3M™ Fire Barrier Rated Foam FIP 1-Step
Project Submittal

Project: Edit Here

Submitted By: Edit Here

Date: Edit Here

Comments: Edit Here

www.3M.com/firestop
firetech1@mmm.com
1-800-328-1687

CERTIFICATE OF COMPLIANCE

Certificate Number	20130802-R9700
Report Reference	R9700
Issue Date	2013-August-02

Issued to: 3M COMPANY 3M FIRE PROTECTION PRODUCTS
3M CENTER
ST PAUL, MN 55144

This is to certify that representative samples of Fill, Void or Cavity Materials

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

Standard(s) for Safety: ANSI/UL 1479, "Fire Tests of Through-Penetration Firestops," – Edition 3 – Revision Date 2012/10/29

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

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

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

Look for the UL Classification Mark on the product.

3M Fire Barrier Rated Foam, FIP 1-Step for use in Through-Penetration Firestop System Nos. C-AJ-0140, C-AJ-1628, C-AJ-1629, C-AJ-3321, C-AJ-4098, C-AJ-5347, C-AJ-8217, W-J-1231, W-J-1232, W-J-4073, W-L-1478, W-L-1479, W-L-4082.

William R. Carney, Director, North American Certification Programs

UL LLC

3M Fire Protection Products

Date: January 1, 2013

Subject: **GENERAL CERTIFICATE OF CONFORMANCE**
3M FIRE PROTECTION PRODUCTS

Product Category: Through Penetration Firestop Products

3M™ Fire Barrier Sealant CP 25WB+
3M™ Fire Barrier Sealant IC 15WB+
3M™ Fire Barrier Sealant FD 150+
3M™ Fire Barrier Composite Sheet CS-195+
3M™ Fire Barrier Wrap Strips FS-195+
3M™ Fire Barrier Ultra RC Pack
3M™ Fire Barrier RC-1 Restricting Collar
3M™ Ultra Fast Anchors
3M™ Fire Barrier Pass-Through Devices
3M™ FireDam™ Spray 100
3M™ FireDam™ Spray 200
3M™ Fire Barrier Wrap Ultra GS
3M™ Fire Barrier Silicone RTV Foam 2001
3M™ Fire Barrier Putty Sleeve Kits
3M™ Fire Barrier Packing Material PM4
3M™ Aluminum Foil Tape 425
3M™ Fire Barrier Tuck-In Wrap Strips
3M™ Fire Block Foam FB-Foam
3M™ Fire Barrier Water Tight Sealant 1000 NS
3M™ Fire Barrier Water Tight Sealant 1003 SL
3M™ Fire Barrier Water Tight Sealant 3000 WT
3M™ Fire Barrier Silicone Sealant 2000 NS
3M™ Fire Barrier Silicone Sealant 2000+
3M™ Fire Barrier Plastic Pipe Device (PPD)
3M™ Fire Barrier Ultra Plastic Pipe Device (UPPD)
3M™ Fire Barrier Moldable Putty+ Sticks (MP+)
3M™ Fire Barrier Moldable Putty+ Pads (MPP+)
3M™ Interam™ FireDam™ 150 Caulk
3M™ Fire Barrier Pillows
3M™ Fire Barrier Self-Locking Pillows
3M™ Fire Barrier Mortar
3M™ Fire Barrier Cast-In Devices & Accessories
3M™ Expantrol™ Flexible Intumescent Strip E-FIS
3M™ Fire Block Sealant FB 136
3M™ Marine Fire Wrap
3M™ Smoke and Sound Sealant SS 100

The above listed products are tested to one or more of the following standards:

- ASTM E 119 (ANSI/UL 263) Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E 814 (ANSI/UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems(under positive furnace pressure of minimum .01 inches of water column)
- ASTM E 84 (ANSI/UL 723) Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E 1966 (ANSI/UL 2079) Standard Test Method for Fire-Resistive 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

3M Fire Protection Products

- ASTM C 1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- ISO 6944-1985 Fire resistance tests -- Ventilation ducts
- ASTM C 1241 Standard Test Method for Volume Shrinkage of Latex Sealants During Cure
- CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems

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

Issued by:

Michael Dykhoff

_____
Quality Manager or Designee

Bill Feil

_____
Technical Manager, or Designee

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for user's particular purpose and suitable for user's method of application.

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 3M MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If a 3M product does not conform to this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price. Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted."

3M

Building and Commercial Services Division
St. Paul, MN 55144-1000
1-800-328-1687
www.3M.com/firestop

3M Fire Protection Products

Technical Broadcast

NO.: T13-010
Date: August 12, 2013
Issued by: Bill Feil

TITLE: **LEED® NC 2009 (NEW CONSTRUCTION AND MAJOR RENOVATIONS) CREDIT CONTRIBUTION AND / OR COMPLIANCE**
3M™ FIRE PROTECTION PRODUCTS

Indoor Environmental Quality (IEQ): IEQ Credit 4.1 Low-Emitting Materials - Adhesives and Sealants

IEQ 4.1 is a compliance credit. All 3M™ Fire Protection Products listed below comply with the intent of IEQ 4.1 with VOC contents of less than 250 g/L less water per SCAQMD Rule #1168.

- 3M™ Fire Barrier Sealant CP 25WB+
- 3M™ Fire Barrier Sealant IC 15WB+
- 3M™ Fire Barrier Sealant FD 150+
- 3M™ Fire Barrier Silicone Sealant 2000+
- 3M™ FireDam™ Spray 200
- 3M™ Fire Barrier Silicone RTV Foam 2001
- 3M™ Fire Barrier Mortar
- 3M™ Fire Block Foam FB-Foam
- 3M™ Fire Barrier Water Tight Sealant 1000 NS
- 3M™ Fire Barrier Water Tight Sealant 1003 SL
- 3M™ Fire Barrier Water Tight Sealant 3000 WT
- 3M™ Fire Barrier Silicone Sealant 2000 NS
- 3M™ Fire Barrier Moldable Putty+ Sticks (MP+)
- 3M™ Fire Barrier Moldable Putty+ Pads (MPP+)
- 3M™ Smoke and Sound Sealant SS 100
- 3M™ Fire Barrier Rated Foam FIP 1-Step

The VOC content for each product is listed in Section 9 of its MSDS. The remainder of the 3M™ Fire Protection Products are not covered by any of the product categories of IEQ subsections and do not need to comply with the intent of IEQ.

Materials and Resources (MR): MR Credit 4 Recycled Content

MR Credit 4 is a contribution credit. None of the 3M™ Fire Protection Products contain post-consumer or pre-consumer recycled content and therefore are not eligible to be included in the calculations for this contribution credit.

Materials and Resources (MR): MR Credit 5 Regional Materials

MR Credit 5 is a contribution credit. Only those products that have been **100% sourced and manufactured** within a 500 mile radius of the job site are eligible to be included in the calculations based on cost of the total materials value. Due to the complex formulas and sourcing strategy for 3M™ Fire Protection Products, none of our products can be included in the calculations for this contribution credit.

Materials and Resources (MR): MR Credit 6 Rapidly Renewable Materials

MR Credit 6 is a contribution credit. 3M™ Fire Protection Products do not meet the criteria for a rapidly renewable material and are not eligible to be included in the calculations for this contribution credit.

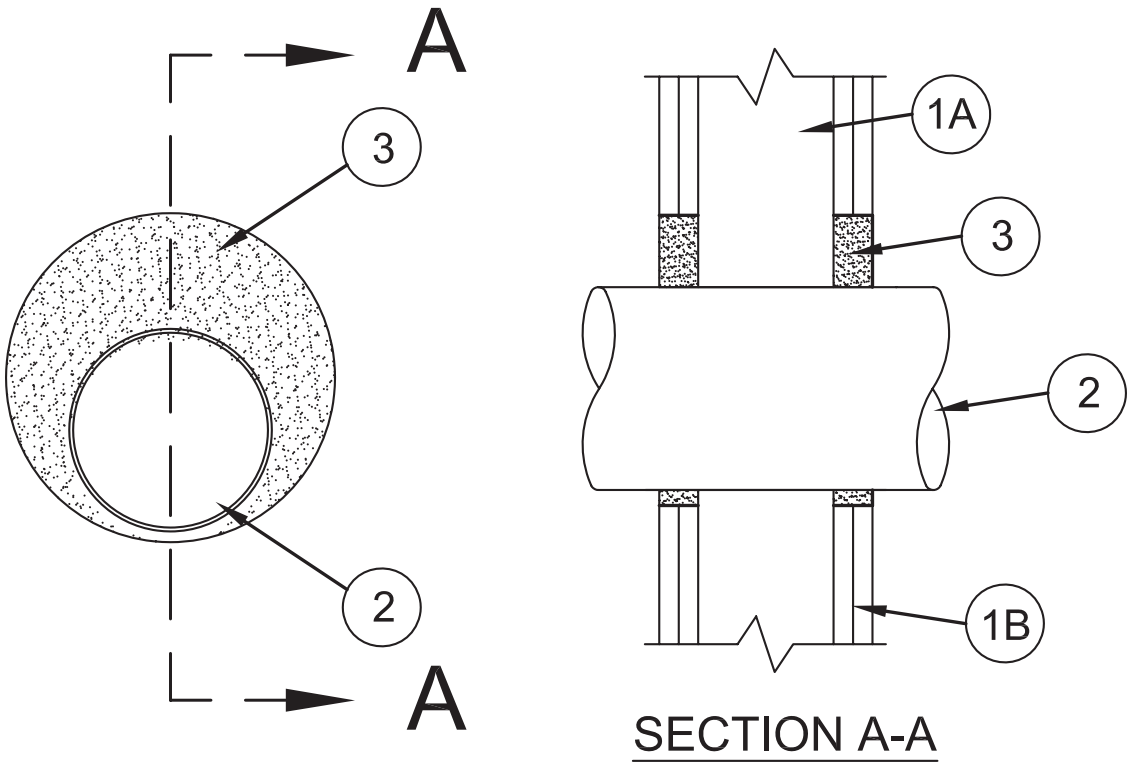
UL Systems

System No. W-L-1479

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/2 Hr
FH Ratings – 2 Hr
FTH Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



