS MAINTAINED FOR ASSEMBLIES PENETRATED	702.0 REVISED AND EXPANDED DEFINITIONS FOR PENETRATIONS AND JOINTS	8.3.5 PENETRATIONS
706 CONSTRUCTION JOINTS			8.3.6 JOINTS
708 WOOD FRAME CONSTRUCTION FIREBLOCKING	202 DEFINITIONS	703.1 CONSTRUCTION DOCUMENTS SHALL INDICATE DETAILS AND MATERIALS FOR PROVIDING RATINGS AT JOINTS AND PENETRATIONS	8.4.4 PENETRATIONS
709 WALL & PARTITION PENETRATION PROTECTION	705.3 WOOD FRAME CONSTRUCTION FIREBLOCKING		8.4.5 JOINTS
709.3.2.2 CURTAIN WALL GAP	705.3.1.5 CURTAIN WALL GAP	703.1.1 PENETRATIONS AND JOINTS SHALL NOT BE CONCEALED FROM VIEW BEFORE INSPECTION	8.5.6 PENETRATIONS
710 FLOOR/CEILING OR ROOF/CEILING PENETRATION PROTECTION	705.4 (GENERAL) PENETRATIONS OF FIRE RATED ASSEMBLIES		8.5.7 JOINTS
711.3 SHAFT ALTERNATIVE	705.5 (WALLS)	703.2 BUILDINGS FOR MORE THAN TWO STORIES SHALL INDICATE ALL PENETRATIONS	
714 THROUGH-PENETRATION FIRESTOPS F&T REQUIREMENTS	705.6 (FLOORS)		
UBC STANDARD 7-1 EQUIVALENT TO ASTM E 119	705.7 FIRE RESISTANT JOINT SYSTEMS	704.1.1 SUFFICIENT DATA SHALL BE AVAILABLE TO JUSTIFY UNTESTED MATERIALS USED FOR RESTORATION OF FIRE RATINGS	<b>NFPA Code 70 NEC National Electric Code</b>
UBC STANDARD 7-5 EQUIVALENT TO ASTM E 814	<b>International Building Code (2003 Edition)</b>		300-21 FIRESTOPPING
<b>NFPA 5000 (2006 Edition)</b>	702 DEFINITIONS	707.0 FIRE WALLS AND PARTY WALLS	<b>CABO One and Two Family Dwelling Code (1995 Edition)</b>
8.8 PENETRATIONS	712 PENETRATIONS	707.10 PENETRATIONS - REFERS TO 714	602.7 FIRESTOPPING (FIREBLOCKING IN OTHER MODEL CODES)
8.9 JOINTS	713 FIRE RESISTANT JOINT SYSTEMS	707.8 JOINTS - REFERS TO 709.7	
8.9.3 EXTERIOR CURTAIN WALLS AND THE PERIMETER JOINT	713.3 EXTERIOR CURTAIN WALL/FLOOR INTERSECTION	709.0 FIRE SEPARATION ASSEMBLIES	
		709.6 PENETRATIONS - REFER TO 714	

## 6. Installation Techniques

Shown is an example of a UL tested and listed system for 3M™ FireDam™ Spray 200. The appropriate tested and listed system must be used for each application. Additional details are available through your 3M authorized Fire Protection Products Distributor or sales representative.

1. Surface Preparation: Surfaces must be frost free, clean, dry and dust free.
2. Insulation: Cut minimum 4 lb. density mineral wool to the contour of the joint adding 25% to each dimension so that the mineral wool can be tightly packed into the joint. The mineral wool should be flush with the face of the wall.
3. Coating: Apply the 3M™ FireDam™ Spray 200 using an airless sprayer to the joint overlapping onto the wall and floor a minimum 1/2 in. (13 mm). A minimum 1/8 in. (3 mm) wet coating should be applied over the mineral wool and substrates. 3M™ FireDam™ Spray 200 must be applied at a temperature between 40°F

(4°C) and 90°F (32°C). 3M™ FireDam™ Spray 200 can be applied when the ambient air temperature is 10°F (-12°C) or higher. Note: It is recommended that the pails of product remain in heated storage at 70°F (21°C) prior to spraying material in conditions below 40°F (4°C).

3M™ FireDam™ Spray 200 can be applied to surfaces that are 10°F (-12°C) providing that the surfaces are frost free, clean, dry and dust free.

