CONSIGLI
Est. 1905

Letter of Transmittal

To: Brian Milliken
B.H. Milliken
175 Anderson Street
Portland, ME 04101
Ph: (207)879-1877 / Fax:
bhm@bhmilliken.com

Transmittal #: **306**
Date: 7/16/2013
Job: 1150 Hyatt Place - Portland

Subject: Submittal 078413 - 001-002 - Penetration Firestopping (APP)

WE ARE SENDING YOU

- ☐ Attached
- ☐ Under separate cover via the following items:
- ☐ Shop drawings
- ☐ Prints
- ☐ Plans
- ☐ Samples
- ☐ Copy of letter
- ☐ Change order
- ☐ Specifications
- ☑ Submittal

Document Type	Copies	Date	No.	Description
Submittal	1	7/16/13	078413-001 Rev 0	P/D: Penetration Firestopping (Para. 2.2) Status: Approved
Submittal	1	7/16/13	078413-002 Rev 0	P/D: Electrical Outlet Fire Stop Status: Approved

THESE ARE TRANSMITTED as checked below:

- ☐ For approval
- ☑ Approved as submitted
- ☐ Resubmit ___ copies for approval
- ☐ For your use
- ☐ Approved as noted
- ☐ Submit ___ copies for distribution
- ☐ As requested
- ☐ Returned for corrections
- ☐ Return ___ corrected prints
- ☐ For review and comment
- ☐ Other
- ☐ FOR BIDS DUE
- ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks:

Copy To:

Signature: Darlene Guay - CONSIGLI CONST. CO., INC. - ME

If enclosures are not as noted, kindly notify us at once.

Consigli Construction Co., Inc. Construction Managers and General Contractors
15 Franklin Street, Portland, Maine 04101 phone 207.773.3000 fax 207.773.2800 web www.consigli.com

Hartford, CT ▪ Portland, ME ▪ Milford, MA

CONSIGLI
Est. 1905

Submittal

Job: 1150
Hyatt Place - Portland
433 Fore Street
Portland, ME 04101

Spec Section No: 078413
Submittal No: 001
Revision No: 0
Sent Date: 7/12/2013
Due Date: 7/25/2013

Spec Section Title: Penetration Firestopping

Submittal Title: P/D: Penetration Firestopping (Para. 2.2)

Contractor:
Consigli Construction Co., Inc.

Contractor's Stamp

Consigli Construction Co., Inc.
15 Franklin Street - Portland, ME 04101

☒ Approved for A/E Review
☐ Approved as Noted for A/E Review
☐ Revise & Resubmit
☐ Rejected

Spec. Section 078413	Submittal No. 001
Date 7/12/2013	By Matt Hossfeld

If so marked, approval is given for design only. It does not relieve the subcontractor from complying with the requirements of the contract, contract drawings and specifications. The subcontractor shall be responsible for all dimensions, quantities, schedules and field conditions.

Architect:
Canal5Studio
Hart, Tim

ARCHITECT'S REVIEW Date: 2013-07-16

Approval is for the limited purpose of checking for conformance with information given and the design concept expressed in contract documents. Review is NOT conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Approval does NOT authorize changes to contract documents.

- [X] Approved
- [ ] Approved as Noted
- [ ] Revise / Resubmit
- [ ] Rejected / Resubmit
- [ ] _____

By: JPGauthier

CANAL 5 STUDIO

Engineer / Government / Other Approval

Firestop Submittal Package

Damon Mech

Project: Hyatt / Portland

Portland , ME

Date: 2013-06-03

Submitted by: Scott Chadburn

38 Shamrock Dr.

Gorham, ME 04038

This submittal is auto-generated based on user-selected inputs.
Therefore, Hilti makes no representation as to the suitability of these systems for their intended use.

Hilti. Outperform. Outlast.

Hilti Firestop
Saving lives
through innovation
and education

Firestop Submittal Package

Table of Contents

Firestop Systems

UL System #	Barrier Construction	Description	Rating	Products
C-AJ-1184	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Max. 10" steel, cast iron, max. 4" copper, conduit or EMT pipe (includes Hollow Core) (AS=0" to 3-1/4")	3-hour	FS-ONE Intumescent Firestop Sealant FS-ONE Intumescent Firestop Sealant
C-BJ-2021	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Max. 6" PVC, CPVC, FRPP or ABS (c,v) (Hollow Core) (AS=0" to 1/2")	2-hour	CP 643N Firestop Collar FS-ONE Intumescent Firestop Sealant
C-BJ-2014	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Max. 2" PVC, CPVC, or Rigid Nonmetallic Conduit (closed)	2-hour	FS-ONE Intumescent Firestop Sealant
C-BJ-2040	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Max. 2" PVC, CPVC, or PEX (c)	3-hour	FS-ONE Intumescent Firestop Sealant
C-AJ-1155	Concrete Floor Concrete/Masonry Wall	Max. 20" steel, cast iron, max. 6" copper, conduit or max. 4" EMT pipe (Sleeve Optional) (AS=0" to 2-1/4")	3-hour	FS-ONE Intumescent Firestop Sealant FS-ONE Intumescent Firestop Sealant

Product Data Sheet(s) / Material Safety Data Sheet(s) (MSDS)

CP 643N Firestop Collar

FS-ONE Intumescent Firestop Sealant

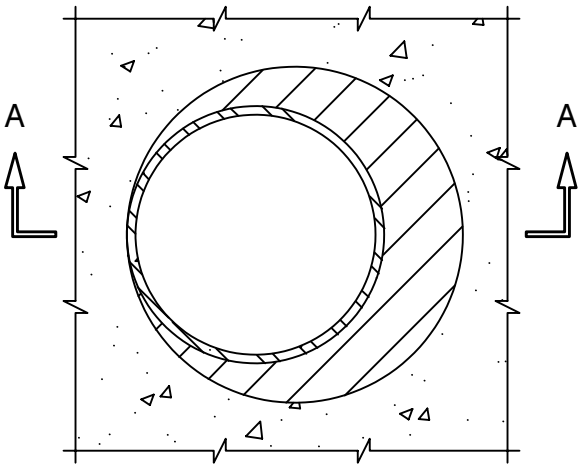
UL/cUL SYSTEM NO. C-AJ-1184

METAL PIPE THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

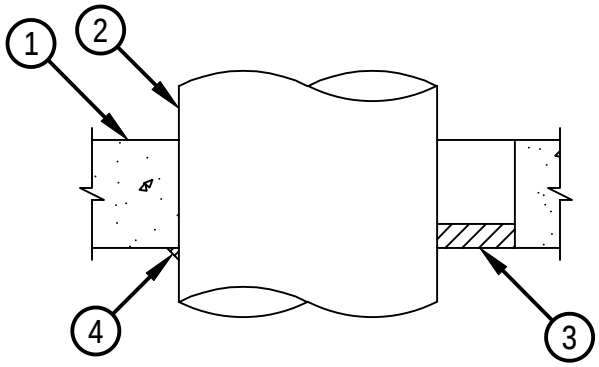
F-RATING = 3-HR.
T-RATING = 0-HR.

caj1184k.083199

TOP VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR FIRE-RATING):
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MIN. 4-1/2" THICK).
   B. PRECAST (HOLLOW-CORE) CONCRETE FLOOR (MIN. 7-1/2" THICK).
   C. ANY UL/ULC CLASSIFIED CONCRETE BLOCK WALL.
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
   A. MAXIMUM 10" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 10" NOMINAL DIAMETER CAST IRON PIPE.
   C. MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE.
   D. MAXIMUM 4" NOMINAL DIAMETER EMT OR STEEL CONDUIT.
3. MINIMUM 1" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT FLUSH WITH TOP OR BOTTOM OF FLOOR. (SEE NOTE NO. 3 BELOW).
4. MINIMUM 1/2" CROWN HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 14" FOR NORMAL CONCRETE, 7" FOR PRECAST (HOLLOW CORE) CONCRETE.
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 3-1/4".
3. MINIMUM 1" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IS REQUIRED ON BOTH ON BOTH SIDES OF A WALL ASSEMBLY.
4. WHEN PRECAST (HOLLW-CORE) UNITS ARE USED, HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT SHALL BE INSTALLED FLUSH WITH LOWER SURFACE OF FLOOR.
5. MINERAL WOOL MAY BE USED AS A BACKER FOR PROPER INSTALLATION OF FIRESTOP SEALANT.

HILTI®
FIRESTOP SYSTEMS

HILTI, Inc.
Tulsa, Oklahoma USA (918) 252-6000

Sheet	1 of 1
Scale	1/8" = 1"
Date	AUGUST 31, 1999

Drawing No.
CAJ 1184k

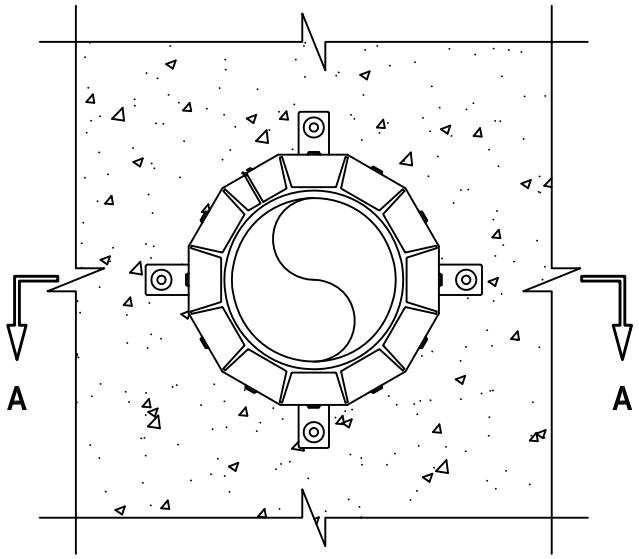
UL SYSTEM NO. C-BJ-2021

PLASTIC PIPE THROUGH PRE-CAST (HOLLOW CORE) CONCRETE FLOOR ASSEMBLY

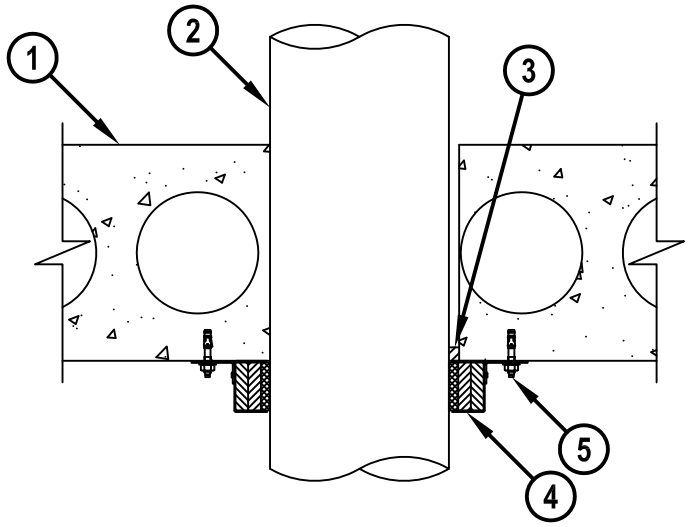
F-RATING = 2-HR.
T-RATING = 0-HR. OR 2-HR.

CBJ2021j.022412

BOTTOM VIEW



SECTION A-A



1. PRECAST (HOLLOW CORE) CONCRETE FLOOR ASSEMBLY (MINIMUM 6" THICK) (2-HR. FIRE-RATING).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING : (ALSO SEE NOTE NO. 2 BELOW) :
   A. MAXIMUM 6" NOMINAL DIAMETER PVC PLASTIC PIPE (CELLULAR AND SOLID CORE).
   B. MAXIMUM 6" NOMINAL DIAMETER ABS PLASTIC PIPE (CELLULAR AND SOLID CORE).
   C. MAXIMUM 6" NOMINAL DIAMETER CPVC PLASTIC PIPE.
3. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.
4. HILTI CP 643N FIRESTOP COLLAR WITH FASTENING HOOKS (SEE TABLE BELOW).
5. EACH FASTENING HOOK SECURED TO BOTTOM OF FLOOR WITH 1/4" x 1-3/4" LONG STEEL EXPANSION BOLTS IN CONJUNCTION WITH 3/4" DIAMETER STEEL WASHERS (EX. HILTI KWIK-BOLT 3).

NOMINAL PIPE DIAMETER	PRODUCT DESCRIPITION	NO. OF FASTENING HOOKS
1-1/2"	CP 643 50/1.5" N	2
2"	CP 643 63/2" N	2
3"	CP 643 90/3" N	3
4"	CP 643 110/4" N	3
6"	CP 643 160/6" N	4

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 7".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1/2".
3. CLOSED OR VENTED PIPING SYSTEMS (PVC, ABS = SCHEDULE 40; CPVC = SDR 17).