SECTION A-A

1. **Wall Assembly** – The 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** – Wall framing shall consist of min 3-1/2 in. (89 mm) wide steel studs spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board*** – Min two layers of 5/8 in. gypsum board attached to studs with fasteners, as specified in the individual U400, V400 or W400 Series design. Max diam of opening is 12-1/2 in. (318 mm).
2. **Through-Penetrant** – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 1/2 in. (13 mm) to max 3-3/8 in. (86 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
   D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. **Fill, Void or Cavity Material*** – **Foam** – Min 1-1/4 in. (32 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

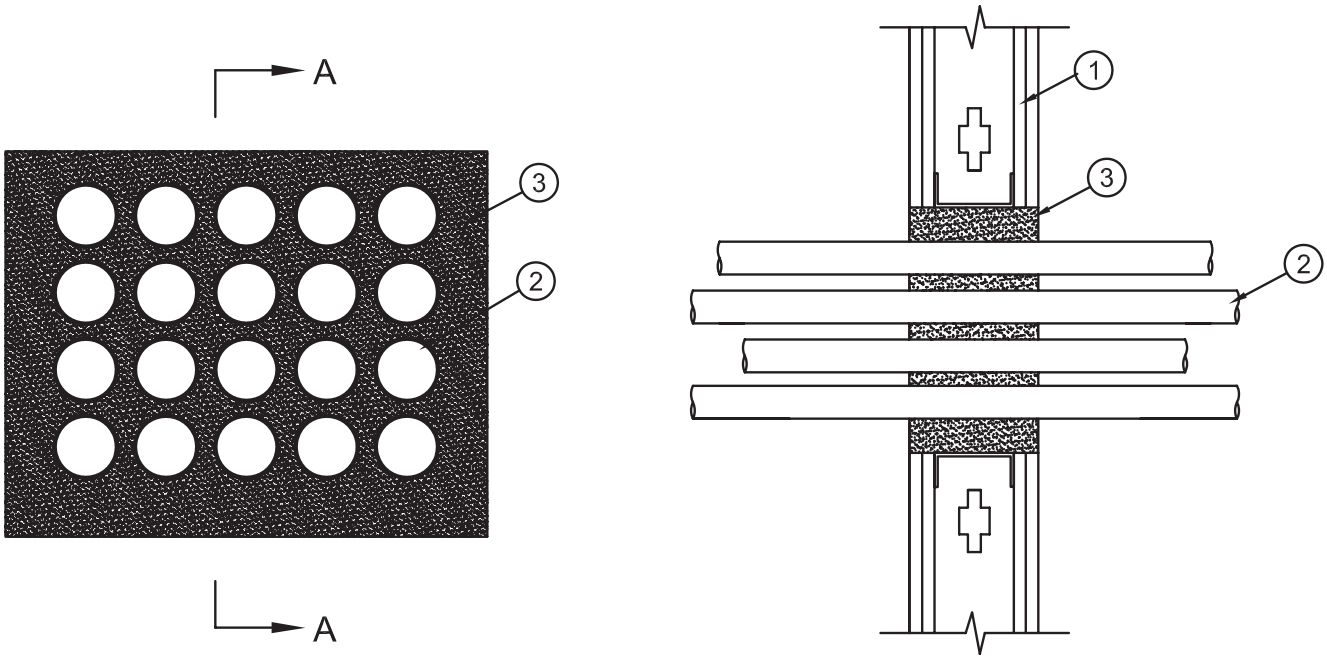
*Bearing the UL Classification Mark

System No. W-L-1478

August 20, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 1 and 2 Hr (See Item 1)
T Ratings – 0 and 3/4 Hr (See Item 1)

CAN/ULC S115
F Ratings – 1 and 2 Hr (See Item 1)
FT Ratings – 0 and 3/4 Hr (See Item 1)
FH Ratings – 1 and 2 Hr (See Item 1)
FTH Ratings – 0 and 3/4 Hr (See Item 1)



SECTION A-A

1. **Wall Assembly** – The 1 or 2 hr fire rated wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features.

   A. **Studs** – Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. Additional framing members shall be used to frame all sides of opening.

   B. **Gypsum Board*** – The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Max area of opening is 720 in^2 (4645 cm^2) with max dimension of 30 in. (762 mm).

   The hourly F and FH Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T, FT and FTH Rating of the firestop system is 3/4 hr for 2 hr rated walls and 0 hr for 1 hr rated walls.

2. **Through Penetrant** – One or more metallic penetrants to be installed within the opening. The annular space between penetrants shall be min 1 in. (25 mm) to max 2 in. (51 mm). The annular space between penetrants and periphery of opening shall be min 1 in. (25 mm) to max 3 in. (76 mm). Penetrants to be rigidly supported on both sides of wall assembly. The following types and sizes of penetrants may be used:

   A. **Conduit** – Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 4 in. (102 mm) diam (or smaller) steel conduit.

3. **Fill, Void or Cavity Material* – Foam** – Foam fill material shall be applied to completely fill the annular space between penetrants and between penetrants and periphery of wall opening to the full thickness of the wall.

   3M COMPANY 3M FIRE PROTECTION PRODUCTS – Fire Barrier Rated Foam, FIP 1-Step

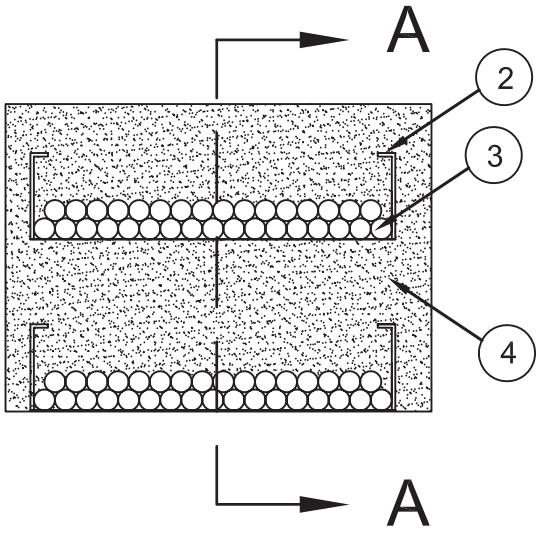
*Bearing the UL Classification Mark

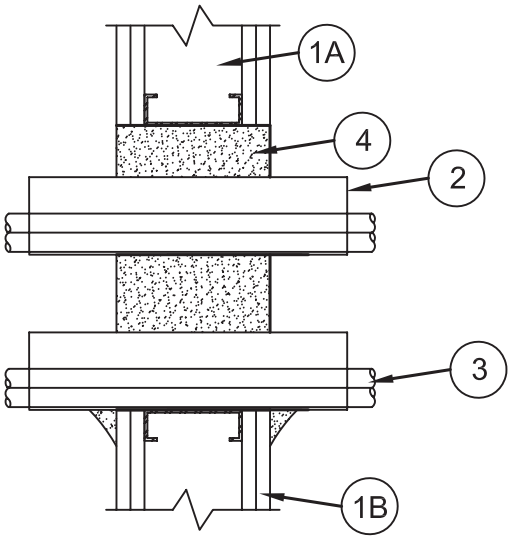
System No. W-L-4082

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/2 Hr
FH Ratings – 2 Hr
FTH Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft





SECTION A-A

1. **Wall Assembly** – The 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** – Wall framing shall consist of min 3-1/2 in. (89 mm) wide steel studs spaced max 24 in. (610 mm) OC. Opening is to be completely framed with additional studs.
   B. **Gypsum Board*** – Min two layers of 5/8 in. gypsum board attached to studs with fasteners, as specified in the individual U400, V400 or W400 Series design. The area of the opening shall be max 512 in.2 (3303 cm^2) with a max dimension of 32 in. (813 mm).
2. **Cable Tray*** – Max two 24 in. (610 mm) wide by max 6 in. (151 mm) deep open-ladder cable tray with channel-shaped side rails formed of 0.065 in. (1.651 mm) to 0.10 in. (2.54 mm) thick aluminum or min 0.060 in. (1.65 mm) thick galv steel. The annular space between the cable trays shall be min 2 in. (51 mm). The annular space between the cable tray and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. (51 mm). Cable tray to be rigidly supported on both sides of wall assembly.
3 **Cables** – Aggregate cross-sectional area of cables in cable tray to be max 45 percent of the cross-sectional area of the cable tray based on a max 5 in. (127 mm) cable loading depth within the cable tray. Any combination of the following types and sizes of copper conductor or fiber optic cables may be used:
   A. Max 200 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.
   B. Max 1/C No. 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.
   C. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.
   D. Max 3/C No. 4/0 AWG (or smaller) copper or aluminum conductor SER cables with PVC or XLPE insulation and jacket.
   E. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
   F. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.
   G. Max 3/C with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.
   H. RG/U coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.
   I. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.
   J. Max three conductor No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.
   K. **Through Penetrating Product*** – Any cables, **Armored Cable+** or **Metal Clad Cable+** currently Classified under the Through Penetrating Product category.See **Through Penetrating Product** (XHLY) category in the Fire Resistance Directory for names of manufacturers.
4. **Fill, Void or Cavity Material* – Foam** – Min 6 in. (152 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. Foam to be injected into the interstices between all cables. An additional 1/2 in. (13 mm) bead of foam shall be applied at the point contact locations.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

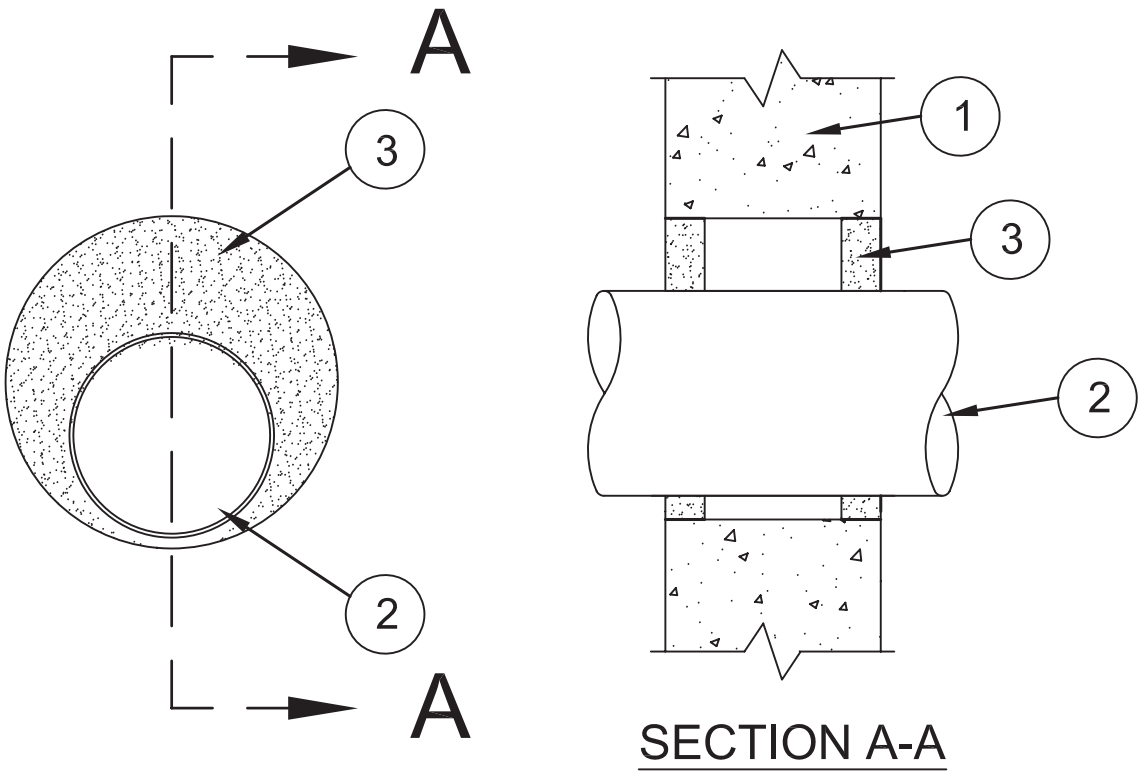
*Bearing the UL Classification Mark

System No. W-J-1232

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/2 Hr
FH Ratings – 2 Hr
FTH Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



SECTION A-A

1. **Wall Assembly** – Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m^3) concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 12-1/2 in. (318 mm).

   See **Concrete Blocks** (CAZT) in the Fire Resistance Directory for names of manufacturers.

2. **Through-Penetrant** – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 1/2 in. (13 mm) to max 3-3/8 in. (86 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

   A. **Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

   B. **Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

   C. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

   D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.

   E. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Fill, Void or Cavity Material* – Foam** – Min 1-1/4 in. (32 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

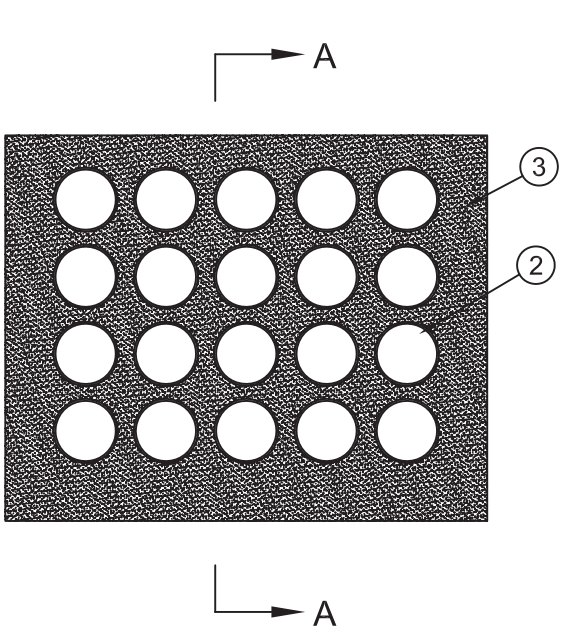
*Bearing the UL Classification Mark

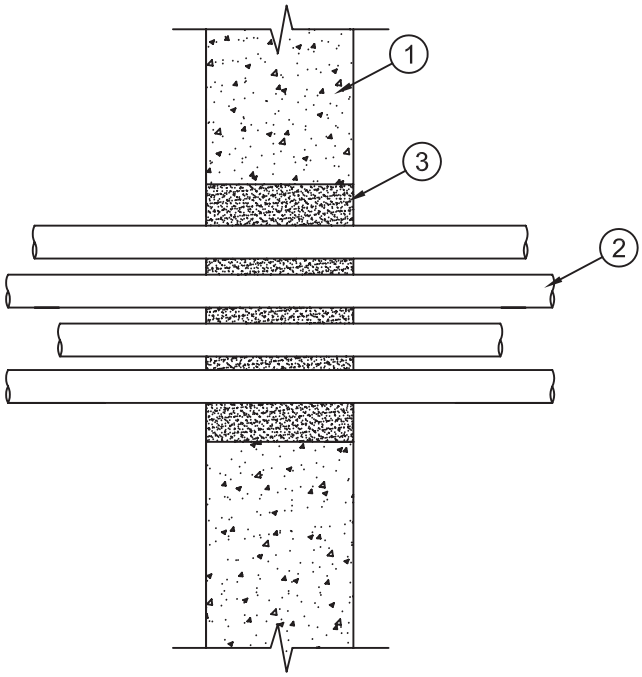
System No. W-J-1231

August 20, 2013

ANSI/UL1479 (ASTM E814)
F Rating – 2 Hr
T Rating – 3/4 Hr

CAN/ULC S115
F Rating – 2 Hr
FT Rating – 3/4 Hr
FH Rating – 2 Hr
FTH Rating – 3/4 Hr





SECTION A-A

1. **Wall Assembly** – Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m3) concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening is 720 in^2 (4645 cm^2) with max dimension of 30 in. (762 mm).

   See **Concrete Blocks** (CAZT) in the Fire Resistance Directory for names of manufacturers.

2. **Through Penetrant** – One or more metallic penetrants to be installed within the opening. The annular space between penetrants shall be min 1 in. (25 mm) to max 2 in. (51 mm). The annular space between penetrants and periphery of opening shall be min 1 in. (25 mm) to max 3 in. (76 mm). Penetrants to be rigidly supported on both sides of wall assembly. The following types and sizes of penetrants may be used:

   A. **Conduit** – Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 4 in. (102 mm) diam (or smaller) steel conduit.

3. **Fill, Void or Cavity Material* – Foam** – Foam fill material shall be applied to completely fill the annular space between penetrants and between penetrants and periphery of wall opening to the full thickness of the wall.