The curing (evaporating of water) of the 3M™ FireDam™ 200 is affected by the ambient temperature and humidity. The lower the temperatures and the higher the humidity the slower the product will dry. At 70°F (21°C) and 50% R.H. a 1/8 in. thick wet coating is fully dried in 24 hours. Note: At temperatures below 32°F (0°C) no drying of the products will occur until the temperature of the installed product is above 32°F (0°C).

## 7. Spray Equipment

These procedures are intended to inform end users of the equipment requirements for properly

dispensing 3M™ FireDam™ Spray 200 and achieving the thickness and coverage necessary to comply with the tested systems for the product. The equipment mentioned is not an entire list of the pumps capable of delivering 3M™ FireDam™ Spray 200 but a sample of those known to be capable of accomplishing the desired results.

### General Equipment Parameters

Flow Output: 0.6 gpm minimum  
Liquid Pressure: 2000 psi minimum  
Recommended Tip Size: No. 419 (8 in. fan with 0.019 orifice) can be changed based on application conditions  
Motor Size: Greater than or equal to 0.75 horsepower

### Recommended Equipment

**Wagner:** SprayTECH® EP2355, EP2400 and EP2510

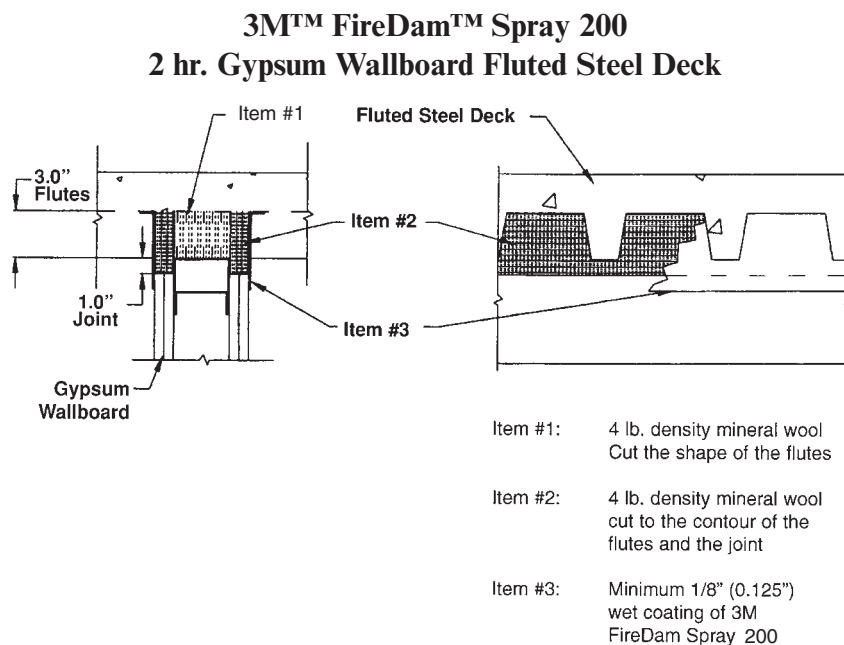
**Graco:** Ultra® Max 695, 795, 1095 and 1595

**Titan:** 840ix and 1140ix

### Equipment Start-up

If the spray equipment has been used previously and has wash of a previous product, then purge the machine, hoses, and gun prior to spraying - do this as follows:

- Have a 5-gallon pail filled with five (5) gallons of clean water. This will be needed for clean-up at the end of the application.
- Turn on pump in prime (re-circulating mode). The pump should have a large and small tube. The large tube is a primary material pick-up tube, and small tube is the re-circulating tube.
- With pump in prime mode, place large pick-up tube in pail of clean water, leaving small re-circulating tube out of pail.
- As pump primes, water will be pushed out of system -- pump this water into another container. Continue to do this until a complete flow of clean water solution is attained.
- Drop re-circulating tube into pail of clean water solution.



- Change pump from prime to spray mode. Hit the trigger of gun and hold open until clean water solution only comes out.
- Next turn pump back to re-circulating mode and drop large pick-up tube in pail of 3M™ FireDam™ Spray 200, while holding the small re-circulating tube aside in another empty small pail or cup.
- As pump primes, you will pump clean water solution; then a combination of 3M™ FireDam™ Spray 200 and clean water solution and finally just 3M™ FireDam™ Spray 200.
- Change pump to spray mode and hit spray trigger. As before, hold gun open until you have just 3M™ FireDam™ Spray 200 coming out.
- Then equipment is ready to spray.

#### Equipment Clean-up/Shutdown

To clean-up the gun, hoses, and spray machine a couple of clean plastic 5-gallon pails, a tooth-brush or other similar brush will be needed.