Hilti Firestop Systems

HILTI, Inc.
Tulsa, Oklahoma USA (800) 879-8000

Sheet	1 of 1
Scale	9/64" = 1"
Date	Feb. 24, 2012

Drawing No.
CBJ 2021j

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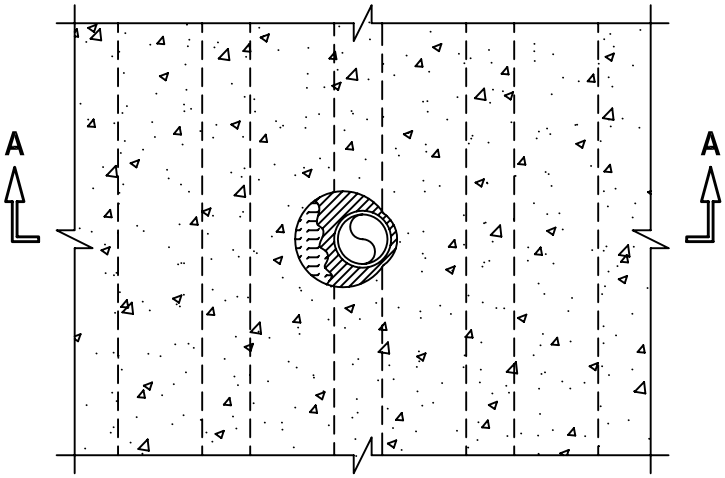
UL SYSTEM NO. C-BJ-2014

PLASTIC PIPE THROUGH HOLLO-CORE CONCRETE FLOOR ASSEMBLY

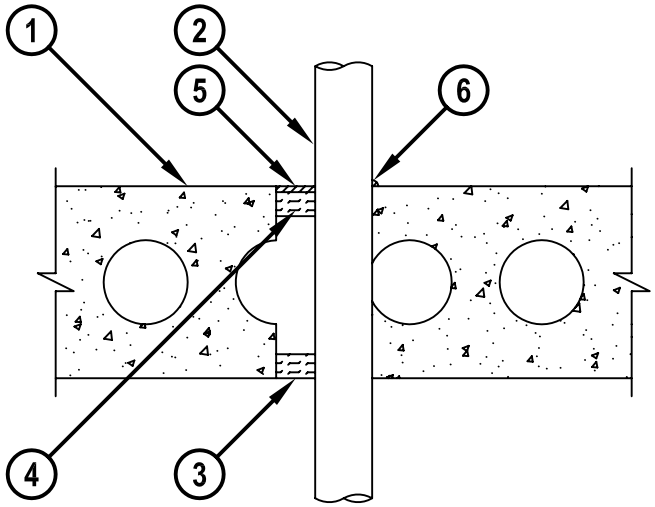
F-RATING = 2-HR.
T-RATING = 2-HR.

CBJ2014b.071403

TOP VIEW



SECTION A-A



1. ANY UL/ULC CLASSIFIED PRE-CAST HOLLOW CORE CONCRETE FLOOR ASSEMBLY (MINIMUM 8" THICK) (2-HR. FIRE-RATING).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
   - A. MAXIMUM 2" NOMINAL DIAMETER PVC PLASTIC PIPE (SCHEDULE 40) (CELLULAR OR SOLID CORE) (CLOSED PIPING SYSTEM).
   - B. MAXIMUM 2" NOMINAL DIAMETER CPVC PLASTIC PIPE (SDR 13.5) (CLOSED PIPING SYSTEM).
   - C. MAXIMUM 2" NOMINAL DIAMETER RNC (RIGID NONMETALLIC CONDUIT).
3. MINIMUM 1" THICKNESS MINERAL WOOL (MINIMUM 4 PCF DENSITY) TIGHTLY PACKED AND INSTALLED FLUSH WITH THE BOTTOM SURFACE OF THE FLOOR.
4. MINIMUM 1" THICKNESS MINERAL WOOL (MINIMUM 4 PCF DENSITY) TIGHTLY PACKED AND RECESSED FROM THE TOP SURFACE OF THE ASSEMBLY TO ACCOMMODATE FIRESTOP SEALANT.
5. MINIMUM 1/4" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.
6. MINIMUM 1/4" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-5/8".

HILTI®
FIRESTOP SYSTEMS

HILTI, Inc.
Tulsa, Oklahoma USA (918) 252-6000

Sheet	1 of 1
Scale	1/8" = 1"
Date	July 14, 2003

Drawing No.
CBJ 2014b

Saving Lives through Innovation and Education

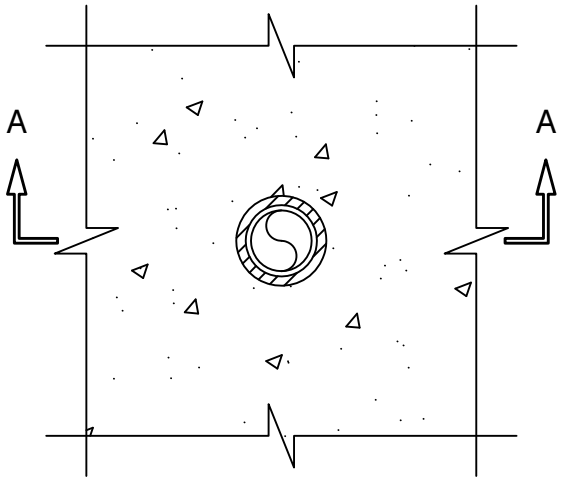
UL SYSTEM NO. C-BJ-2040

PLASTIC PIPE THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL ASSEMBLY

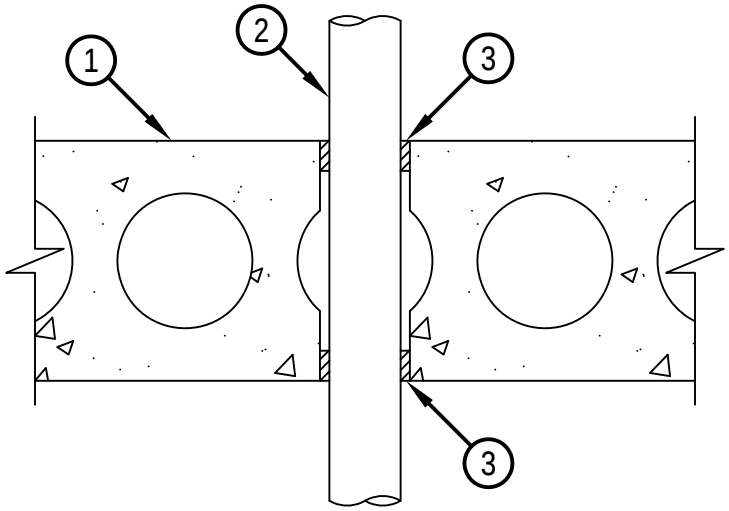
F-RATING = 3-HR.
T-RATING = 2 3/4-HR.

CBJ2040a.092910

TOP VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR. FIRE-RATING) :
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 8" THICK).
   B. ANY UL CLASSIFIED PRECAST (HOLLOW-CORE) CONCRETE FLOOR (MINIMUM 8" THICK).
   C. ANY UL CLASSIFIED CONCRETE BLOCK WALL.
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 2" NOMINAL DIAMETER CPVC PLASTIC PIPE (SDR 13.5) (CLOSED PIPING SYSTEM).
   B. MAXIMUM 2" NOMINAL DIAMETER BLAZEMASTER CPVC PIPE (SDR 13.5) (CLOSED PIPING SYSTEM).
   C. MAXIMUM 2" NOMINAL DIAMETER CROSS-LINKED POLYETHYLENE (PEX) TUBING (SDR 9) (CLOSED PIPING SYSTEM).
3. MINIMUM 1" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT FLUSH WITH TOP AND BOTTOM OF CONCRETE FLOOR.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 3".
2. ANNULAR SPACE = MINIMUM 1/8", MAXIMUM 1/2".
3. MINIMUM 1" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF A WALL.

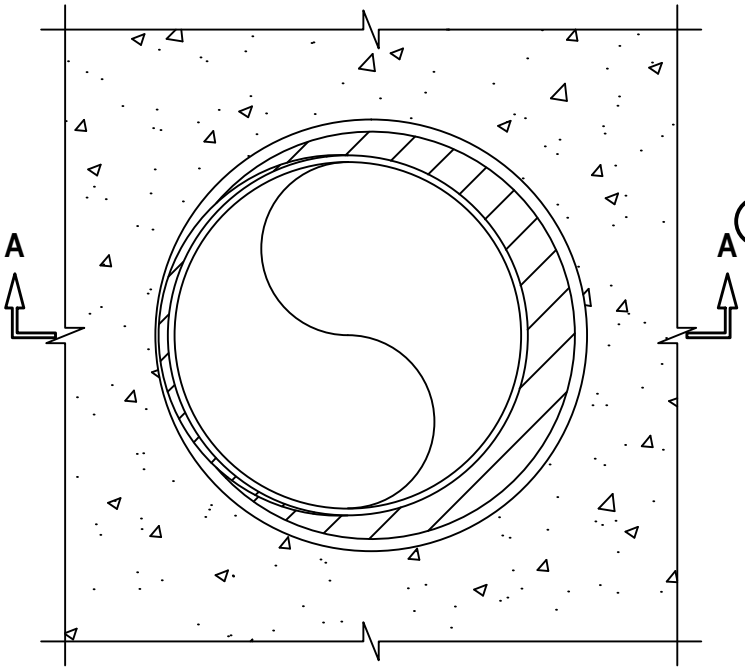
UL/cUL SYSTEM NO. C-AJ-1155

METAL PIPE THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

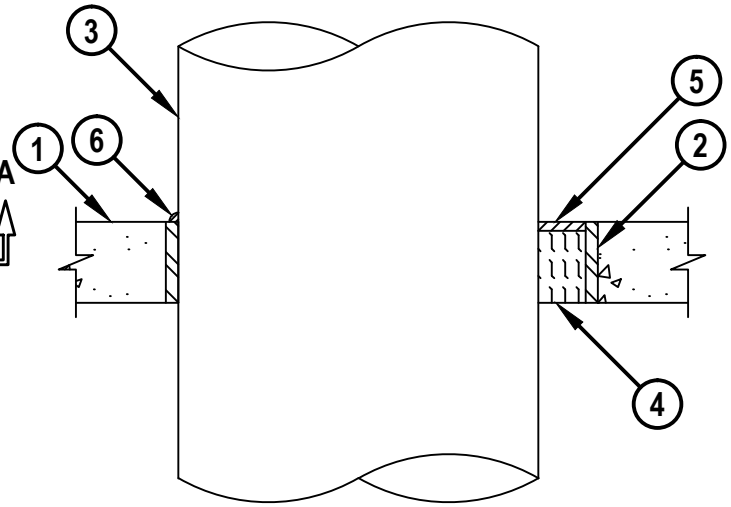
F-RATING = 2-HR. OR 3-HR.
T-RATING = 0-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L-RATING AT 400°F = 4 CFM/SQ. FT.

CAJ1155p.081611

TOP VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (2-HR. OR 3-HR FIRE-RATING) :
   - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
   - B. ANY UL/ULC CLASSIFIED CONCRETE BLOCK WALL.
2. [OPTIONAL] MAXIMUM 32" NOMINAL DIAMETER STEEL PIPE SLEEVE (SCHEDULE 40 OR HEAVIER).
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   - A. MAXIMUM 20" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   - B. MAXIMUM 20" NOMINAL DIAMETER CAST IRON PIPE.
   - C. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE.
   - D. MAXIMUM 6" NOMINAL DIAMETER STEEL CONDUIT.
   - E. MAXIMUM 4" NOMINAL DIAMETER EMT.
4. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
5. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.
6. MINIMUM 1/2" CROWN HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 32".
2. ANNULAR SPACE [FOR 3-HR. F-RATING] = MINIMUM 0", MAXIMUM 2-1/4".
3. ANNULAR SPACE [FOR 2-HR. F-RATING] = MINIMUM 0", MAXIMUM 12".
4. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF A WALL ASSEMBLY.