   3M COMPANY 3M FIRE PROTECTION PRODUCTS – Fire Barrier Rated Foam, FIP 1-Step

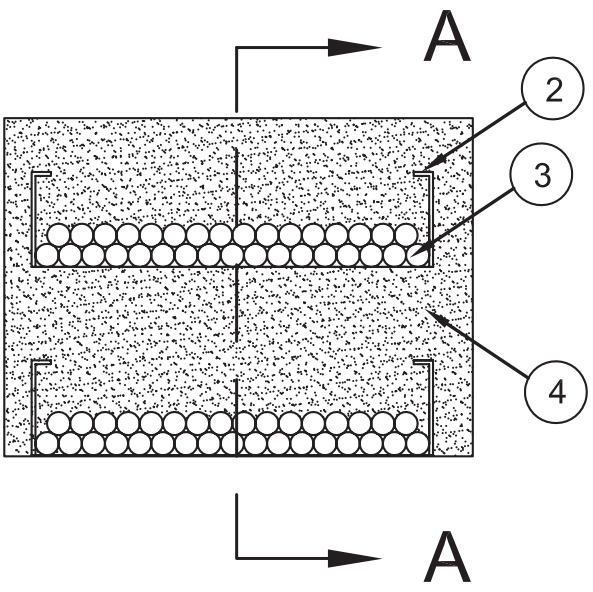
*Bearing the UL Classification Mark

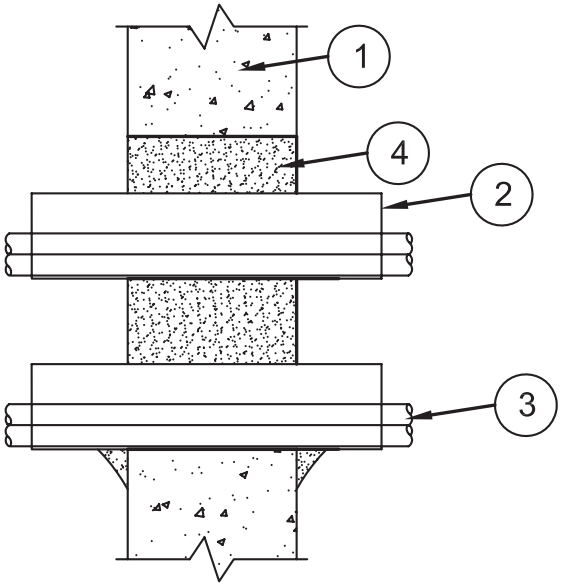
System No. W-J-4073

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/2 Hr
FH Ratings – 2 Hr
FTH Rating – 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft





SECTION A-A

1. **Wall Assembly** – Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m^3) concrete wall. The area of the opening shall be max 512 in.2 (3303 cm2) with a max dimension of 32 in. (813 mm).
2. **Cable Tray*** – Max two 24 in. (610 mm) wide by max 6 in. (151 mm) deep open-ladder cable tray with channel-shaped side rails formed of 0.065 in. (1.651 mm) to 0.10 in. (2.54 mm) thick aluminum or min 0.060 in. (1.65 mm) thick galv steel. The annular space between the cable trays shall be min 2 in. (51 mm). The annular space between the cable tray and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. (51 mm). Cable tray to be rigidly supported on both sides of wall assembly.
3. **Cables** – Aggregate cross-sectional area of cables in cable tray to be max 45 percent of the cross-sectional area of the cable tray based on a max 5 in. (127 mm) cable loading depth within the cable tray. Any combination of the following types and sizes of copper conductor or fiber optic cables may be used:
   A. Max 200 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.
   B. Max 1/C No. 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.
   C. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.
   D. Max 3/C No. 4/0 AWG (or smaller) copper or aluminum conductor SER cables with PVC or XLPE insulation and jacket.
   E. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
   F. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.
   G. Max 3/C with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.
   H. RG/U coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.
   I. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.
   J. Max three conductor No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.
   K. **Through Penetrating Product*** – Any cables, **Armored Cable+** or **Metal Clad Cable+** currently Classified under the Through Penetrating Product category.See **Through Penetrating Product** (XHLY) category in the Fire Resistance Directory for names of manufacturers.
4. **Fill, Void or Cavity Material* – Foam** – Min 6 in. (152 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. Foam to be injected into the interstices between all cables. An additional 1/2 in. (13 mm) bead of foam shall be applied at the point contact locations.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

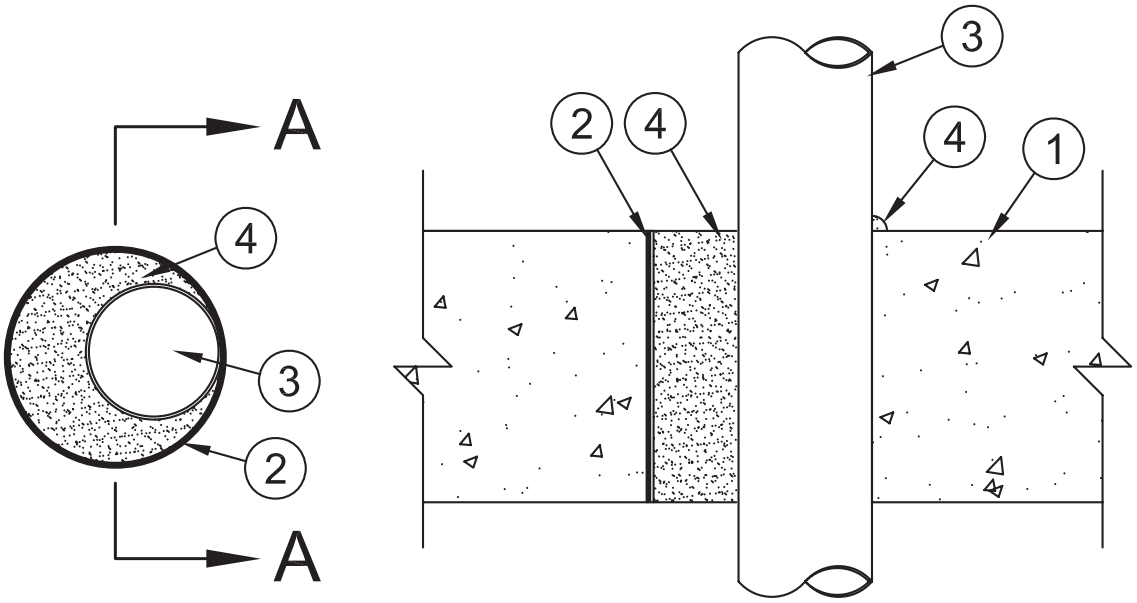
*Bearing the UL Classification Mark

System No. C-AJ-1629

July 29, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/4 Hr
FH Ratings – 2 Hr
FTH Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



SECTION A-A

1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Max diam of opening is 12-1/2 in. (318 mm).
2. **Steel Sleeve** – Optional, nom 12-1/2 in. (318 mm) diam (or smaller) cylindrical sleeve fabricated from min 0.034 in. (0.86 mm) thick (22 gauge or heavier) galv sheet steel and having a min 2 in. (51 mm) lap along the longitudinal seam, cast or grouted into opening. Length of steel sleeve to be equal to thickness of floor or wall, installed flush with both surfaces of floor or wall assembly. As an option, the sleeve may extend up to 2 in. above the top surface of floor.
3. **Through-Penetrant** – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 1/2 in. (13 mm) to max 3-3/8 in. (86 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
   D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
4. **Fill, Void or Cavity Material* – Foam** – Min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus flush with top surface of floor both surfaces of wall.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