- First, place pump in re-circulating mode and remove both tubes from pail of 3M™ FireDam™ Spray 200. Using paper towel, wipe any excess spray off the outside of the pick-up and re-circulating tube.
- Have a minimum five (5) gallons of clean water in a five (5)

gallon pail. Place the clean water solution next to the pump and drop the large pick-up tube into the solution, while holding the small re-circulating tube away from the clean water solution.

- As machine comes to prime (out of small tube) 3M™ FireDam™ Spray 200 will come out first, then a combination of 3M™ FireDam™ Spray 200 and clean water solution, then finally just the cleaning solution and water.
- Now drop small tube in the pail of the water solution and allow machine to re-circulate for a couple of minutes.
- Now change pump from prime (re-circulating) mode to spray mode and immediately hit the trigger on spray gun.
- 3M™ FireDam™ Spray 200 will come out first then a combination of 3M™ FireDam™ Spray 200 and clean water solution and finally just clean water solution.
- Run the entire 5 gallons of water liquid through the machine.
- If the pump will not be used for a couple of days, an additional five (5) gallons of clean water solution needs to be circulated through the machine for ten (10) minutes.
- Use a toothbrush to clean-up the gun and spray tip.
- Follow pump manufacturer's recommendations for pump

maintenance and storage. "SprayTECH" is a trademark of Wagner "Ultra" is a trademark of Graco

## 8. Maintenance

3M™ FireDam™ Spray 200 is stable under normal storage conditions. The product has a 12 month shelf life when stored at recommended temperature in the original, unopened container. Store at 40°F to 90°F (4°C to 32°C) for maximum shelf life. Normal stock and stock rotation are recommended. Higher temperatures can reduce shelf life.

## 9. Purchase Information

3M™ FireDam™ Spray 200 is available from 3M Authorized Fire Protection Distributors. For information on where to buy, go to [www.3m.com/firestop](http://www.3m.com/firestop) or call (800) 328-1687.

## 10. Safe Handling Information

**Consult Material Safety Data Sheet prior to handling and disposing of 3M™ FireDam™ Spray 200.**

#### Warranty and Limited Remedy

This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

#### Limitation of Liability

**Except where prohibited by law, 3M will not be liable for any loss or damage arising from the use of this 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.**



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[www.3m.com/firestop](http://www.3m.com/firestop)

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# FireDam 150+ Acrylic Latex Caulk

## Product Data



Fill, Void or Cavity Materials  
For Use in Through-Penetration  
Firestop Systems and Joint Systems  
See UL Fire Resistance Directory  
8R57

### 1. Product Description

3M™ FireDam™ 150+ Caulk is a ready to use, gun-grade, one-component acrylic latex elastomer that cures upon exposure to the atmosphere to form a monolithic flexible seal. 3M™ FireDam™ 150+ Caulk firestops openings and penetrations through floor slabs, walls and other fire-rated building partitions and assemblies. 3M™ FireDam™ 150+ Caulk, when installed properly helps control the spread of fire before, during and after exposure to fire.

#### 3M™ FireDam 150+ Caulk Features

Sealant remains elastomeric, weather resistant and exhibits excellent adhesion to a full range of construction substrates.

- Excellent adhesion
- Compression/extension recovery of +/-19% of original joint width
- Re-enterable/repairable
- Cures upon exposure to atmosphere
- Applied with conventional caulking equipment
- Paintable

- Water clean-up
- No sag formulation
- Two colors, sky blue and limestone
- Resists dirt pick-up after cure
- No priming required

### 2. Applications

A. 3M™ FireDam™ 150+ Caulk is ideal for sealing construction joints and through-penetrations such as, metallic pipes, conduits, power and communication cables and conduits. Controls the spread of fire, limits the spread of noxious gas, smoke and water. Maintains the integrity of fire rated construction.

Primary firestopping applications:

- Telephone, signal and control and power cables
- Metallic conduit
- Metallic pipes
- Construction joints

#### B. Limitations

Do not apply 3M™ FireDam™ 150+ Caulk when surrounding temperature is less than 40°F (4°C) and in conditions when seals may be exposed to rain or water spray for 12 to 18 hours. Also do not apply under the following conditions.

- Building materials that bleed oil, plasticizers or solvent (e.g., impregnated wood, oil based caulks, green or partially vulcanized rubber)
- Wet or frost-coated surfaces
- Areas that are continuously damp or immersed in water

### 3. Specifications

#### Materials

- A. The fire stopping sealant is a one component, ready to use, gun grade, acrylic latex elastomer. The sealant shall be listed by independent test agencies such as UL, FM or Intertek/OPL and be tested to and pass the criteria of ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Through-Penetration Fire Stops and ASTM E 1966 (UL 2079) Standard Test Method for Fire-Resistive Joint Systems. It shall comply with the requirements of the NEC (NFPA 70), BOCAI, ICBO, SBCCI, IBC and NFPA 101.