Hilti Firestop Systems

HILTI, Inc.
Tulsa, Oklahoma USA (800) 879-8000

Sheet	1 of 1
Scale	3/32" = 1"
Date	Aug. 16, 2011

Drawing No. **CAJ 1155p**

Saving Lives through Innovation and Education

Firestop Collar (CP 643N)

Product description

- A ready-to-use firestop collar, made of a galvanized steel housing and intumescent inserts for firestopping combustible pipes

Product features

- Ready-to-use collar
- No construction required
- Fast installation time
- Adjustable mounting tabs
- Low profile for tight installations

Areas of application

- Firestopping combustible pipes up to 6" diameter in penetrations through fire walls and floors
- Suitable for the following pipe materials:
- PVC, CPVC, ABS, PVDF, PP and FRPP

For use with

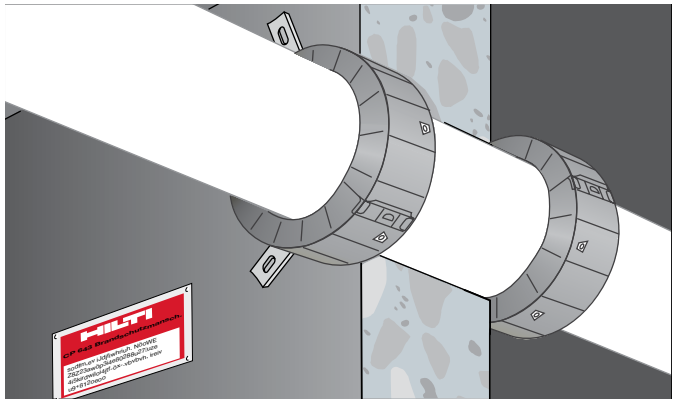
- Concrete, masonry, wood floor and gypsum wall assemblies
- Wall and floor assemblies rated up to 4 hours

Types of installation

- Wall: two collars, one on each side
- Floor: one collar on underside (bottom)

Example

- Waste water pipes
- Fresh water pipes



Technical Data	CP 643N		
Description	Pipe outside dia (in.)	Collar outside dia. (in.)	Collar Height (in.)	No. of hooks and fasteners
CP 643-50/1.5"N	1.4–2.0	2.8	0.9	2
CP 643-63/2"N	2.0–2.5	3.4	1.3	2
CP 643-90/3"N	2.6–3.6	4.9	1.7	3
CP 643-110/4"N	3.6–4.5	6.0	1.9	3
CP 643-160/6"N	6.6	9.8	1.9	4
Temperature resistance		-40°F to 140°F (–40°C to 60°C)		
Intumescent activation		Approx. 392°F (200°C)		
Expansion ratio (unrestricted)		Up to 1:10		

Tested in accordance with
• UL 1479 • ASTM E 814 • ASTM G21

CLASSIFIED c UL us
FIRESTOP DEVICE
FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY 5N76

FM APPROVED

FBC SYSTEM COMPATIBLE
Visit fbcsystemcompatible.com.
FBC™ is a trademark of the Lubrizol Corporation.

Installation instructions for CP 643N

Notice

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

Opening

1. Clean the plastic pipes. Expansion of the intumescent material during a fire acts to close the plastic pipe. Very dirty pipes (ie: with remains of mortar) may lead to a delay in this closing action. Soiled plastic pipes should, therefore, be cleaned in the area where the CP 643N Firestop Collar is to be installed.

Application of firestop system

2. Seal the opening if required. Gaps may be closed with FS-ONE. The approved methods vary and are given in the specific UL system.
3. Close the CP 643N Firestop Collar. Place the CP 643N Firestop Collar around the plastic pipe and lock the closure by applying firm pressure until it latches.
4. Attach fastening hooks. The fastening hooks can be attached to various points on the metal housing. This allows the fastening points to be made to suit the space available in each case. The hooks must be positioned as symmetrically as possible. The required number of fastening hooks is indicated on the packaging.
5. Fastening the CP 643N Firestop Collar. Only when fastened properly can CP 643N offer protection against fire.

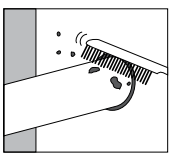
a. Mark the fastening points.
b. Drill holes with a Hilti rotary hammer drill (i.e. TE 4-A18) or, depending on base material, fasten using Hilti powder-actuated tool.
c. To secure the CP 643N Firestop Collar, use Hilti anchors/fasteners.
d. For maintenance reasons, a penetration can be permanently marked with an identification plate and fastened in a visible position next to the seal.

Not for use

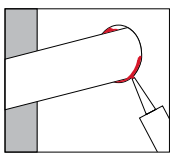
- With metal pipes
- In highly corrosive surroundings
- With unapproved anchors/fasteners

Storage

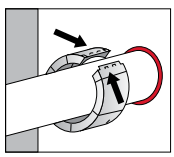
- Store only in the original packaging in a location protected from moisture



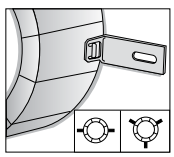
1. Clean plastic pipe.



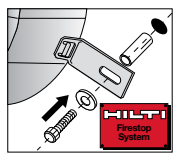
2. Close remaining gap to provide smoke and gas resistant seal.



3. Close collar.



4. Attach fastening hooks.



5. Fasten collar and identification plate (if required).

Hilti Firestop
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Hilti. Outperform. Outlast.

Underwriters Laboratories Inc.®

Northbrook Division
333 Pfingsten Road
Northbrook, IL 60062-2096 USA
www.ul.com
tel: 1 847 272 8800

CERTIFICATE OF COMPLIANCE

CERTIFICATE NUMBER: 260204 - R15431B
ISSUE DATE: February 26, 2004

Issued to: Hilti Construction Chemicals, Div Of Hilti Inc
5400 S 122nd East Ave
Tulsa, OK 74146

Report Reference: R15431 - 03NK33473 (R13240)

This is to Certify that representative samples of: CP 643-N (may include a size designation between "643" and "N") Firestop Collar.

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

Standard(s) for Safety: Fire Tests of Through Penetration Firestops, UL1479 dated May 23, 2003.
Standard Method of Fire Tests of Firestop Systems, ULC - S115 - 95.

Additional Information: The products noted in this Certificate of Compliance are intended for Through-Penetration Firestop Systems described in the Underwriters Laboratories Fire Resistance Directory and the Products Certified for Canada Directory.

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

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

LOOK FOR THE UL CLASSIFICATION MARKING ON THE PRODUCT

Engineer:
Howard Gruszynski
Underwriters Laboratories Inc.

Review Engineer:
Richard Walke
Underwriters Laboratories Inc.

MATERIAL SAFETY DATA SHEET

Product name:	**CP 643N Firestop Collar/ CP 644 Firestop Collar**
Description:	Galvanized metal housing containing black polymer-bonded intumescent firestop material
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Not applicable. This product is considered to be an "article" as defined in the federal OSHA Hazard Communication Standard 29 CFR 1910.1200 / 1926.59.

PHYSICAL DATA

Appearance:	Metal collar/ black firestop material	**Odor:**	None
Vapor Density: (air = 1)	Not applicable	**Vapor Pressure:**	Not applicable
Boiling Point:	Not applicable	**VOC Content:**	7.6 g/l
Evaporation Rate:	Not applicable	**Solubility in Water:**	Not determined
Specific Gravity:	Not determined	**pH:**	Not applicable

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable	**Flammable Limits:**	Not applicable
Extinguishing Media:	Use extinguishing media appropriate for surrounding fire.		
Special Fire Fighting Procedures:	None known.		
Unusual Fire and Explosion Hazards:	None known. Product serves as a Firestop; intumescent material inside the collar expands when exposed to temperatures > 160° C / 320° F.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	None known	**Decomposition Products:**	None known
Conditions to Avoid:	None known		

HEALTH HAZARD DATA

Known Hazards:	None known	**Routes of Exposure:**	None known
Signs and Symptoms of Exposure:	None expected from routine use/installation according to manufacturer's specifications and technical guides.		
Carcinogenicity:	No ingredients are classified as a carcinogen by IARC, NTP or OSHA.		
Medical Conditions Aggravated by Exposure:	None known		

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Call a physician if symptoms occur.
Skin:	Not applicable. Practice good hygiene; i.e. wash hands during breaks, before eating or smoking, and after work.
Inhalation:	Not applicable.
Ingestion:	Not a potential route of exposure
Other:	Referral to a physician is recommended if there is any question about the seriousness of any injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT	
Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Not required, however, safety glasses should be worn in most industrial settings.
Skin Protection:	None required; however, (cotton) gloves recommended.
Respiratory Protection:	No respiratory protection is needed for normal application of this product.

PRECAUTIONS FOR SAFE HANDLING AND USE	
Handling and Storing Precautions:	Store in a cool dry area. Follow installation instructions.
Spill Procedures:	No special requirements.

REGULATORY INFORMATION	
Hazard Communication:	This product is considered to be an “article” as defined in the federal OSHA Hazard Communication Standard.
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product is classified as an "article" and is not subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS			
Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

FS-ONE
High Performance Intumescent Firestop Sealant

Product description

- Intumescent (expands when exposed to fire) firestop sealant that helps protect combustible and non-combustible penetrations for up to 4 hours fire rating

Product features

- Smoke, gas and water resistant after material has cured
- Contains no halogen, solvents or asbestos
- High fire rating properties
- Water based, easy to clean
- Protects most typical firestop penetration applications
- Paintable
- Single component systems available
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

Areas of application

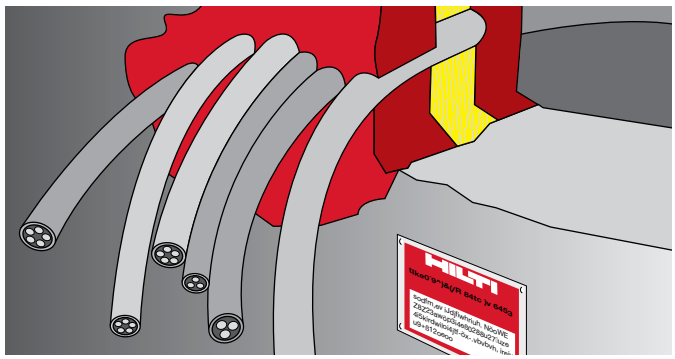
- Steel, copper and EMT pipes
- Insulated steel and copper pipes
- Cable bundles
- Closed or vented plastic pipes
- HVAC penetrations

For use with

- Concrete, masonry, drywall and wood floor assemblies
- Wall and floor assemblies rated up to 4 hours

Examples

- Sealing around combustible pipe penetrations in fire rated construction
- Sealing around non-combustible penetrations in fire rated construction



Technical Data*	FS-ONE
Chemical basis	Water-based intumescent acrylic dispersion
Color	Red
Application temperature	40°F to 104°F (5°C to 40°C)
Skin forming time	Approx. 20-30 min.
Curing time	Approx. 2 mm / 3 days
Average volume shrinkage (ASTM C1241)	24.1%
Movement capability	Approx. 5%
Expansion rate (unrestricted)	Up to 3-5 times original volume
Temperature resistance (cured)	–40°F to 212°F (–40°C to 100°C)
Surface burning characteristics (ASTM E 84-96)	Flame Spread: 0 Smoke Development: 5
Sound transmission classification (ASTM E 90-99)	56 (Relates to specific construction)
Tested in accordance with • UL 1479 • ASTM E 814 • ASTM E 84 • ASTM G21	

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

CLASSIFIED C UL US
FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
66Y7

FM APPROVED

FBC SYSTEM COMPATIBLE
Visit fbcsystemcompatible.com.
FBC™ is a trademark of the Lubrizol Corporation.

Installation instructions for FS-ONE

Notice

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

Opening

1. Clean the opening. Surfaces to which FS-ONE will be applied should be cleaned of loose debris, dirt, oil, moisture, frost and wax. Structures supporting penetrating items must be installed in compliance with local building and electrical standards.

Application of firestop sealant

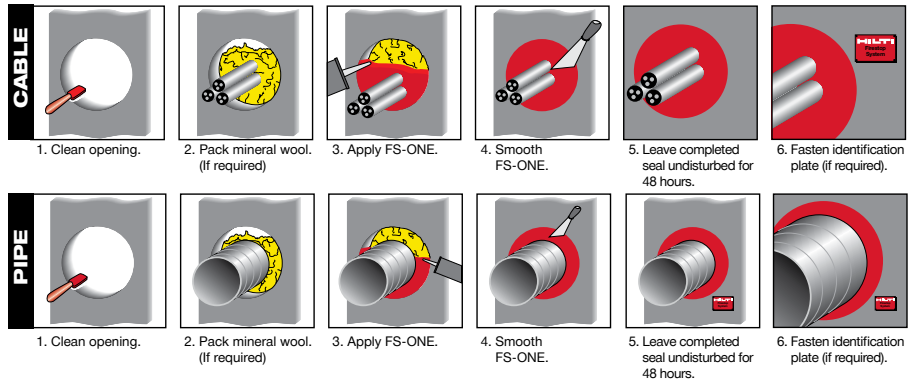
2. Install the prescribed backfilling material type and depth to obtain the desired rating (if required). Leave sufficient depth for applying FS-ONE.
3. Application of firestop sealant: Apply FS-ONE to the required depth in order to obtain the desired fire rating. Make sure FS-ONE contacts all surfaces to provide maximum adhesion. For application of FS-ONE use a standard caulking gun, foil pack gun, bulk loader and bulk gun. With FS-ONE buckets, Graco type sealant pumps may be used. (Contact pump manufacturer for proper selection).
4. Smoothing of firestop sealant: To complete the seal, tool immediately to give a smooth appearance. Excess sealant, prior to curing, can be cleaned away from adjacent surfaces and tools with water.
5. Leave completed seal undisturbed for 48 hours.
6. For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the identification plate and fasten it in a visible position next to the seal.

Not for use

- High movement expansion joints
- Underwater
- On materials where oil, plasticizers or solvents may bleed i.e. impregnated wood, oil based seals, green or partially vulcanized rubber
- In any penetration other than those specifically described in this manual or the test reports

Storage

- Store only in the original packaging in a location protected from moisture at temperatures between 40°F (5°C) and 86°F (30°C)
- Observe expiration date on the packag



Hilti. Outperform. Outlast.