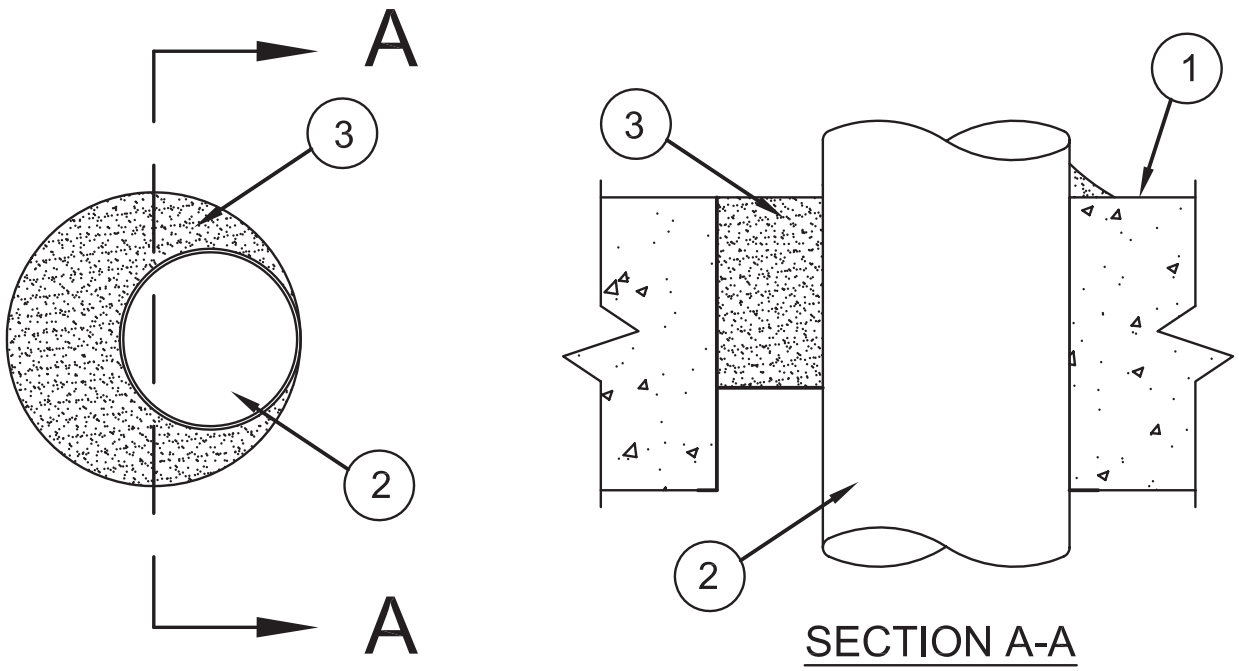
*Bearing the UL Classification Mark

System No. C-AJ-1628

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/4 Hr
FH Ratings – 2 Hr
FTH Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Max diam of opening is 12-1/2 in. (318 mm).
2. **Through-Penetrant** – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 1/2 in. (13 mm) to max 3-3/8 in. (86 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
   D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. **Fill, Void or Cavity Material*** – **Foam** – Min 1-1/2 in. (38 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

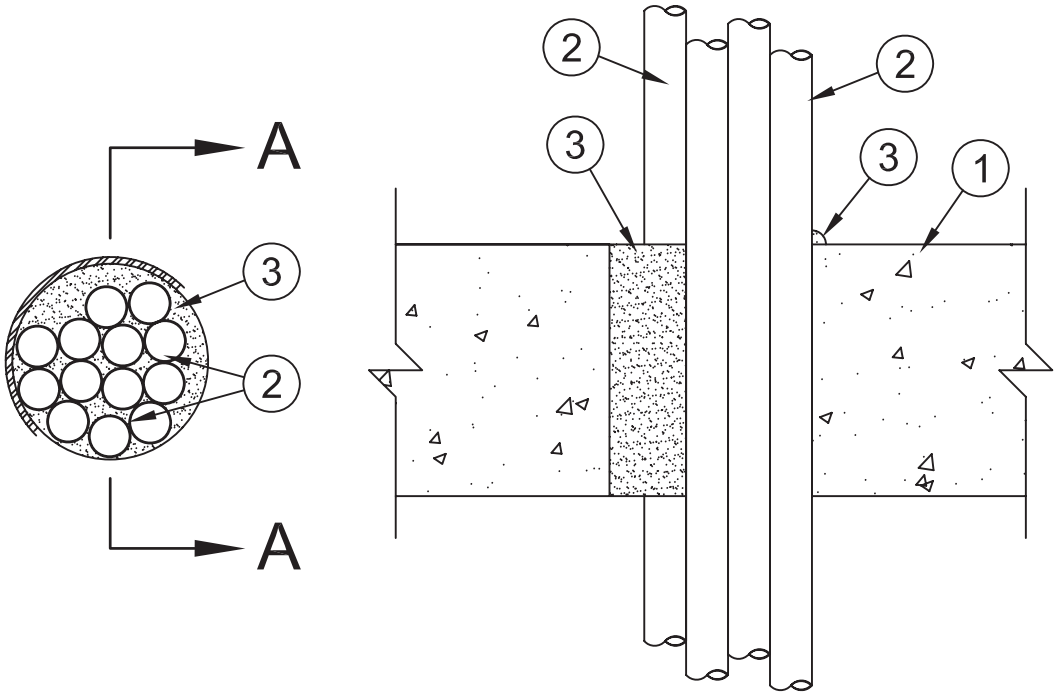
*Bearing the UL Classification Mark

System No. C-AJ-3321

July 29, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/4 Hr
FH Ratings – 2 Hr
FTH Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



SECTION A-A

1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Max diam of opening is 6 in. (152 mm).
2. **Cables** – Aggregate cross-sectional area of cables to be max 65 percent of the cross-sectional area of the opening. The annular space between cables and between cables and periphery of opening shall be min of 0 in. (point contact) to max 2 in. (51 mm). Any combination of the following types and sizes of cables may be used:
   A. Max 200 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.
   B. Max 1/C No. 750 kcmil (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) jacket.
   C. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.
   D. Max 3/C No. 4/0 AWG (or smaller) copper or aluminum conductor SER cables with PVC or XLPE insulation and jacket.
   E. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
   F. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.
   G. Max 3/C with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.
   H. RG/U coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.
   I. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.
   J. Max three conductor No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.
   K. **Through Penetrating Product*** – Any cables, **Armored Cable+** or **Metal Clad Cable+** currently Classified under the **Through Penetrating Product** category.

   See **Through Penetrating Product** (XHLY) category in the Fire Resistance Directory for names of manufacturers.
3. **Fill, Void or Cavity Material* – Foam** – Min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. Foam to be injected into the interstices between all cables. An additional 1/2 in. (13 mm) bead of foam shall be applied at the point contact locations.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

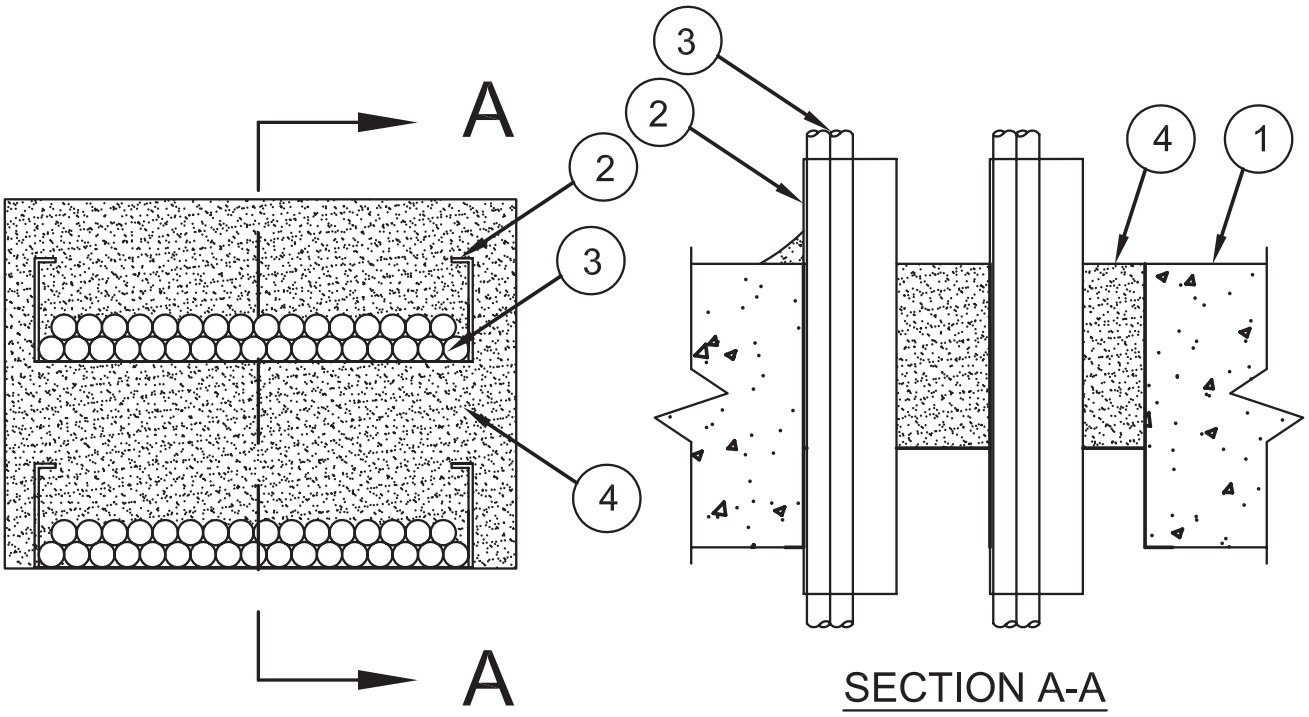
*Bearing the UL Classification Mark

System No. C-AJ-4098

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/4 Hr
FH Ratings – 2 Hr
FTH Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. The area of the opening shall be max 512 in.2 (3303 cm2) with a max dimension of 32 in. (813 mm).
2. **Cable Tray*** – Max two 24 in. (610 mm) wide by max 6 in. (151 mm) deep open-ladder cable tray with channel-shaped side rails formed of 0.065 in. (1.651 mm) to 0.10 in. (2.54 mm) thick aluminum or min 0.060 in. (1.65 mm) thick galv steel. The annular space between the cable trays shall be min 2 in. (51 mm). The annular space between the cable tray and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. (51 mm). Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. **Cables** – Aggregate cross-sectional area of cables in cable tray to be max 45 percent of the cross-sectional area of the cable tray based on a max 5 in. (127 mm) cable loading depth within the cable tray. Any combination of the following types and sizes of copper conductor or fiber optic cables may be used:
   A. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and PVC jacket.
   B. Max 300 pair - No. 24 AWG cable with PVC insulation and jacket.
   C. 1/C, max 500 kcmil with cross-linked polyethylene (XLPE) insulation and jacket.
4. **Fill, Void or Cavity Material* – Foam** – Min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. Foam to be injected into the interstices between all cables. An additional 1/2 in. (13 mm) bead of foam shall be applied at the point contact locations.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