#### Typically Specified Sections

- 07270 (1988) Firestopping
- 07840 (1995) Firestopping

## 4. Performance

### A. Typical Physical Properties (As Supplied)

Slump Resistance (ASTM D 2202):	Pass
Extrusion Rate:	25-30 g/sec
Dry to Touch (77°F, 25°C, 50% R.H.):	30-60 minutes
Cure Time (77°F, 25°C, 50% R.H.):	14-45 days (Depends on thickness)
Application Temperature Range (ASTM C 1299):	40° to 122°F (4° to 50°C)
Color:	Blue and Limestone
Specific Gravity:	1.50

### Typical Performance Properties (As Cured)

Hardness (ASTM C 66 Shore A):	45
Elongation at Break (ASTM D 412):	150%
Tensile Strength:	85 psi (0.59 MPa)
Volume Shrinkage (ASTM C 1241):	28%
Recovery (ASTM C 736):	Pass
Artificial Weathering (ASTM C 732):	Pass
Low Temp. Flexibility (ASTM C 734):	Pass
UV and Ozone Resistance:	Good
Service Temperature Range:	-20° to 180°F (-28° to 82°C)
ASTM E 84	
Flame Spread Index:	0
Smoke Developed Index:	0

Note: Contact 3M for current sales specification

### B. Firestopping Properties

Meets the criteria of ASTM E 814 Standards Test Method for Fire Tests of Through-Penetration Fire Stop and ASTM E 1966 Standard Test Method for Fire Resistive Joint Systems. Consult current independent test laboratories directories for listings.

### C. Firestopping Code Requirements

ICBO Uniform Building Code (1997 Edition)	SBCCI Standard Building Code (1997 Edition)	BOCA Basic/National Building Code (1996 Edition)	NFPA Life Safety Code 101 (1997 Edition)
702 DEFINITIONS	104.2.4 PLANS MUST SHOW HOW INTEGRITY IS MAINTAINED FOR ASSEMBLIES PENETRATED	702.0 REVISED AND EXPANDED DEFINITIONS FOR PENETRATIONS AND JOINTS	6-2.3.2.4 PENETRATIONS AND MISC. OPENINGS & FIRE BARRIERS
706 CONSTRUCTION JOINTS		709.7 JOINTS	
708 WOOD FRAME CONSTRUCTION FIREBLOCKING	202 DEFINITIONS	711.0 FIRE PARTITIONS	6.2.4.2, EXCEPTION 5 OPENINGS (EXPANSION OR SEISMIC JOINTS) IN FLOORS
709 WALL & PARTITION PENETRATION PROTECTION	705.3 WOOD FRAME CONSTRUCTION FIREBLOCKING	711.6 PENETRATIONS - REFERS TO 714	APPENDIX A-6-2.4.2
709.3.2.2 CURTAIN WALL GAP	705.3.1.5 CURTAIN WALL GAP	711.7 JOINTS - REFER TO 709.7	6-3.6.1 PENETRATIONS AND MISC. OPENINGS IN FLOORS AND SMOKE BARRIERS
710 FLOOR/CEILING OR ROOF/CEILING PENETRATION PROTECTION	705.4 (GENERAL) PENETRATIONS OF FIRE RATED ASSEMBLIES	713.0 FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES	NFPA #221
711.3 SHAFT ALTERNATIVE	705.5 (WALLS)	713.2 CURTAIN WALL GAP	FIRE WALLS AND BARRIERS
714 THROUGH-PENETRATION FIRESTOPS F&T REQUIREMENTS	705.6 (FLOORS)	713.4 PENETRATIONS - REFERS TO 714	
UBC STANDARD 7-1 EQUIVALENT TO ASTM E 119	705.7 FIRE RESISTANT JOINT SYSTEMS	713.5 JOINTS - REFERS TO 709.7	
UBC STANDARD 7-5 EQUIVALENT TO ASTM E 814	<b>INTERNATIONAL BUILDING CODE (2003 Edition)</b>	704.1.1 SUFFICIENT DATA SHALL BE AVAILABLE TO JUSTIFY UNTESTED MATERIALS USED FOR RESTORATION OF FIRE RATINGS	<b>NFPA Code 70 NEC National Electric Code</b>
	702 DEFINITIONS	707.0 FIRE WALLS AND PARTY WALLS	300-21 FIRESTOPPING
	712 PENETRATIONS	707.10 PENETRATIONS - REFERS TO 714	
	713 FIRE RESISTANT JOINT SYSTEMS	707.8 JOINTS - REFERS TO 709.7	<b>CABO One and Two Family Dwelling Code (1995 Edition)</b>
<b>NFPA 5000 (2006 EDITION)</b>		709.0 FIRE SEPARATION ASSEMBLIES	602.7 FIRESTOPPING (FIREBLOCKING IN OTHER MODEL CODES)
8.8 PENETRATIONS		709.6 PENETRATIONS - REFER TO 714	
8.9 JOINTS			