Certificate of Compliance

Certificate Number **20100512-R13240**
Report Reference **2010 May 12**
Issue Date **2010 May 12**

Underwriters Laboratories Inc.®

Issued to: Hilti, Inc.

54 S 122ND East AVe
Tulsa, OK 74146 USA

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

Have been investigated by Underwriters Laboratories Inc.® (UL) or any authorized licensee of UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 1479, ANSI/UL 2079, CAN/ULC-S115-05
Third Edition, revised March 1, 2010

Additional Information: FS-ONE Sealant for use in Joint Systems and FS-ONE for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

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

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

Look for the UL Classification Mark on the product

Issued by:
Mona Couloute
Mona Couloute
Underwriters Laboratories Inc.

Reviewed by:
Chris J. Johnson
Underwriters Laboratories Inc.

MATERIAL SAFETY DATA SHEET

Product name: **FS-ONE High Performance Intumescent Firestop Sealant**

Description: One-part acrylic-based sealant

Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121

Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	PEL:	TLV:	STEL:
Polyacrylate dispersion	Mixture	NE	NE	NE
Calcium carbonate	001317-65-3	5 mg/m^3 (R)	NE	NE
Zinc borate	138265-88-0	NE	NE	NE
Talc	014807-96-6	20 mppcf	2 mg/m^3(R)	NE
Ethylene glycol	000107-21-1	NE	NE	C:100 mg/m^3 (A)
Iron oxide	001309-37-1	10 mg/m^3 (F)	5 mg/m^3(R)	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **C** = Ceiling. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **(T)** indicates "as total dust". **(R)** indicates "as respirable fraction". **(A)** indicates "as an aerosol". **mppcf** = million particles per cubic foot. **F** = Fume

PHYSICAL DATA

Appearance:	Red paste.	**Odor:**	Odorless.
Vapor Density: (air = 1)	Not determined.	**Vapor Pressure:**	23mbar @ 20C / 68F
Boiling Point:	Not applicable.	**VOC Content:**	75.0 g/L.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Soluble.
Specific Gravity:	1.5	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Non-flammable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Not applicable. Use extinguishing media as appropriate for surrounding fire.		
Special Fire Fighting Procedures:	None known. Use a self-contained breathing apparatus when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Thermal decomposition products can be formed such as oxides of carbon, sulfur and phosphorous.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong acids, peroxides, and oxidizing agents.		
Decomposition Products:	Thermal decomposition can yield CO and CO_2.		
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	Possibly irritating upon contact with the eyes or upon repeated contact with the skin.
Medical Conditions Aggravated by Exposure:	Eye and skin conditions.
Routes of Exposure:	Dermal.
Carcinogenicity:	No ingredients are classified as carcinogens.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Contact a physician if symptoms occur.
Skin:	Immediately wipe off material and wash with soap and water. Contact a physician if symptoms occur.
Inhalation:	Move victim to fresh air if discomfort develops. Contact a physician if symptoms occur. persist.
Ingestion:	Seek medical attention. Do not induce vomiting unless directed by a physician.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Safety glasses with side shields.
Skin Protection:	Impermeable gloves. Other protective clothing as required to prevent skin contact.
Respiratory Protection:	None normally required. Where ventilation is inadequate to control vapors, use a NIOSH-approved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air-supplied respirator.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool, dry area preferably between 40º and 77º F. Keep from freezing. Do not store in direct sunlight. Avoid contact with the eyes or skin. Practice good hygiene; i.e. always wash thoroughly after handling and before eating or smoking. For industrial use only. Keep out of reach of children. Follow label/use instructions.
Spill Procedures:	Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product contains < 3% ethylene glycol (CAS 107-21-1) and < 15% zinc borate (re: zinc compounds) which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x71003704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Firestop Submittal Package

Damon Mech

Project: Hyatt / Portland

Portland , ME

Date: 2013-06-03

Submitted by: Scott Chadburn

38 Shamrock Dr.

Gorham, ME 04038

This submittal is auto-generated based on user-selected inputs.
Therefore, Hilti makes no representation as to the suitability of these systems for their intended use.

Hilti. Outperform. Outlast.

Hilti Firestop
Saving lives
through innovation
and education

Firestop Submittal Package

Table of Contents

Firestop Systems

UL System #	Barrier Construction	Description	Rating	Products
W-L-3395	Gypsum Board Wall	Blank or cables through Cable Mangagment Devices using Firestop Gangplate	1 or 2 Hr	CP 653 Speed Sleeve CP 653 Speed Sleeve CFS-SL RK Retrofit Sleeve Kit CFS-SL GP Gangplate CFS-SL SK Firestop Sleeve Kit CFS-SL GP Gangplate CFS-SL RK Retrofit Sleeve Kit CFS-SL SK Firestop Sleeve Kit
C-AJ-3284	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Blank or cables (various cables) through CP 653 Speed Sleeve	2 Hr	CP 653 Speed Sleeve CP 653 Speed Sleeve
C-BJ-2028	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Bundle of max. 1" PVC, RNC, ENT, or PEX (c) (max qty = 6) (Hollow Core) (AS=0" to 1-1/2")	3 Hr	FS-ONE Intumescent Firestop Sealant
W-L-2538	Gypsum Board Wall	Max. 2" ENT (one or more) through CP 653 Speed Sleeve	1 or 2-hr	CP 606 Flexible Firestop Sealant CP 653 Speed Sleeve FS-ONE Intumescent Firestop Sealant
W-L-2075	Gypsum Board Wall	Max. 2" ENT (closed system only)	1 or 2-hr	FS-ONE Intumescent Firestop Sealant
C-BJ-3024	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Cable bundle (various cables)	2-hour	FS-ONE Intumescent Firestop Sealant
C-AJ-8099	Concrete Floor Concrete Hollow-Core Floor Concrete/Masonry Wall	Insulated or non-insulated copper or steel, flexible steel gas lines, cables (single or bundled), or flexible steel conduit (includes Hollow Core) (AS Varies)	3-hour	FS-ONE Intumescent Firestop Sealant FS-ONE Intumescent Firestop Sealant
W-L-2165	Gypsum Board Wall	Max. 2" Fiber Optic Raceway (Innerduct) or ENT pipe	2-hour	FS-ONE Intumescent Firestop Sealant

Product Data Sheet(s) / Material Safety Data Sheet(s) (MSDS)

Firestop Submittal Package

Table of Contents

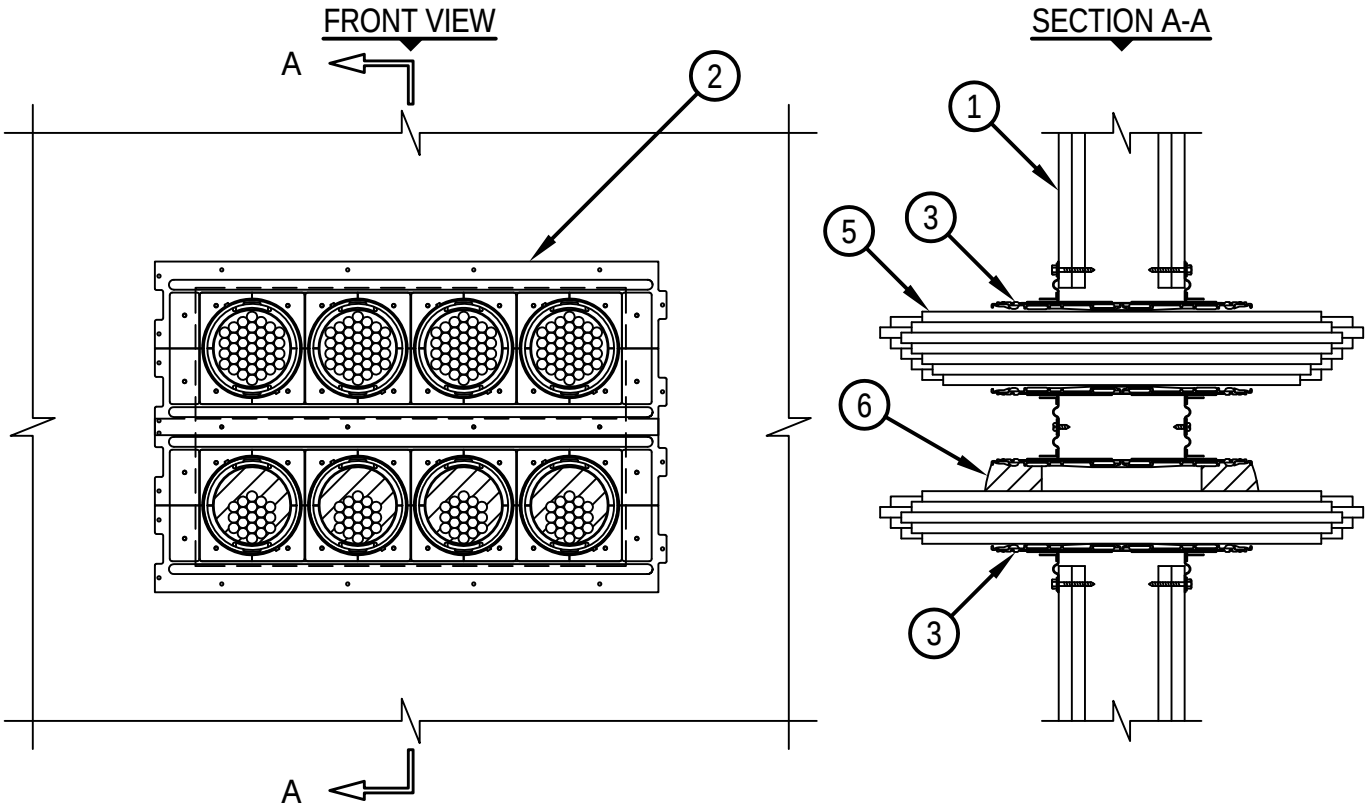
Hilti, Inc. (U.S.) 1-800-879-8000 **www.us.hilti.com** • en español 1-800-879-5000 • P.O. Box 21148, Tulsa, Oklahoma 74121
Hilti (Canada) Corp. 1-800-363-4458 **www.hilti.ca** • 2360 Meadowpine Blvd., Mississauga, Ontario L5N 6S2

UL/cUL SYSTEM NO. W-L-3395

MULTIPLE CABLE BUNDLES THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 1/4-HR.
L-RATING = SEE TABLES BELOW

WL3395b.020513



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400, V400, OR W400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN) TO INCLUDE THE FOLLOWING CONSTRUCTION FEATURES :
   A. [NOT SHOWN] STEEL STUDS TO BE MINIMUM 3-1/2" WIDE (SPACED MAXIMUM 24" OC).
   B. NOMINAL 5/8" THICK GYPSUM WALLBOARD. TYPE, NUMBER OF LAYERS, AND SHEET ORIENTATION AS SPECIFIED IN THE INDIVIDUAL UL DESIGN.
2. HILTI CFS-SL GP FIRESTOP GANGPLATE (16" OR 24") ORIENTED VERTICALLY OR HORIZONTALLY AND SECURED TO THE FACE OF THE WALL OR DIRECTLY AGAINST STUDS PRIOR TO INSTALLATION OF GYPSUM BOARD (SEE MAXIMUM SIZE OF OPENING TABLE FOR INSTALLATION OPTIONS). IN 1-HR. WALLS, BLANK DOUBLE STACKED GANGPLATES (NO CABLES) ARE LIMITED TO HORIZONTAL INSTALLATION WITH FASTENERS INTO WALL STUDS.

UL/cUL SYSTEM NO. W-L-3395

MULTIPLE CABLE BUNDLES THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 1/4-HR.
L-RATING = SEE TABLES BELOW

WL3395b.020513

GANGPLATES WITH NO CABLES WITH ANY CABLE MANAGEMENT DEVICE		
	L-RATING (AMBIENT AND 400° F)	
	CFM / GANGPLATE	CFM / SQ FT
CAP* INSTALLED IN ALL PORTS	<1	1.2
CAP* AND 1 EMPTY DEVICE	1	1.3
CAP* AND 2 EMPTY DEVICES	2	2.6
CAP* AND 3 EMPTY DEVICES (IF 16" GANGPLATE, THEN NO CAP INSTALLED)	2.5	3.2
4 EMPTY DEVICES (24" GANGPLATE ONLY)	3.5	4.5

GANGPLATES WITH COMBINATION OF CABLES WITH ANY CABLE MANAGEMENT DEVICE		
CFS-SL RK AND CFS-SL SK ARE LIMITED TO MAX 33% AGGREGATE FILL. CP 653 ALLOWS FOR MAX 100% VISUAL FILL	L-RATING (AMBIENT AND 400° F)	
	CFM / GANGPLATE	CFM / SQ FT
CAP* AND 1 DEVICE INSTALLED	2	2.6
CAP* AND 2 DEVICES INSTALLED	4	5.1
CAP* AND 3 DEVICES INSTALLED (IF 16" GANGPLATE, THEN NO CAP INSTALLED)	6	7.7
4 DEVICES INSTALLED (24" GANGPLATE ONLY)	8	10.2

GANGPLATES WITH CAT 5 OR CAT 6 COMPUTER CABLES ONLY WITH CP 653 SPEED SLEEVE		
CP 653 ALLOWS FOR MAX 100% VISUAL FILL OF CABLES	L-RATING (AMBIENT AND 400° F)	
	CFM / GANGPLATE	CFM / SQ FT
CAP* AND 1 DEVICE INSTALLED WITH CAT 5/6 CABLES ONLY	1.5	1.9
CAP* AND 2 DEVICES INSTALLED WITH CAT 5/6 CABLES ONLY	3	3.8
CAP* AND 3 DEVICES INSTALLED WITH CAT 5/6 CABLES ONLY (IF 16" GANGPLATE, THEN NO CAP INSTALLED)	4	5.1
4 DEVICES INSTALLED WITH CAT 5/6 CABLES ONLY (24" GANGPLATE ONLY)	5.5	7

* INDICATES CFS-SL CAP FIRESTOP GANGPLATE CAP INSTALLED TO CLOSE ALL PORT OPENINGS WHERE NO DEVICES ARE INSTALLED.