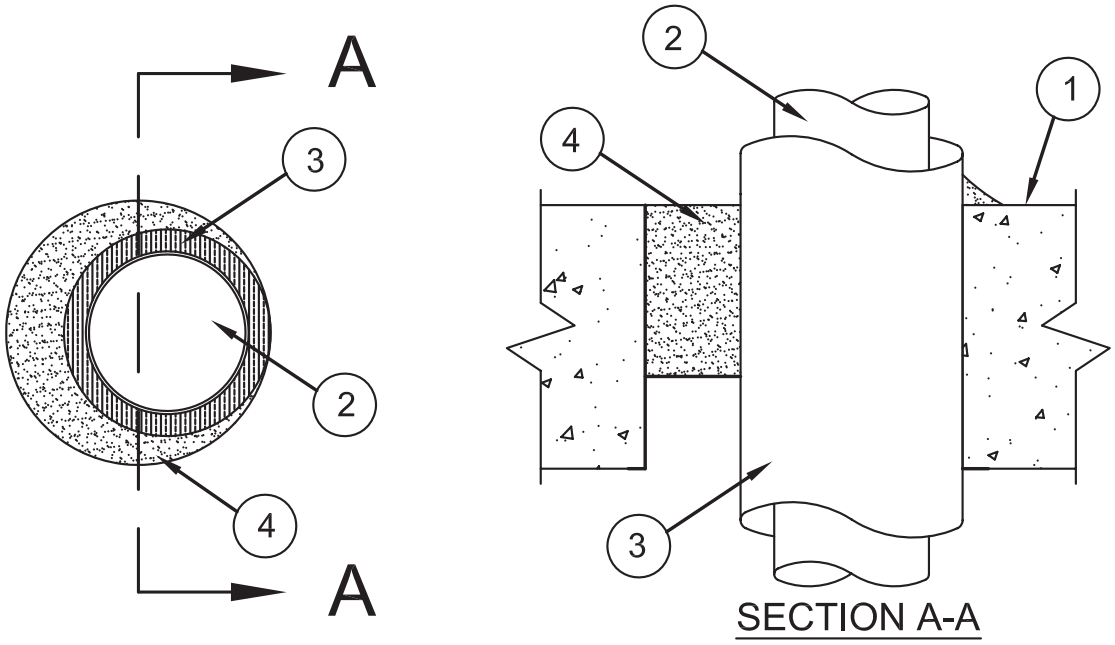
*Bearing the UL Classification Mark

System No. C-AJ-5347

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 3/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 3/4 Hr
FH Ratings – 2 Hr
FTH Rating – 3/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Max diam of opening is 12-1/2 in. (318 mm).
2. **Through-Penetrant** – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** – Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** – Nom 8 in. (203 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
   D. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. **Pipe and Equipment Covering Materials*** – Nom 1 in. (25 mm) thick hollow cylindrical heavy density (nom 3.5 pcf or 56 kg/m^3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or butt tape supplied with the product. Annular space between the insulated through penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm).

   See **Pipe and Equipment Covering Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
4. **Fill, Void or Cavity Material* – Foam** – Min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

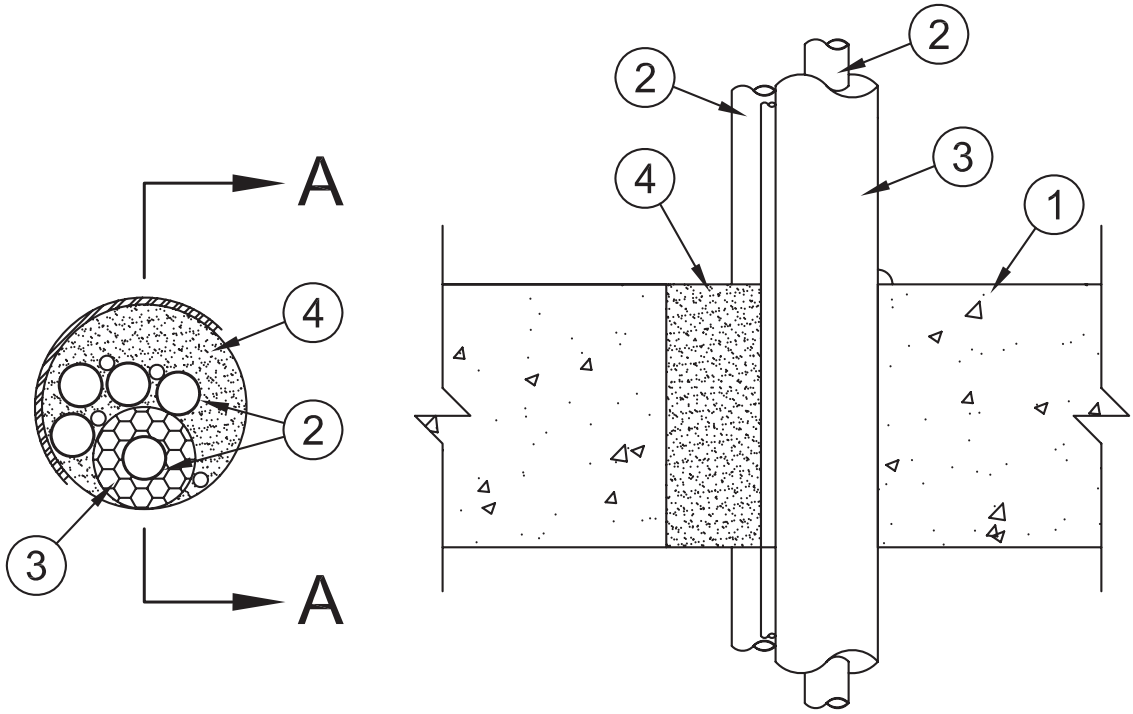
*Bearing the UL Classification Mark

System No. C-AJ-8217

July 29, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 1/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 1/4 Hr
FH Ratings – 2 Hr
FTH Rating – 3/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Max diam of opening 6 in. (152 mm).
2. **Through Penetrants** – A max of five pipes, conduits or tubes and a max of four cables to be installed within the opening. Annular space between the penetrants and the periphery of the opening shall be min 0 in. (point contact) to max 3-1/4 in. (83 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:
   A. **Metallic Pipes** – A max of four metallic pipes, conduits or tubing may be used. The following types and sizes may be used:
   A1. **Steel Pipe** – Nom 1 in. (25 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   A2. **Conduit** – Nom 1 in. (25 mm) diam (or smaller) electrical metallic tubing or rigid steel conduit.
   A3. **Copper Tubing** – Nom 1 in. (25 mm) diam (or smaller) Type L (or heavier) copper tubing.
   A4. **Copper Pipe** – Nom 1 in. (25 mm) diam (or smaller) Regular (or heavier) copper pipe.
   B. **Nonmetallic Pipes** – A max of one nonmetallic pipe or conduit may be used. The following types and sizes of nonmetallic pipes or conduits may be used:
   B1. **Polyvinyl Chloride (PVC) Pipe** – Nom 1 in. (25 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B2. **Rigid Nonmetallic Conduit+** – Nom 1 in. (25 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70.)
   C. **Cables** – A max of four cables may be used. Max 4/C No. 18 AWG (or smaller) thermostat cables.
3. **Tube Insulation** – **Plastics++** – Nom 1/2 in. (13 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.