## 5. Installation Techniques

Consult your 3M Authorized Fire Protection Products Distributor/Dealer for drawings and system details.

### Installation Notes:

- Clean surface of the opening and all penetrating items to allow proper adhesion of firestop materials.
- Install damming materials as necessary to meet requirements of appropriate system.
- Install the proper amount of 3M™ FireDam™ 150+ Caulk for appropriate system and rating.

## 6. Maintenance

3M™ FireDam™ 150+ Caulk is stable under normal storage conditions. Shelf life is 12 months from date of manufacture when stored in a clean, dry area with temperatures between 40°F and 90°F (4°C and 32°C). Avoid repeated freeze/thaw of 3M™ FireDam™ 150+ Caulk while still in packaging.

## 7. Availability

3M™ FireDam™ 150+ Caulk is available from 3M Authorized Fire Protection Products Distributors and Dealers. Caulk is available in 10.1 oz., 20.0 oz. sausage, 28.0

oz. cartridges and 4.5 gal. pail.

## 8. Safe Handling Information

Consult Material Safety Data Sheet prior to handling and disposing of 3M™ FireDam™ 150+ Caulk.



Warranty and Limited Remedy. This product will be free from defects in materials and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's application. If this 3M product is defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace the 3M product or refund the purchase price of the 3M product.

Limitation of Liability. Except where prohibited by law, 3M will not be liable for any loss or damage arising from this 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



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# Fire Barrier IC 15WB+ Sealant



## Product Data

FILL, VOID OR CAVITY MATERIALS  
FOR USE IN JOINT SYSTEMS AND  
THROUGH-PENETRATION FIRESTOP SYSTEMS  
SEE UL DIRECTORY OF PRODUCTS CERTIFIED FOR CANADA  
SEE UL FIRE RESISTANCE DIRECTORY  
90G9

### 1. Product Description

3M™ Fire Barrier IC 15WB+ Sealant is a latex sealant designed for use as a one-part fire, smoke, noxious gas and water resistant sealant. In addition, the unique intumescent property of this material (expands when heated) means that as the combustible pipe, cable or pipe insulation is consumed by fire, the sealant expands to maintain the penetration seal.

3M Fire Barrier IC 15WB+ Sealant can be installed with a standard or bulk caulking gun, pneumatic pumping equipment or it can be easily applied with a putty knife or trowel. Sealant bonds to gypsum wallboard, concrete, metals, wood, plastic and cable jacketing. No mixing is required. Tool within 5 minutes of application, if required.

#### 3M Fire Barrier IC 15WB+

##### Features

- Water Base: Easy clean up, no special handling, routine disposal.
- Intumescent: Expands when heated to maintain seal around items consumed by fire.
- Endothermic: Absorbs heat energy, releases chemically bound water.
- Thixotropic: Will not sag or run in overhead or vertical applications.
- Halogen-free.
- Fast dry: Tack-free in approximately 8 to 12 minutes @ 73°F (23°C).
- Paintable. Best results obtained after 72 hour cure.
- Minimal shrinkage.
- Yellow color.
- High flow rate: 2000 g/min. with 1/4 in. (6 mm) nozzle.
- Point contact allowed.
- Continuous operating temperature not to exceed 120°F (48°C).

### 2. Applications

Use 3M Fire Barrier IC 15WB+ Sealant to firestop the following construction voids:

- Blank openings
- Metallic pipes
- Non-metallic pipes
- Cables
- Cable trays
- Insulated pipes
- Busways
- HVAC vents and ducts
- Combinations
- Bottom of wall construction joints

The product will restore fire rated construction to its original integrity when installed in accordance with the applicable listed UL system.