UL/cUL SYSTEM NO. W-L-3395

MULTIPLE CABLE BUNDLES THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 1/4-HR.
L-RATING = SEE TABLES BELOW

WL3395b.020513

3. ONE OF THE FOLLOWING TO BE INSTALLED WITHIN EACH CIRCULAR OPENING PORT OF THE HILTI CFS-SL GP FIRESTOP GANGPLATE. THE TWO INTEGRAL SET SCREWS ARE TO BE TIGHTENED TO FIRMLY BEAR AGAINST EACH DEVICE TO RETAIN IT IN POSITION.
   A. HILTI CP 653 SPEED SLEEVE (4") CENTERED WITHIN WALL. INNER FABRIC SEAL SHOULD BE TWISTED CLOSED.
   B. HILTI CFS-SL RK FIRESTOP RETROFIT SLEEVE (4") CENTERED WITHIN WALL (ALSO SEE ITEM NO. 6).
   C. HILTI CFS-SL SK FIRESTOP SLEEVE (4") CENTERED WITHIN WALL (ALSO SEE ITEM NO. 6).
4. [NOT SHOWN] HILTI CFS-SL CAP FIRESTOP GANGPLATE CAP TO BE INSTALLED TO CLOSE PORT OPENINGS WHERE NO DEVICES ARE INSTALLED. PLATE INSTALLED PER ACCOMPANYING INSTALLATION INSTRUCTIONS.
5. [OPTIONAL] CABLE BUNDLES TO BE A COMBINATION OF ANY OF THE FOLLOWING :
   A. MAXIMUM 100 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
   B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.
   C. MAXIMUM 4/0 AWG TYPE RHH GROUND CABLE.
   D. MAXIMUM 4 PAIR NO. 22 AWG CAT 5 OR 6 COMPUTER CABLE.
   E. MAXIMUM RG 6/U COAXIAL CABLE.
   F. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLE (24 FIBER) WITH PVC OR PE JACKET AND INSULATION.
   G. MAXIMUM 3/C NO. 12 AWG MC CABLE.
6. HILTI CFS-PL FIRESTOP PLUG (2" OR 4") CUT TO FIT AROUND THE CABLE BUNDLE AND INSTALLED TIGHTLY WITHIN HILTI FIRESTOP RETROFIT SLEEVE OR FIRESTOP SLEEVE FLUSH WITH THE END OF THE SLEEVE ON BOTH SIDES OF THE WALL.

FIRESTOP DEVICE	MAXIMUM OPENING SIZE GANGPLATE MOUNTING	
	SURFACE MOUNTED	STUD MOUNTED
24" PLATE :	. . . . .	. . . . .
SINGLE	5-1/2" x 20-1/2"	6-3/4" x 23"
DOUBLE (STACKED)	13-1/4" x 20-1/2"	NOT APPLICABLE
16" PLATE :	. . . . .	. . . . .
SINGLE	5-1/2" x 15"	6-3/4" x 15-3/16"
DOUBLE (STACKED)	13-1/4" x 15"	14-1/4" x 15-3/16"

NOTE : CABLES MAY REPRESENT 0% TO 60% OF CROSS-SECTIONAL AREA OF DEVICE FOR EACH CFS-RK AND CFS-SL SK FIRESTOP DEVICE AND 0% TO 100% VISUAL FILL FOR EACH CP 653 SPEED SLEEVE.

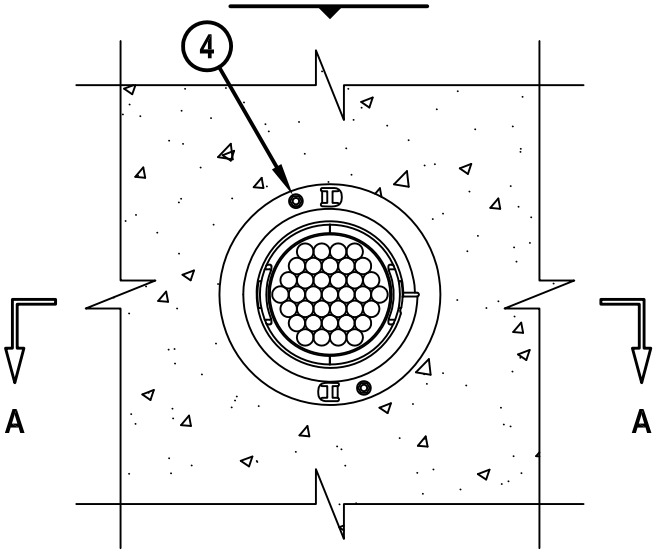
UL/cUL SYSTEM NO. C-AJ-3284

CABLE BUNDLE THROUGH CONCRETE/FLOOR OR BLOCK WALL ASSEMBLY

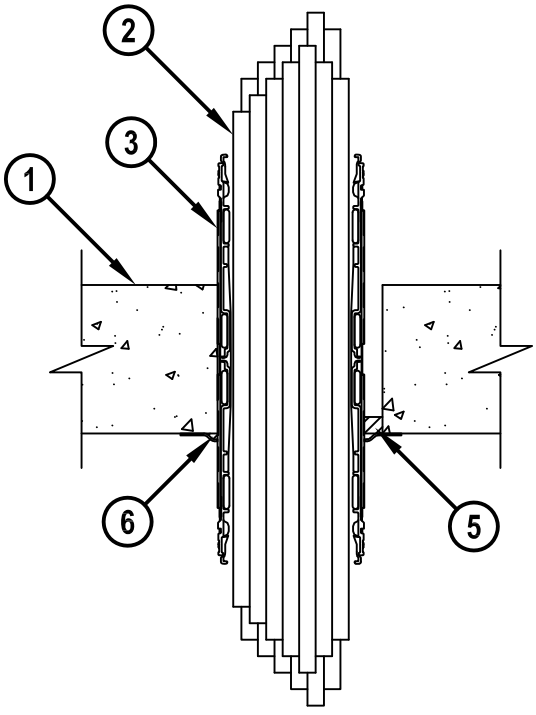
F-RATING = 2-HR.
T-RATING = 1/2-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM (SEE TABLE)
L-RATING AT 400°F = LESS THAN 1 CFM (SEE TABLE)

CAJ3284b.031612

BOTTOM VIEW



SECTION A-A



Hilti Firestop Systems	HILTI, Inc. Tulsa, Oklahoma USA (800) 879-8000	Sheet: 1 of 2 Scale: 11/64" = 1" Date: Mar. 16, 2012	Drawing No. CAJ 3284b

Saving Lives through Innovation and Education

UL/cUL SYSTEM NO. C-AJ-3284

CABLE BUNDLE THROUGH CONCRETE/FLOOR OR BLOCK WALL ASSEMBLY

CAJ3284b.031612

F-RATING = 2-HR.
T-RATING = 1/2-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM (SEE TABLE)
L-RATING AT 400°F = LESS THAN 1 CFM (SEE TABLE)

1. CONCRETE FLOOR OR WALL ASSEMBLY (2-HR. FIRE-RATING) :
   - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
   - B. ANY UL/cUL CLASSIFIED PRECAST (HOLLOW-CORE) CONCRETE FLOOR (MINIMUM 6" THICK).
   - C. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. CABLE BUNDLE TO BE A COMBINATION OF ANY OF THE FOLLOWING :
   - A. MAXIMUM 100 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
   - B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.
   - C. MAXIMUM 4/0 AWG TYPE RHH GROUND CABLE.
   - D. MAXIMUM 4 PAIR NO. 22 AWG CAT 6 COMPUTER CABLE.
   - E. MAXIMUM RG 6/U COAXIAL CABLE.
   - F. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLE (24 FIBER) WITH PVC OR PE JACKET AND INSULATION.
   - G. MAXIMUM 20/C NO. 22 AWG SHIELDED PRINTER CABLE WITH PVC JACKET.
   - H. MAXIMUM 2/C NO. 18 AWG POWER OR NON-POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT METAL JACKET (MANUFACTURED BY AFC CABLE SYSTEMS, INC.).
   - I. MAXIMUM 1/4" DIAMETER S-VIDEO CABLE CONSISTING OF TWO MAXIMUM 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKET.
3. HILTI CP 653 SPEED SLEEVE (2" OR 4") SLID INTO AND CENTERED WITHIN FLOOR OR WALL. DEVICE FLANGES SPUN CLOCKWISE ONTO DEVICE THREADS, BUTTING TIGHTLY TO BOTTOM SIDE OF FLOOR, OR BOTH SIDES OF WALL.
4. SECURE DEVICE FLANGE TO BOTTOM OF FLOOR WITH TWO 1-1/4" LONG CONCRETE SCREWS OR ANCHORS.
5. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT OR 1" DEPTH CP 618 FIRESTOP PUTTY STICK FLUSH WITH BOTTOM SURFACE OF FLOOR, OR BOTH SURFACES OF WALL.
6. [FOR L-RATING] MINIMUM 1/4" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

MAX CABLE FILL	CABLE TYPE	L RATING, CFM/SQ FT		L RATING, CFM	
		AMBIENT	400°F	AMBIENT	400°F
0%	—	1	2	LESS THAN 1	LESS THAN 1
100%	ANY CABLES (ITEM NO. 2) IN ANY COMBINATION	7	7	LESS THAN 1	LESS THAN 1

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 3" (FOR 2" DEVICE) OR 5" (FOR 4" DEVICE).
2. CABLES MAY REPRESENT 0% TO 100% VISUAL FILL OF DEVICE.
3. ANNULAR SPACE BETWEEN DEVICE AND PERIPHERY OF OPENING = MINIMUM 0".
4. L-RATING APPLIES ONLY WHEN HILTI FS-ONE FIRESTOP SEALANT IS USED.
5. HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF A WALL.

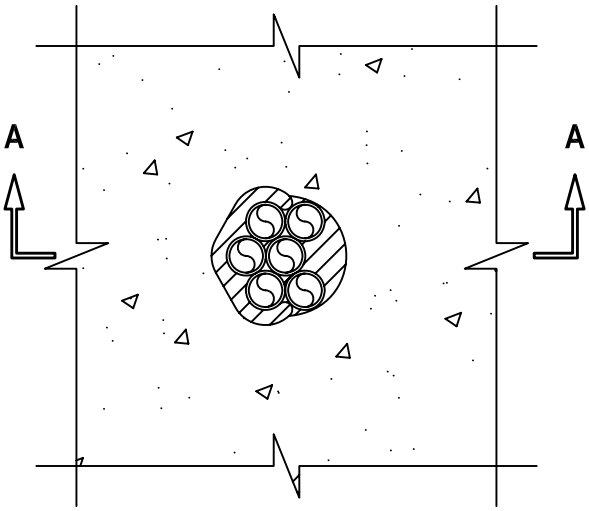
UL SYSTEM NO. C-BJ-2028

MULTIPLE NONMETALLIC PIPES THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

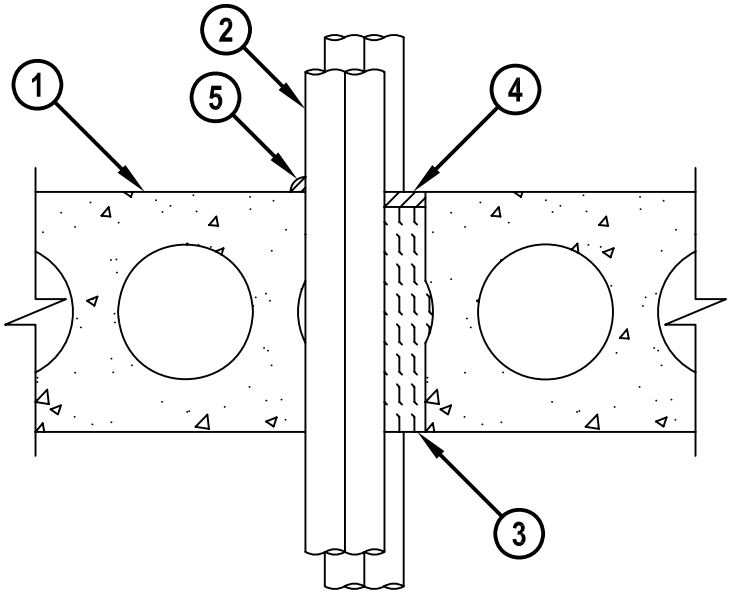
F-RATING = 3-HR.
T-RATING = 2 3/4-HR.