   See **Plastics** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.
4. F**ill, Void or Cavity Material*** – **Foam** – Min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

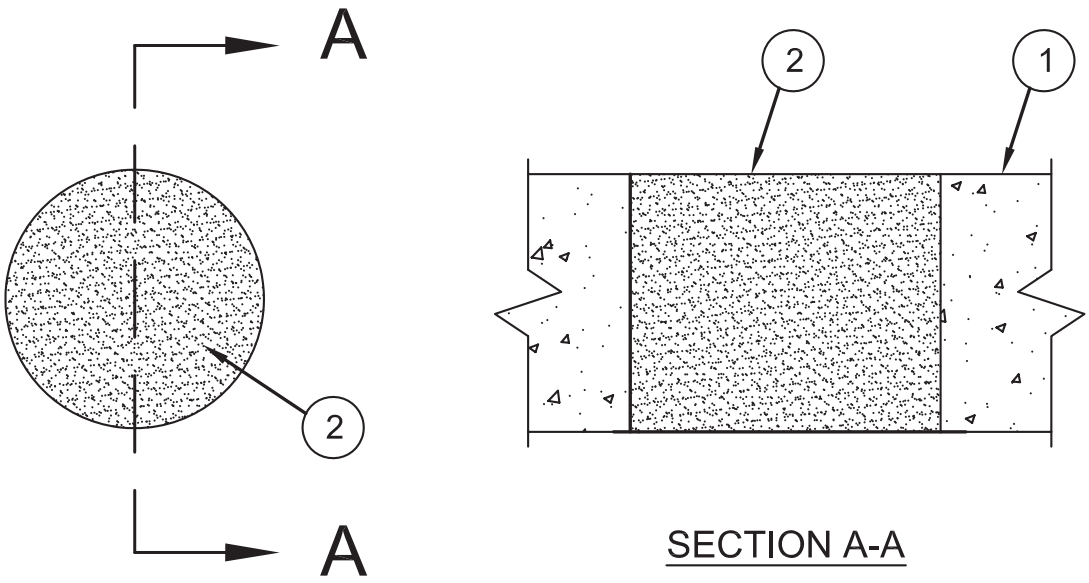
*Bearing the UL Classification Mark
+Bearing the UL Listing Mark
++Bearing the UL Recognized Component Mark

System No. C-AJ-0140

August 01, 2013

ANSI/UL1479 (ASTM E814)
F Ratings – 2 Hr
T Rating – 3/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft

CAN/ULC S115
F Ratings – 2 Hr
FT Rating – 3/4 Hr
FH Ratings – 2 Hr
FTH Rating – 3/4 Hr
L Rating at Ambient - Less than 1 CFM/sq ft
L Rating at 400 F - Less than 1 CFM/sq ft



SECTION A-A

1. **Floor or Wall Assembly** – Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Max diam of opening is 8 in. (203 mm).
2. **Fill, Void or Cavity Material*** – **Foam** – Min 2-1/2 in. (64 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall.

   3M COMPANY – Fire Barrier Rated Foam, FIP 1-Step

*Bearing the UL Classification Mark

DATA
&
MSDS

3M™ Fire Barrier Rated Foam FIP 1-Step

Product Data Sheet

FILL, VOID OR CAVITY MATERIAL FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS SEE UL FIRE RESISTANCE DIRECTORY 50L6

FILL, VOID OR CAVITY MATERIAL

SOUND BARRIER
STC 57
In STC 57-rated wall assembly

SMOKE SEAL
L RATED
Meets Air Leakage Requirements

1. Product Description

3M™ Fire Barrier Rated Foam (FIP 1-Step), is a smoke, sound, and firestopping foam for wall and floor penetrations. Premium two-part, easy-to-handle formulation. Expands up to five times during installation and bonds to most construction substrates including, but not limited to, concrete, metal, wood, plastic and cable jacketing. Dries to a flexible solid. During a fire, product maintains a tight firestop against smoke and flame.

ATTENTION: CODE OFFICIALS

FIP 1-Step

- ☑ Is a Rated Firestop Foam
- ☑ Is UL Listed
- ☑ Meets ASTM E 814
- ☑ Meets the International Building Code for passive fire protection

- Re-enterable / repairable
- Sag-resistant formulation
- Excellent adhesion
- Paintable with primer
- Quick cure & eliminates the need for mineral wool and caulk

2. Applications

Typical applications include: blank openings, metal pipe, cables, cable tray, insulated pipe, combination penetrations through concrete floor/wall and gypsum wall board assemblies.

3. Specifications

FIP 1-Step shall be a two-component, ready-to-use, gun-grade, firestopping foam. FIP 1-Step shall be tested to the criteria of ASTM E 814 / UL 1479 Standard Test Method for Fire Tests of Penetration Firestop Systems, ASTM E 84 / UL 723 Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements, and ASTM E 413 Classification for Rating Sound Insulation. FIP 1-Step shall meet the requirements of the IBC, IRC, IFC, IPC, IMC, NFPA 5000, NEC (NFPA 70), NFPA 101 and NBCC.

Typically Specified Divisions
Division 7
Section 07 84 00 - Firestopping
Section 07 27 00 - Air Barriers

Related Sections
Section 07 86 00 - Smoke Seals
Section 07 87 00 - Smoke Containment Barriers
Section 21 00 00 - Fire Suppression
Section 22 00 00 - Plumbing
Section 26 00 00 - Electrical

4. Storage & Shelf Life

Storage

FIP 1-Step should be stored indoors in dry conditions between 40°F and 85°F (5°C and 30°C). Avoid freeze / thaw exposures of the FIP 1-Step while still in the packaging. If product freezes, then product must be fully thawed and brought to ideal application temperature prior to use (See Section 5).

Shelf Life

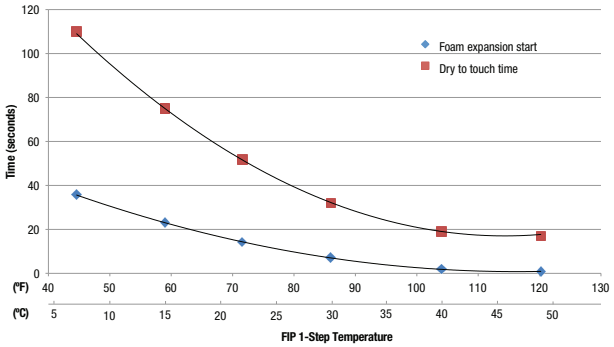
FIP 1-Step shelf life is 12 months in original unopened containers from date of packaging when stored above 68°F (20°C) and below 90°F (32.2°C).

Lot numbering: First to fourth digit = Date of Production (YYMM)
Fifth digit = 4 (Production Code)
Sixth and Seventh digit = (Batch #)
(***Note: Expiration Date marked on cartridge)

5. Performance & Typical Physical Properties

Colors Available:	Maroon
Application Temperature Range:	50° to 120°F (10° to 49°C)
Surface Burning (ASTM E 84)**:**	Flame Spread 10 Smoke Development 50
STC Acoustic Barrier (ASTM E 90 and ASTM E 413)**:**	57 when tested in STC 57 rated wall assembly
Unit Volume:	12.85 fl. oz. cartridge (380 mL)
VOC Less H2O and Exempt Solvents:	<250 g/L
Cure: Foam becomes tack-free in about one minute. Full cure depends upon ambient conditions and volume of foam. Typical cure at 75°F (24°C) is approximately 2 minutes.	
Air Leakage (UL 1479 Section 6)**:**	<1 CFM/Sq Ft
Yield:	Up to 116 cubic inches
Leed: Meets the intent of LEED VOC regulations. <250 g/L VOC contents (less H2O and exempt solvents).	

Foam Expansion Start Time / Dry to Touch Time at various FIP 1-Step temperatures



**Note: Expansion Start Time and Dry to Touch Times are NOT dependent on ambient air temperature. Expansion Start Time and Dry to Touch Times are dependent on FIP 1-Step temperature.*

6. Installation Techniques

Consult a 3M Authorized Fire Protection Products Distributor or Sales Representative for applicable drawings and details.

Preparatory Work The surface of the opening and any penetrating items should be cleaned to allow for the proper adhesion of the 3M™ Fire Barrier Rated Foam (FIP 1-Step). Ensure that the surface of the substrates are not wet and are free from dust, debris and frost. Foam can be installed with either the manual or battery powered dispenser.

Installation Details Install the applicable depth of the FIP 1-Step as detailed within the applicable 3M UL listed system. Please reference FIP 1-Step Installation Guide for further installation details. The FIP 1-Step may be trimmed after installation to be flush with the surface of the substrate. Clean all tools immediately after use with water if needed.

Limitations Do not apply FIP 1-Step when the cartridge temperature is less than 50°F (10°C), damage may occur to cartridge or dispensing equipment. Do not apply FIP 1-Step to building materials that bleed oil, plasticizers or solvent (e.g. impregnated wood, oil-based sealants, or green or partially-vulcanized rubber). Do not apply FIP 1-Step to wet or frost-coated surfaces or areas that are continuously damp or immersed in water. This product is not acceptable for use with chlorinated polyvinylchloride (CPVC) pipes.