### 3. Physical Properties

Unit	Volume	Units/ Ctn.
10.1 fl. oz. (0,29 L) Cartridge	18.2 cu. in. (298 cu. cm)	12
20.0 fl. oz. (0,59 L) Sausage	36.0 cu. in. (591 cu. cm)	10
27.0 fl. oz. (0,79 L) Cartridge	48.7 cu. in. (798 cu. cm)	6
4.5 gallon (17,0 L) Pail	1039.0 cu. in. (17034 cu. cm)	1

## 4. Specifications

### Product

The firestopping sealant shall be a one-part, intumescent, latex elastomer. The sealant shall be capable of expanding a minimum of 2 times at 1000°F. The material shall be thixotropic and be applicable to overhead, vertical and horizontal firestops. The sealant shall be listed by independent test agencies such as UL, FM or OPL and be tested to, and pass the criteria of, ASTM E 814 (UL 1479) standard test method for fire tests of through-penetration fire stops and ASTM E 1966 (UL 2079) standard test method for fire-resistive joint systems.

### Typically Specified Divisions

Division 7	Thermal and Moisture Protection
07840	Firestopping

## 5. Performance

### A. Typical Physical Properties

Tack Free Time (ASTM C679-87):	8 to 12 minutes @73°F (23°C)
Expansion at 662°F (350°C):	2.0
Color:	Yellow
Density:	12.0 lb./gal. (1,43 kg/L)
Adhesion:	Very good on all construction substrates
Application:	Caulk guns, trowel, spatula, pressurized pumps
Durometer Hardness (Shore A):	70
Solids:	80% by weight
VOC:	0
Odor:	Pleasant non-irritating
Flow Rate:	2000 grams/min. from 1/4 in. (6,35 mm) nozzle at 50 psi
ASTM E 84: Flame Spread:	0
Smoke Development:	0
Boeing Flow (Sag Characteristics):	<2 in. (5,08 cm) in 5 minutes

### B. Firestopping Properties

Meets the criteria of ASTM E 814 (UL 1479) standard test method for fire tests of through-penetration fire stops tested under positive pressure, and ASTM E 1966 (UL 2079) standard test for fire-resistive joint systems. Consult current UL Fire Resistance Directory for listed systems.

## 6. Installation Techniques

Shown are examples of approved applications of IC 15WB+ Sealant. Additional drawings and details are available from 3M Authorized Fire Protection Products Distributors.

### Installation Notes:

1. Metal Pipe/Conduit applications through nominal 10.75 in. (273,0 mm) outside diameter.

- Installed depth of IC 15WB+ Sealant 1/2 in. (12,7 mm).
- Refer to appropriate system for annular space requirement.
- Minimum 4 pcf mineral wool for backing.

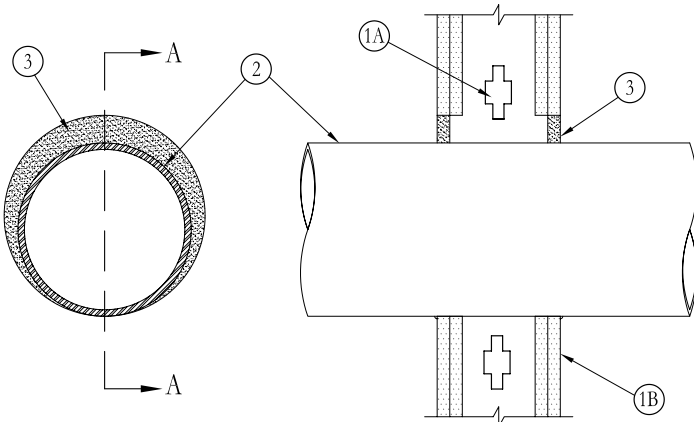
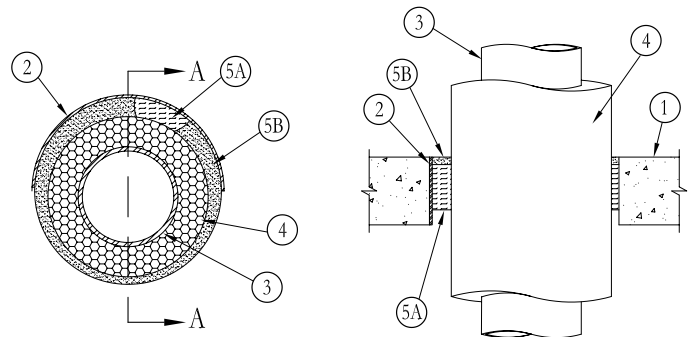
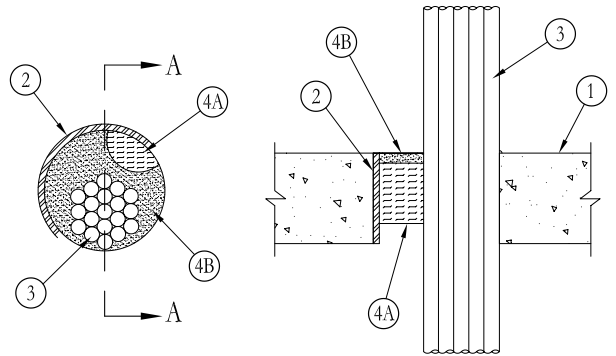
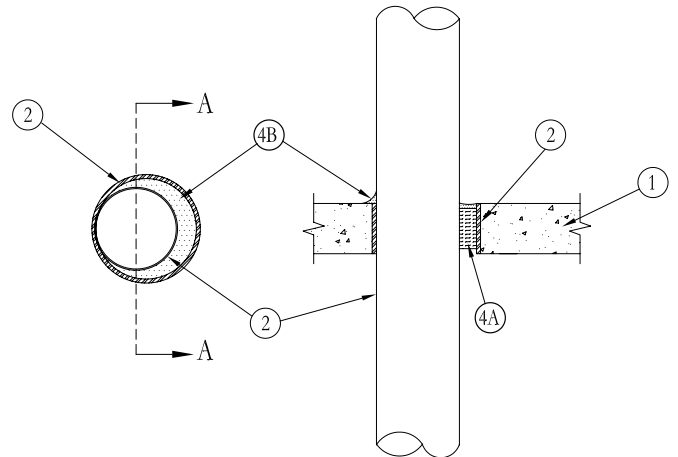
2. Insulated Cable Applications