CBJ2028a.042407

TOP VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR. FIRE-RATING) :
   - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 8" THICK).
   - B. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 8-1/2" THICK).
   - C. ANY UL CLASSIFIED PRECAST (HOLLOW-CORE) CONCRETE FLOOR (MINIMUM 8" THICK).
   - D. ANY UL CLASSIFIED CONCRETE BLOCK WALL.
2. PENETRATING ITEMS (MAX. QTY. = 6) TO BE ANY COMBINATION OF THE FOLLOWING (CLOSED PIPING SYSTEM ONLY) :
   - A. MAXIMUM 1" NOMINAL DIAMETER PVC PLASTIC PIPE (CELLULAR OR SOLID CORE).
   - B. MAXIMUM 1" NOMINAL DIAMETER RIGID NONMETALLIC CONDUIT (RNC) PVC CONDUIT.
   - C. MAXIMUM 1" NOMINAL DIAMETER ENT.
   - D. MAXIMUM 1" NOMINAL DIAMETER PEX TUBING.
3. MINIMUM 7-1/2" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED, AND RECESSED TO ACCOMMODATE SEALANT.
4. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT FLUSH WITH TOP SURFACE OF FLOOR.
5. MINIMUM 1/2" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".
3. CLOSED PIPING SYSTEM ONLY (PVC AND RNC = SCH 40; CPVC = SDR 13.5; PEX = SDR 9).
4. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF A WALL.

Hilti Firestop Systems

HILTI, Inc.
Tulsa, Oklahoma USA (800) 879-8000

Sheet	1 of 1
Scale	5/32" = 1"
Date	Apr. 24, 2007

Drawing No.
CBJ 2028a

Saving Lives through Innovation and Education

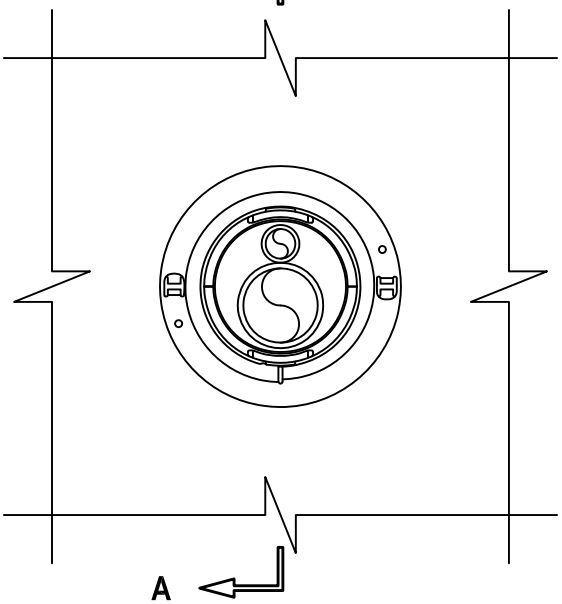
UL SYSTEM NO. W-L-2538

MULTIPLE PLASTIC PIPES THROUGH GYPSUM WALL ASSEMBLY

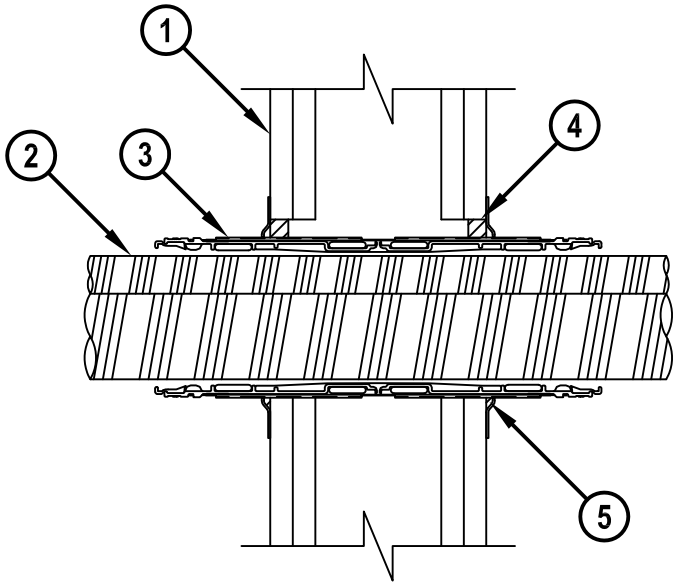
F-RATING = 1-HR. OR 2-HR.
T-RATING = 0-HR.

WL2538a.102108

FRONT VIEW



SECTION A-A



1. GYPSUM WALL ASSEMBLY (UL CLASSIFIED U300, U400 OR V400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN) TO INCLUDE THE FOLLOWING CONSTRUCTION FEATURES :
   A. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER (SPACED MAXIMUM 16" OC). STEEL STUDS TO BE MINIMUM 3-1/2" WIDE (SPACED MAXIMUM 24" OC).
   B. NOMINAL 5/8" THICK GYPSUM WALLBOARD. TYPE, NUMBER OF LAYERS, AND SHEET ORIENTATION AS SPECIFIED IN THE INDIVIDUAL UL DESIGN.
2. ONE OR MORE MAXIMUM 2" NOMINAL DIAMETER ENT (FORMED FROM PVC).
3. HILTI CP 653 SPEED SLEEVE (2" OR 4") SLID INTO AND CENTERED WITHIN WALL. DEVICE FLANGES SPUN CLOCKWISE ONTO DEVICE THREADS, BUTTING TIGHTLY TO BOTH SIDES OF WALL.
4. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT OR CP 606 FLEXIBLE FIRESTOP SEALANT FLUSH WITH BOTH SURFACES OF WALL.
5. MINIMUM 1/4" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT OR CP 606 FLEXIBLE FIRESTOP SEALANT APPLIED AROUND PERIPHERY OF DEVICE.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 2-1/2" (FOR 2" DEVICE) OR 4-1/2" (FOR 4" DEVICE).
2. ANNULAR SPACE BETWEEN DEVICE AND PERIPHERY OF OPENING = MINIMUM 0".

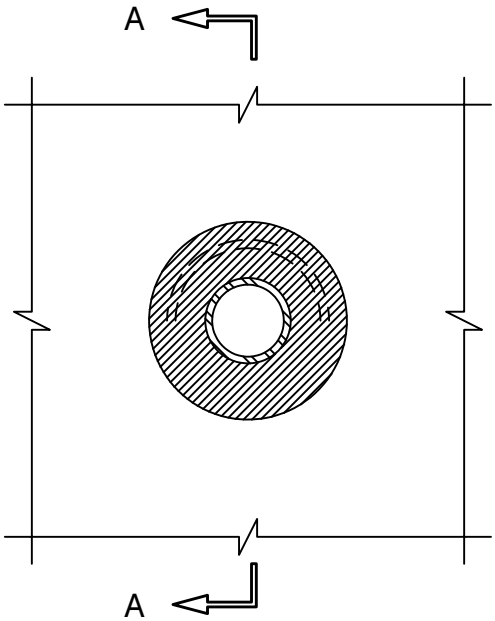
U.L. SYSTEM NO. WL2075

ENT THROUGH 1-HR. OR 2-HR. GYPSUM WALL ASSEMBLY

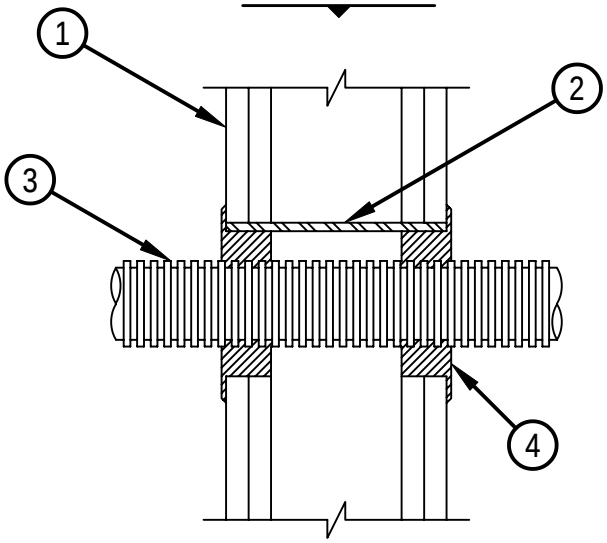
F RATING = 1-HR. AND 2-HR.
T RATING = 0-HR. AND 2-HR. (FOR 1-HR. AND 2-HR. WALLS, RESPECTIVELY)
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.

WL2075g.050698

FRONT VIEW



SECTION A-A



1. GYPSUM WALL ASSEMBLY (U.L. CLASSIFIED U300 OR U400 SERIES) (1-HR OR 2-HR FIRE-RATING) (2-HR SHOWN).
2. OPTIONAL: MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE SLEEVE (SCHEDULE 40 OR THINNER).
3. MAXIMUM 2" NOMINAL DIAMETER ENT.
4. HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT:
   A. MINIMUM 5/8" DEPTH, FOR A 1-HR FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH, FOR A 2-HR FIRE-RATING.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 4".
2. ANNULAR SPACE = 3/4".

HILTI®
FIRESTOP SYSTEMS

HILTI, Inc.
Tulsa, Oklahoma USA (918) 252-6000

Sheet	1 of 1
Scale	3/16" = 1"
Date	MAY 11, 1998

Drawing No.
WL 2075g

Saving Lives through Innovation and Education

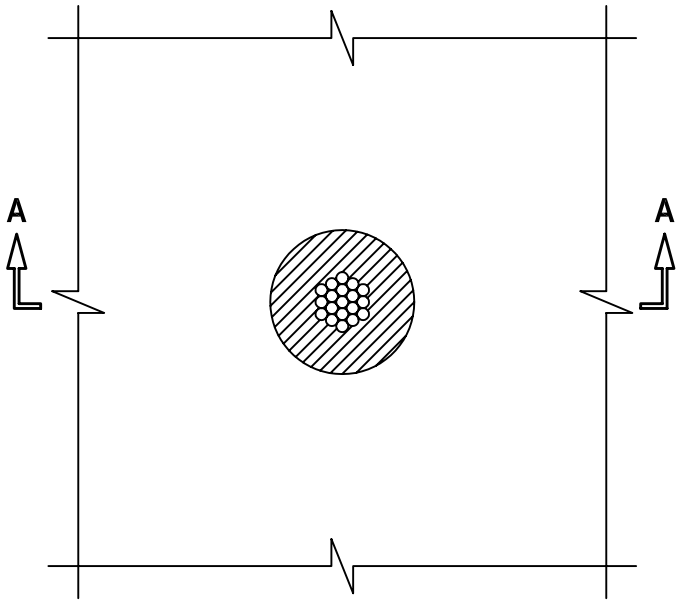
UL/cUL SYSTEM NO. C-BJ-3024

CABLE BUNDLE THROUGH PRECAST (HOLLOW CORE) CONCRETE FLOOR ASSEMBLY

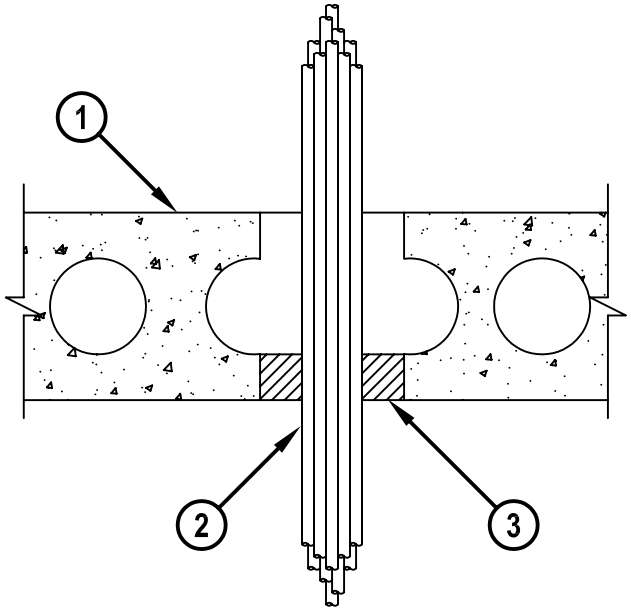
F-RATING = 2-HR.
T-RATING = 1/2-HR.