7. Maintenance

No maintenance is expected when installed in accordance with manufacturer's installation guidelines. Once installed, if any section of the FIP 1-Step is damaged, the following procedure will apply: remove and reinstall the damaged section in accordance with the applicable FIP 1-Step UL Listed system.

8. Availability

FIP 1-Step is available in 12.85 fl. oz. cartridges. For additional technical and purchasing information regarding this and other 3M™ Fire Protection Products, please call: 1-800-328-1687 or visit www.3M.com/firestop.

9. Safe Handling Information

Consult product's Material Safety Data Sheet (MSDS) prior to handling and disposal.

Building and Commercial Services Division
3M Center, Building 223-2N-21
St. Paul, MN 55144-1000 USA
1-800-328-1687
www.3M.com/firestop
Printed in the U.S.A. Please Recycle.

98-0213-4666-7

Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M(TM) Fire Barrier Rated Foam, FIP 1-Step Part A
MANUFACTURER: 3M
DIVISION: Building & Commercial Services Division

ADDRESS: 3M Center, St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: %%status_updt_status_changed_date%%
Supercedes Date: %%status_updt_supercedes_date%%Initial Issue

Document Group: 31-5458-0

Product Use:
Intended Use: Passive Fire Protection

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
Polymer NJTSRN 04499600-6935	Trade Secret	30 - 60
Non-Halogen Flame Retardant NJTSRN 04499600-6939	Trade Secret	10 - 30
Phosphate NJTSRN 04499600-6938	Trade Secret	10 - 30
Wax NJTSRN 04499600-6936	Trade Secret	1 - 10
Smoke Suppressant NJTSRN 04499600-6941	Trade Secret	1 - 10
Siloxanes NJTSRN 04499600-6937	Trade Secret	< 5
Catalyst NJTSRN 04499600-6940	Trade Secret	< 5
Water	7732-18-5	< 5

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Odor, Color, Grade: Red-brown with earthy odor
General Physical Form: Liquid
Immediate health, physical, and environmental hazards:

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
Mild Eye Irritation: Signs/symptoms may include redness, pain, and tearing.

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.

Inhalation:
Vapors released during curing may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: If signs/symptoms develop, remove person to fresh air. If signs/symptoms persist, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Flash Point	No flash point

5.2 EXTINGUISHING MEDIA
Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Water may be used to blanket the fire. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are anticipated.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Avoid contact with water.

6.2. Environmental precautions
For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

Clean-up methods
Observe precautions from other sections. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and MSDS.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
Avoid breathing of vapors, mists or spray. Avoid eye contact with vapors, mists, or spray. Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Avoid breathing of dust created by cutting, sanding, grinding or machining. Avoid contact with water. Avoid contact with oxidizing agents. Keep out of the reach of children.

7.2 STORAGE

Store away from heat. Store out of direct sunlight. Store away from acids. Store away from oxidizing agents. Store away from strong bases.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use in a well-ventilated area. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control mist, vapor, or spray. If ventilation is not adequate, use respiratory protection equipment.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact with vapors, mists, or spray.
The following eye protection(s) are recommended: Safety Glasses with side shields
Indirect Vented Goggles
.

8.2.2 Skin Protection

Avoid skin contact.

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.
Gloves made from the following material(s) are recommended: Butyl Rubber
Nitrile Rubber
Polymer laminate
.

8.2.3 Respiratory Protection

Avoid breathing of vapors, mists or spray. Avoid breathing of vapors created during cure cycle. Avoid breathing of dust created by cutting, sanding, grinding or machining.
An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

Ingredient	Authority	Type	Limit	Additional Information
Aluminum, insoluble compounds	ACGIH	TWA, respirable fraction	1 mg/m3	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade:	Red-brown with earthy odor
General Physical Form:	Liquid
Flash Point	No flash point
Specific Gravity	1.3
pH	6 - 8 [@ 20]
Solubility in Water	Negligible
Volatile Organic Compounds	< 1
VOC Less H2O & Exempt Solvents	< 10 g/l
Viscosity	250 - 350 MPa-s

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid:
10.1 Conditions to avoid
Heat

10.2 Materials to avoid
Alcohols
Amines
Strong acids
Strong bases
Strong oxidizing agents
Water

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	Not Specified
Carbon dioxide	Not Specified
Ammonia	Not Specified

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Cure (harden, set, or react) the product according to product instructions.
Dispose of completely cured (or polymerized) wastes in a sanitary landfill.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
Contact 3M for more information.

INTERNATIONAL REGULATIONS
Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

No revision information is available.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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3M USA MSDSs are available at www.3M.com

Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M(TM) Fire Barrier Rated Foam, FIP 1-Step Part B
MANUFACTURER: 3M
DIVISION: Building & Commercial Services Division

ADDRESS: 3M Center, St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: %%status_updt_status_changed_date%%
Supercedes Date: %%status_updt_supercedes_date%%Initial Issue

Document Group: 31-5236-0

Product Use:
Intended Use: Passive Fire Protection

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
POLYMETHYLENE POLYPHENYLENE ISOCYANATE	9016-87-9	60 - 100 (typically 100)

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Odor, Color, Grade: Brown with earthy odor
General Physical Form: Liquid
Immediate health, physical, and environmental hazards: Hazardous polymerization may occur. May cause severe eye irritation. May cause severe skin irritation. May cause allergic skin reaction. May cause allergic respiratory reaction. May cause target organ effects.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Skin Contact:
Severe Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Inhalation:
May be harmful if inhaled.

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

Prolonged or repeated exposure may cause:

Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Target Organ Effects:
Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Skin Contact: Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	*No Data Available*
Flash Point	>=220 ºC [*Test Method:* Closed Cup]

5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Water may be used to blanket the fire. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Closed containers exposed to heat from fire may build pressure and explode.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Avoid contact with water. Remember, adding an absorbent material does not remove a toxic, corrosivity or flammability hazard.

6.2. Environmental precautions

For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Place in a metal container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

Clean-up methods

Pour isocyanate decontaminant solution (90% water, 8% concentrated ammonia, 2% detergent) on spill and allow to react for 10 minutes. Or pour water on spill and allow to react for more than 30 minutes. Cover with absorbent material. Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Call 3M-HELPS line (1-800-364-3577) for more information on handling and managing the spill. Contain spill.

Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and MSDS.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not breathe vapors. Do not get on skin or on clothing. Avoid eye contact with vapors, mists, or spray. Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Avoid breathing of vapors created during cure cycle. Avoid breathing of dust created by cutting, sanding, grinding or machining. Avoid contact with water.

7.2 STORAGE

Store away from heat. Store out of direct sunlight. Store away from acids. Store away from strong bases.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Do not use in a confined area or areas with little or no air movement. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control mist, vapor, or spray. If ventilation is not adequate, use respiratory protection equipment.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact with vapors, mists, or spray.
The following eye protection(s) are recommended: Indirect Vented Goggles
.

8.2.2 Skin Protection

Do not get on skin or on clothing.

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.
Gloves made from the following material(s) are recommended: Butyl Rubber
Nitrile Rubber
Polymer laminate
. The following protective clothing material(s) are recommended: Apron - polymer laminate
.

8.2.3 Respiratory Protection

Do not breathe vapors. Avoid breathing of vapors created during cure cycle. Avoid breathing of dust created by cutting, sanding, grinding or machining.
An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce

inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

8.2.4 Prevention of Swallowing
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

Ingredient	Authority	Type	Limit	Additional Information
Benzene, 1,1'-methylenebis[4-isocyanato-	ACGIH	TWA	0.005 ppm	
Benzene, 1,1'-methylenebis[4-isocyanato-	OSHA	CEIL	0.2 mg/m3	
FREE ISOCYANATES	Manufacturer determined	TWA	0.005 ppm	
FREE ISOCYANATES	Manufacturer determined	STEL	0.02 ppm	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade:	Brown with earthy odor
General Physical Form:	Liquid
Autoignition temperature	*No Data Available*
Flash Point	>=220 ºC [*Test Method:* Closed Cup]
Boiling Point	330 ºC
Specific Gravity	1.22 [*Ref Std:* WATER=1]
pH	*Not Applicable*
Solubility in Water	Negligible
Volatile Organic Compounds	< 1 % weight
VOC Less H2O & Exempt Solvents	< 1 g/l

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid:
10.1 Conditions to avoid
Heat

10.2 Materials to avoid

Alcohols
Amines
Strong acids
Strong bases
Water

Hazardous Polymerization: Hazardous polymerization may occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	Not Specified
Carbon dioxide	Not Specified
Hydrogen Cyanide	Not Specified
Oxides of Nitrogen	Not Specified

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Cure (harden, set, or react) the product according to product instructions.
Dispose of completely cured (or polymerized) wastes in a sanitary landfill.

EPA Hazardous Waste Number (RCRA): D003 (Reactive)

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	C.A.S. No	% by Wt
POLYMETHYLENE POLYPHENYLENE ISOCYANATE	9016-87-9	60 - 100 (typically 100)

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

No revision information is available.

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