- A 1/2 in. (12,7 mm) minimum depth of IC 15WB+ Sealant.
- All cases require mineral wool (safing) for backing.

3. Fiberglass Insulated Pipe Applications

- Refer to appropriate system for insulation thicknesses, annular space, mineral wool and sealant application.

## Typical Penetration Firestops For Metal Pipe/Conduit, Insulated Cable and Fiberglass Insulated Pipe Through Fire Rated Constructions



## 7. Maintenance

3M Fire Barrier IC 15WB+ Sealant is stable under normal storage conditions and has a one year shelf life. Stock rotation is recommended. Store between 40°F (4°C) and 90°F (32°C) for maximum shelf life. Keep from freezing during storage.

## 8. Purchase Information

3M Fire Barrier IC 15WB+ Sealant is available from 3M Authorized Fire Protection Products Distributors. For information on where to buy, go to [www.3m.com/firestop](http://www.3m.com/firestop) or call (800) 328-1687.

## 9. Safe Handling Information

**Consult Material Safety Data Sheet prior to handling and disposing of 3M Fire Barrier IC 15WB+ Sealant.**

\*FGG/BM® System Compatible indicates this product has been tested and is monitored on an on going basis to assure chemical compatibility with FlowGuard Gold®, BlazeMaster®, and Corzan® pipe and fittings.

FGG/BM®, FlowGuard Gold®, BlazeMaster® and Corzan® are registered trademarks of Noveon IP Holdings Corp.

### Warranty and Limited Remedy

This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

### Limitation of Liability

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### **Building Safety Solutions Department**

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# Fire Barrier Water Tight Sealant 3000 WT



## Product Data

### 1. Product Description

3M Fire Barrier Water Tight Sealant 3000 WT is a premium, ready-to-use, single component, neutral cure, non-slumping, intumescent silicone sealant. The sealant cures upon exposure to atmospheric humidity to form a flexible seal.

3M Fire Barrier Water Tight Sealant 3000 WT is used to firestop openings and penetrations through fire rated floor slabs, walls, other building partitions and assemblies. 3M Fire Barrier Water Tight Sealant 3000 WT, when properly installed, will help control the spread of fire, smoke and noxious gases. 3M Fire Barrier Water Tight Sealant 3000 WT also meets the new UL Water Leakage Test, W Rating – Class 1 requirements for systems tested and listed in accordance with ANSI/UL 1479. Refer to [www.3M.com/firestop](http://www.3M.com/firestop) for listed and tested watertight systems.