CBJ3024a.061400

TOP VIEW



SECTION A-A



1. PRE-CAST (HOLLOW-CORE) CONCRETE FLOOR ASSEMBLY (MINIMUM 8" THICK) (2-HR. FIRE-RATING).
2. CABLE BUNDLE TO CONSIST OF THE FOLLOWING:
   - A. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
   - B. MAXIMUM 500 KCMIL POWER CABLE WITH PVC JACKET.
   - C. 7/C NO. 8 AWG (WITH GROUND) WITH PVC JACKET.
   - D. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLE (MAXIMUM 24 FIBER).
   - E. MAXIMUM 3/C NO. 12 AWG METAL-CLAD CABLE.
3. MINIMUM 2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT FLUSH WITH BOTTOM SURFACE OF FLOOR.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 6".
2. CABLES TO FILL A MAXIMUM 45% OF CROSS-SECTIONAL AREA OF OPENING.
3. CABLES TO BE CENTERED IN OPENING WITH ANNULAR SPACE OF MAXIMUM 1".

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FIRESTOP SYSTEMS

HILTI, Inc.
Tulsa, Oklahoma USA (918) 252-6000

Sheet	1 of 1
Scale	1/8" = 1"
Date	JUNE 14, 2000

Drawing No.
CBJ 3024a

Saving Lives through Innovation and Education

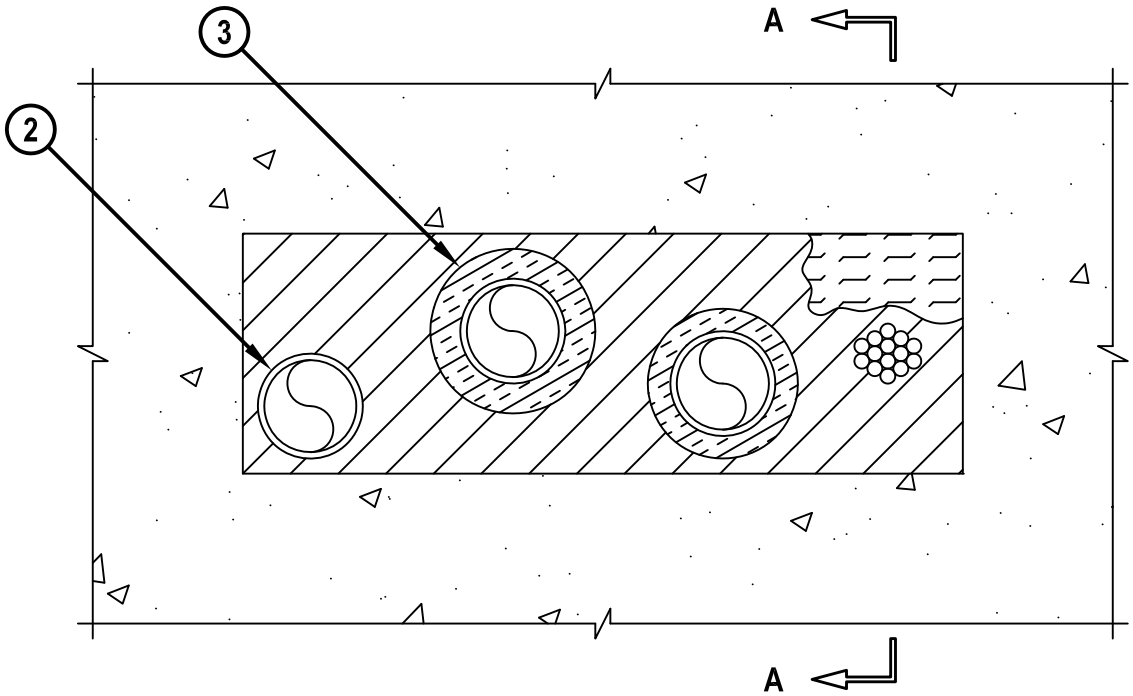
UL/cUL SYSTEM NO. C-AJ-8099

MULTIPLE PENETRATING ITEMS THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

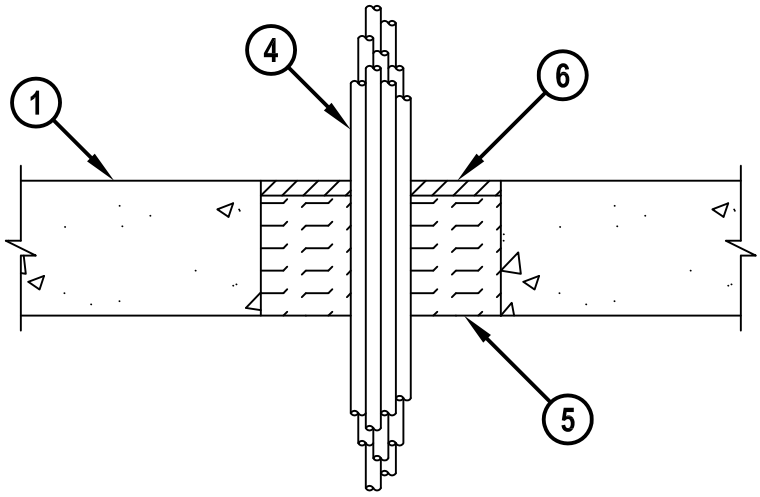
F-RATING = 3-HR.
T-RATING = 0-HR. OR 3/4-HR.

CAJ8099e.040808

TOP VIEW



SECTION A-A



Hilti Firestop Systems	HILTI, Inc. Tulsa, Oklahoma USA (800) 879-8000	Sheet: 1 of 2 Scale: 5/32" = 1" Date: Apr. 08, 2008	Drawing No. CAJ 8099e

Saving Lives through Innovation and Education

UL/cUL SYSTEM NO. C-AJ-8099

MULTIPLE PENETRATING ITEMS THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

F-RATING = 3-HR.
T-RATING = 0-HR. OR 3/4-HR.

CAJ8099e.040808

1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR. FIRE-RATING) :
   - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 4-1/2" THICK).
   - B. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 5" THICK).
   - C. PRECAST (HOLLOW-CORE) CONCRETE FLOOR (MINIMUM 6" THICK).
   - D. ANY UL CLASSIFIED CONCRETE BLOCK WALL.
2. ONE OR MORE OF THE FOLLOWING PIPES, AND IN ANY COMBINATION MAY BE INSTALLED WITHIN THE OPENING :
   - A. MAXIMUM 3" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   - B. MAXIMUM 3" NOMINAL DIAMETER CAST IRON PIPE.
   - C. MAXIMUM 3" NOMINAL DIAMETER COPPER PIPE.
   - D. MAXIMUM 3" NOMINAL DIAMETER STEEL CONDUIT OR EMT.
   - E. MAXIMUM 1" NOMINAL DIAMETER FLEXIBLE STEEL CONDUIT.
   - E. MAXIMUM 2" NOMINAL DIAMETER FLEXIBLE STEEL GAS PIPING (WITH OR WITHOUT PLASTIC COVERING) MANUFACTURED BY OMEGA FLEX, INC. OR WARD MFG., INC.
   - F. MAXIMUM 1" NOMINAL DIAMETER FLEXIBLE STEEL GAS PIPING (WITH OR WITHOUT PLASTIC COVERING) MANUFACTURED BY GASTITE, DIVISION OF TITEFLEX.
3. [OPTIONAL] ANY OR ALL PIPES MAY BE INSULATED WITH MAXIMUM 1" THICK GLASS-FIBER OR MAXIMUM 3/4" THICK AB/PVC PIPE INSULATION.
4. MAXIMUM 2" DIAMETER CABLE BUNDLE TO CONSIST OF ANY OF THE FOLLOWING :
   - A. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
   - B. MAXIMUM 500 KCMIL POWER CABLE WITH PVC JACKET.
   - C. MAXIMUM 7/C NO. 12 AWG POWER CABLE WITH PVC JACKET.
   - D. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLE (24 FIBER).
   - E. MAXIMUM 3/C NO. 12 AWG METAL-CLAD CABLE.
5. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED. WHEN INSTALLED IN PRECAST (HOLLOW-CORE) CONCRETE FLOOR, MINERAL WOOL TO FILL FLOOR, FLUSH WITH BOTTOM AND RECESSED TO ACCOMMODATE SEALANT ON TOP SIDE.
6. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.

NOTES :
1. MAXIMUM AREA OF SQUARE, RECTANGULAR, OR CIRCULAR OPENING IS 192 SQ. IN. WITH A MAXIMUM DIMENSION OF 24" IN NORMAL CONCRETE, 49 SQ. IN. WITH A MAXIMUM DIMENSION OF 7" IN PRECAST (HOLLOW-CORE) CONCRETE.
2. ANNULAR SPACE BETWEEN CABLE BUNDLE, PIPES, AND INSULATED PIPES = MINIMUM 1/2", MAXIMUM 3-1/8".
3. ANNULAR SPACE BETWEEN PIPES/INSULATED PIPES AND PERIPHERY OF OPENING = MINIMUM 1/2", MAXIMUM 5".
4. ANNULAR SPACE BETWEEN CABLE BUNDLE & PERIPHERY OF OPENING = MIN. 2", MAX. 4".
5. MINIMUM 1/2" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF A WALL ASSEMBLY.

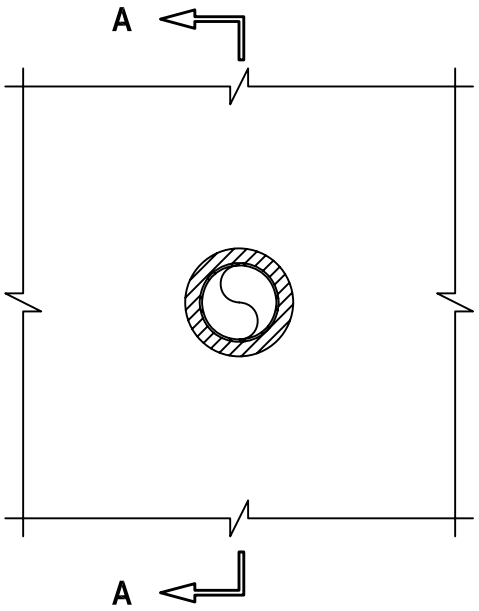
UL SYSTEM NO. W-L-2165

OPTICAL-FIBER RACEWAY OR ENT THROUGH GYPSUM WALL ASSEMBLY

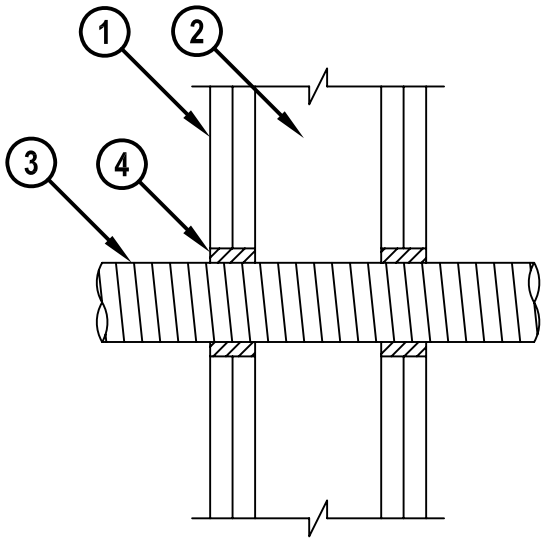
F-RATING = 2-HR.
T-RATING = 2-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L-RATING AT 400°F = 2 CFM/SQ. FT.

WL2165d.072505

FRONT VIEW



SECTION A-A



1. GYPSUM WALL ASSEMBLY (UL CLASSIFIED U300, U400 OR V400 SERIES) (2-HR. FIRE-RATING).
2. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER. STEEL STUDS TO BE MINIMUM 2-1/2" WIDE.
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 2" NOMINAL DIAMETER OPTICAL-FIBER RACEWAY (INNERDUCT).
   B. MAXIMUM 2" NOMINAL DIAMETER ENT.
4. MINIMUM 1-1/4" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 3".
2. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 3/8".

HILTI®
FIRESTOP SYSTEMS

HILTI, Inc.
Tulsa, Oklahoma USA (918) 252-6000

Sheet	1 of 1
Scale	3/16" = 1"
Date	July 25, 2005

Drawing No.
WL 2165d

Saving Lives through Innovation and Education

Firestop Gangplate and Gangplate CAP CFS-SL GP and CFS-SL GP CAP

Product description

- Hilti Gangplate is a pre-assembled solution ideal for grouping 4" diameter Hilti Cable Management devices thereby allowing for ultimate cable capacity
- Offered in 16" and 24" sizes for common stud construction
- One kit includes (2) plates. One for each side of the wall.

Product features

- Pre-assembled, ready-to-use out of the package for quick, simple installation. No assembly required.
- Integrated smoke seals eliminate the need for additional firestop sealant
- Easily stud-mount or surface mount for new and renovation construction projects
- 16" and 24" Gangplates for common stud construction
- Easily hang in stacks or rows for maximum productivity
- Accommodates all 4" diameter Hilti cable management devices
- Gangplate may be retrofitted for existing cable applications
- Gangplate CAP available for blank ports and future expansion
- Buy American compliant
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives
- Low VOC content and no CFCs or HCFCs

Areas of application

- Single and bundled cable applications
- Gypsum and CMU walls
- Renovation or new construction projects

Technical Data	CFS-SL GP
Dimensions: 16" Gangplate	16.4" x 8.3" x 1"
Dimensions: 24" Gangplate	24.4" x 8.3" x 1"
Weight: 16" Gangplate	3.3 lbs
Weight: 24" Gangplate	5.5 lbs
Tested in accordance with	ASTM E 814 CAN/ULC-S115 UL 1479

FIRESTOP DEVICE
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
5N76

Installation instructions for Firestop Gangplate

See Hilti Literature or third-party listings for complete application and installation details

Hilti Firestop
Saving lives
through innovation
and education

Hilti. Outperform. Outlast.