### 2. Product Features

The 3M Fire Barrier Water Tight Sealant 3000 WT is flexible, weather resistant and intumescent. It also bonds to most construction materials and has the following features:

- Excellent Adhesion
- Re-enterable / Repairable
- Excellent Weatherability
- Cures Upon Exposure to Atmospheric Humidity
- Applied with Standard or Bulk Caulking Guns or

- Pneumatic Pumping Equipment
- Gray Color with Black Flecks
- Meets ASTM G21 for Fungi Resistance

### 3. Applications

Use 3M Fire Barrier Water Tight Sealant 3000 WT to firestop the following interior construction voids:

- Blank openings
- Metallic pipes
- Non-metallic pipes
- Cables
- Cable trays
- Insulated pipes
- Busways
- HVAC vents and ducts
- Combos
- Bottom of wall construction joints

The product will restore the integrity of the fire rated floor or wall assembly when installed in accordance with

the applicable listed system.

### 4. Specifications Product

The firestopping sealant is a premium, ready-to-use, single component, neutral cure, non-slumping, intumescent silicone sealant. The sealant shall be listed by independent test agencies such as UL, OPL or FM and be tested to and pass the criteria of ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Through-Penetration Fire Stops and ASTM E 1966 (UL 2079) Standard Test Method for Fire-Resistive Joint Systems. They shall comply with the requirements contained within the NEC (NFPA 70), BOCAI, ICBO, SBCCI, IBC, IFC, IRC, NFPA 101 and NFPA 5000.

### 5. Performance

#### A. Typical Physical Properties

As Supplied	3000 WT
MIL-S-8802 Flow, Sag or Slump	Nil
Working Time, Minutes	20-40
Color	Light Gray with Black Flecks
Full Cure and Adhesion at 77° F (25° C) Days	14-21
Specific Gravity	1.25

As Cured – After 21 Days at 77° F (25° C) and 50% R.H.	3000 WT
Expansion Volume	>6 times at 662° F (350° C)
Service Temperature Range ASTM C 1299	-14° F to 230° F (-10° C to 110° C)

#### B. Firestopping Properties

Meets the criteria of ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Through-Penetration Fire Stops and ASTM E 1966 (UL 2079) Standard Test Method for Fire-Resistive Joint Systems. Consult current independent test laboratories directories for listings.

## 6. Installation Techniques

Consult your Authorized 3M Fire Protection Products Distributor for current drawings and system details. Listed and tested Systems are also available on the 3M Fire Protection Products website – [www.3m.com/firestop](http://www.3m.com/firestop)

### Installation Notes:

- Do not use alcohol to clean surfaces in the penetration or joint opening. Alcohol can keep the sealant from curing properly. Recommended cleaning solvents are mineral spirits, xylene, toluene or methyl ethyl ketone (MEK).
- Clean surface of the opening and all penetrating items to allow proper adhesion of firestop materials. Remove all grease, dirt, oil, wax, loose debris, dust, etc.
- The 10.1 oz. tube must have the inner foil seal punctured after cutting the tip of the nozzle on the tube prior to use.
- Install the damming materials, as necessary, to meet the requirements of the appropriate system.
- Install the required depth of the 3M Fire Barrier Water Tight Sealant 3000 WT for the appropriate system and rating specified.
- Clean all tools after use with a commercial solvent such as, mineral spirits, xylene, toluene or methyl ethyl ketone (MEK).

## 7. Limitations

3M Fire Barrier Water Tight Sealant 3000 WT should not be applied to:

- Polycarbonates
- Building materials that bleed oils or solvents (e.g., impregnated wood, oil based caulks, green or partially vulcanized rubber)
- Unvented spaces where sealant is not exposed to atmospheric moisture
- Wet or frost coated surfaces
- In confined cure

conditions there may be discoloration of brass, copper or other sensitive metals

## 8. Maintenance

3M Fire Barrier Water Tight Sealant 3000 WT is stable under normal storage conditions. Shelf life is 12 months from the date of packaging when stored in a clean, dry area with temperatures between 40° F and 90° F (4° C and 32° C). Stock rotation is recommended.

## 9. Availability

3M Fire Barrier Water Tight Sealant 3000 WT is available from Authorized 3M Fire Protection Products Distributors.

### Packaging Information

Product	Unit	Volume (in. <sup>3</sup> )	Units/Ctn.	Wt./Ctn. Lbs.
Fire Barrier Water Tight Sealant 3000 WT	10.1 fl. oz. (298 ml)	18.2 (298 cm <sup>3</sup> )	12	12 (5.44 kg)
	4.5 gallons (17.0 L)	1040 (17042 cm <sup>3</sup> )	1	49 (22.2 kg)

## 10. Safe Handling Information

Consult the Material Safety Data Sheet prior to handling and disposing of the 3M Fire Barrier Water Tight Sealant 3000 WT.

**Warranty and Limited Remedy.** This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

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