CERTIFICATE OF COMPLIANCE

Certificate Number	20130124-R15431
Report Reference	File R15431
Issue Date	2013-January-24
Issued to:	Hilti Construction Chemicals, Div of Hilti Inc. 5400 S 122nd East Ave Tulsa, OK 74146
This is to certify that representative samples of	Firestop Device
	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 2012-10-19 CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems." Fourth Edition revised June 2011
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.

CFS-SL GP Firestop Gangplate and the CFS-SL GP CAP Firestop Gangplate CAP for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

William R. Carney, Director, North American Certification Programs

UL LLC

Retrofit Sleeve Kit
CFS-SL RK

Product description

- Retrofit cable management device for easily and safely firestopping existing cable applications
- Offered in 2" and 4" diameter versions
- Standard kit includes (1) retrofit sleeve (2) retrofit flanges with smoke seal (2) Firestop Plugs CFS-PL

Product features

- Fast and easy installation for existing cables with ability to re-penetrate
- Integrated smoke seal eliminates the need to add sealant behind the flange
- Oversized flanges for irregular and large openings
- Pre-cured, pre-formed firestop material does not expire, eliminating shelf-life concerns
- Protects most typical firestop cable applications
- 4" diameter device is compatible with the Hilti Gangplate (CFS-SL GP)
- Buy American compliant
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives
- Low VOC content and no CFCs or HCFCs

Areas of application

- Single and bundled cables in gypsum and CMU walls

Examples

- Safely firestopping existing cable applications in fire rated walls, especially where future re-penetration is needed

Technical Data	CFS-SL RK
2" Device	Sleeve: OD 2.5 in / ID 2.3 in Flange: OD 8 in
4" Device	Sleeve: OD 4.5 in / ID 4.3 in Flange: OD 10 in
Overall sleeve length	10.5 in
Expansion ratio (unrestricted)	Approx. 1:3
Temperature resistance	5° F to 140° F (-15° C to 60° C)
Intumescent activation	Approx. 392° F (200° C)
Surface burning characteristics (ASTM E 84-10b)	Flame Spread: 10 Smoke Development: 15
Tested in accordance with	ASTM E 814 CAN/ULC-S115 UL 1479 ASTM E 84 (CFS-PL only)

FIRESTOP DEVICE
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
5N76

Installation instructions for Firestop Retrofit Sleeve Kit

See Hilti Literature or third-party listings for complete application and installation details

Hilti Firestop
Saving lives
through innovation
and education

Hilti. Outperform. Outlast.

CERTIFICATE OF COMPLIANCE

Certificate Number	20130124-R15431
Report Reference	File R15431
Issue Date	2013-January-24
Issued to:	Hilti Construction Chemicals, Div of Hilti Inc. 5400 S 122nd East Ave Tulsa, OK 74146
This is to certify that representative samples of	Firestop Device
	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 2012-10-19 CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems." Fourth Edition revised June 2011
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.

CFS-SL SK Firestop Sleeve and CFS-SL RK Retrofit Sleeve for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

William R. Carney, Director, North American Certification Programs

UL LLC

Firestop Sleeve Kit
CFS-SL SK

Product description

- The Hilti Firestop Sleeve Kit offers an economical and intuitive solution for properly firestopping new cable applications requiring a sleeve
- Offered in 2" and 4" diameter versions
- Standard Kit includes (1) sleeve (2) flanges (2) Firestop Plugs CFS-PL

Product features

- Fast, easy, intuitive installation for new cable runs
- Easy to install correctly
- Simple to inspect
- Re-penetrable for future cable capacity
- Pre-cured, pre-formed firestop material does not expire, eliminating shelf-life concerns
- Protects most typical firestop penetration applications
- 4" diameter device is compatible with the Hilti Gangplate CFS-SL GP
- Buy American compliant
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials
- Low VOC content and no CFCs or HCFCs

Areas of application

- Single and bundled cables in gypsum and CMU walls
- New cable applications with a sleeve

Installation instructions for Firestop Sleeve Kit

See Hilti Literature or third-party listings for complete application and installation details

Technical Data	CFS-SL SK	
	2"	4"
OD (device only)	2.5"	4.5"
OD (flange)	4.7"	6.7"
ID (device only)	2.3"	4.3"
Total length	10.5 in	
Expansion ratio (unrestricted)	Approx. 1:3	
Temperature resistance	5° F to 140° F (-15° C to 60° C)	
Intumescent activation	Approx. 392° F (200° C)	
Surface burning characteristics (ASTM E 84-10b)	Flame Spread: 10 Smoke Development: 15	
Tested in accordance with	ASTM E 814 CAN/ULC-S115 UL 1479 ASTM E 84 (CFS-PL only)	

CLASSIFIED C UL US

FIRESTOP DEVICE
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
5N76

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CERTIFICATE OF COMPLIANCE

Certificate Number	20130124-R15431
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Standard(s) for Safety:	ANSI/UL 1479, "Fire Tests of Through-Penetration Firestops," Edition 3 – Revision Date 2012-10-19 CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems." Fourth Edition revised June 2011
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

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Look for the UL Classification Mark on the product.

CFS-SL SK Firestop Sleeve and CFS-SL RK Retrofit Sleeve for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

William R. Carney, Director, North American Certification Programs

UL LLC

Flexible Firestop Sealant (CP 606)

Product description

- An acrylic based firestop sealant that provides movement capability in fire rated joints and seals through-penetrations applications

Product features

- Silicone free
- Halogen, asbestos and solvent free
- Paintable
- Tested up to 33% movement with 500 cycles in accordance to UL 2079 and ASTM 1966
- Smoke and fume resistant
- Easy clean up with water
- Single component systems available
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

Areas of application

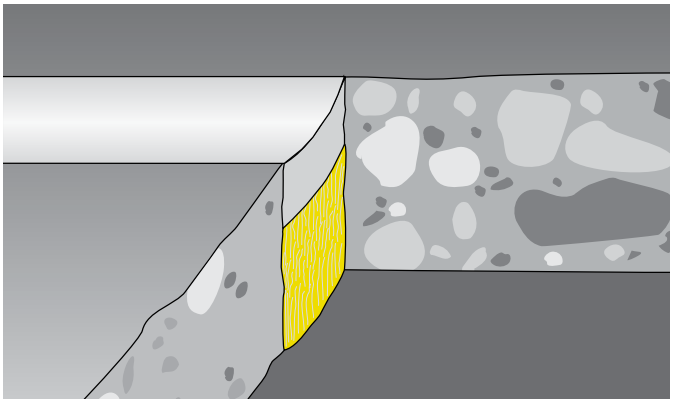
- Sealing construction/expansion joints
- Top-of-wall joints
- Metal pipes
- Cable bundles
- HVAC penetrations

For use with

- Various base materials such as masonry, concrete, gypsum, etc.
- Wall and floor assemblies rated up to 3 hours

Examples

- Where a gypsum wall assembly meets the underside of a metal or concrete deck
- Sealing expansion joints to impede the passage of fire, smoke and toxic fumes
- Sealing around HVAC penetrations through fire-rated assemblies



Technical Data*	CP 606
Chemical basis	Acrylic based firestop sealant
Color	Available in red, white and gray
Application temperature	40°F to 104°F (5°C to 40°C)
Skin-forming time	Approx. 15 min
Curing time	Approx. 3 mm / 3 days
Average volume shrinkage (ASTM C1241)	22.2%
Movement capability	Approx. 10%
Temperature resistance	–22°F to 176°F (–30°C to 80°C)
Surface burning characteristics (ASTM E 84-96)	Flame Spread: 10 Smoke Development: 0
Sound transmission classification (ASTM E 90-99)	56 (Relates to specific construction)
Tested in accordance with	• UL 2079 • ASTM E 814 • ASTM E 1966 • ASTM E 84 • UL 1479 • ASTM G21

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

CLASSIFIED C UL US
FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS AND
JOINT SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
66Y7

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Installation instructions for CP 606

Notice

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information
- The use of backing material is recommended to control the sealant depth and help ensure assembly seal is complete

Opening

1. Clean the opening. Surfaces to which CP 606 will be applied should be cleaned of loose debris, dirt, oil, wax and grease. The surface should be moisture and frost free.

Application of firestop

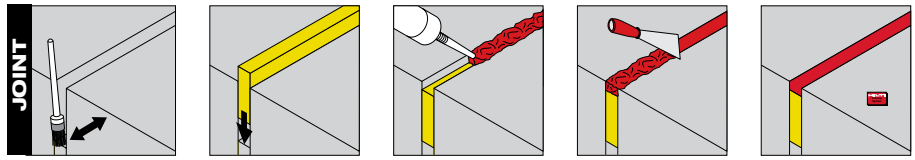
2. Insert fill of mineral wool or backer (as required).
3. Apply firestop over backer.
4. Smooth firestop sealant with a trowel before the skin forms. Once cured, CP 606 can only be removed mechanically.
5. For maintenance reasons, a penetration seal can be permanently marked with an identification plate and fastened in a visible position next to the seal.

Not for use

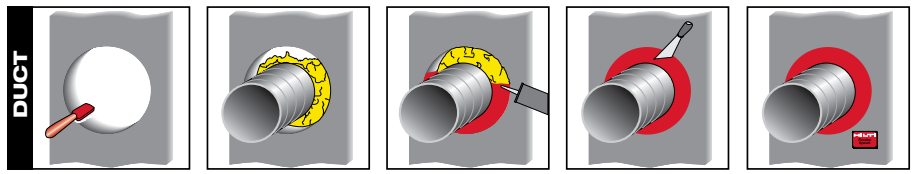
- On areas immersed in water

Storage

- Store only in the original packaging in a location protected from moisture at a temperature of 40°F to 77°F (5°C to 25°C)
- Observe expiration date on package



1. Clean opening | 2. Insert backing material compressed per UL System | 3. Apply CP 606 | 4. Smooth CP 606 | 5. Fasten identification plate (if required)



1. Clean opening | 2. Insert backing material | 3. Apply CP 606 | 4. Smooth CP 606 | 5. Fasten identification plate (if required)

Northbrook, Illinois • (847) 272–8800
Melville, New York • (631) 271–6200
Santa Clara, California • (408) 985–2400
Research Triangle Park,
North Carolina • (919) 549–1400
Camas, Washington • (360) 817–5500

Underwriters Laboratories Inc.®

CERTIFICATE OF COMPLIANCE

CERTIFICATE NUMBER: 070303-R16355
ISSUE DATE: March 7, 2003 **Page 1 of 1**

Issued to: Hilti Construction Chemicals, div. of Hilti Inc.
5400 S 122nd East Avenue
Tulsa, OK 74146

Report Reference: R16355, August 11, 1998

This is to Certify that representative samples of: Flexible Firestop Sealant, designated CP606

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

Standard(s) for Safety: ANSI/UL1479, Fire Tests of Through-Penetration Firestops
ANSI/UL 2079, Tests for Fire Resistance of Building Joint Systems.

Additional Information: CP606 Sealant intended for use as a Classified Fill, Void or Cavity Material for use in various Through-Penetration Firestop Systems and Joint Systems as specified in UL's Fire Resistance Directory Volume 2.

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

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

LOOK FOR THE UL CLASSIFICATION MARKING ON THE PRODUCT

Engineer:
Robert S. Lukasz
Underwriters Laboratories Inc.

Review Engineer:
Richard N. Walke
Underwriters Laboratories Inc.

A not-for-profit organization dedicated to public safety and committed to quality service

MATERIAL SAFETY DATA SHEET

Product name: **CP 606 Flexible Firestop Sealant**

Description: Fire resistant sealant

Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121

Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Calcium carbonate	01317-65-3	NE	5 (R) mg/m^3	NE
Ethylene glycol	00107-21-1	C: 100 mg/m^3 (A)	NE	NA
Pigments:		NE	NE	NE
• Titanium dioxide	13463-67-7 [1]	10 mg/m^3	15 (T) mg/m^3	NE
• Red iron oxide	1309-37-1 [2]	5 (R) mg/m^3	10 (fume) mg/m^3	NE
• Black Iron oxide	1317-61-9 [3]	NE	NE	NE

[1] CP 606 white; [2] CP 606 red, [1,3] CP 606 grey

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **STEL** = Short Term Exposure Limit. **NE** = None Established. (R) = Respirable dust (T) = Total dust (A) = Aerosol

PHYSICAL DATA

Appearance:	White, red, or grey paste.	**Odor:**	Negligible.
Boiling Point:	Not applicable.	**Vapor Pressure:**	Not applicable.
Melting Point:	Not determined.	**VOC Content:**	71.0 g/L
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Miscible.
pH:	Not determined.	**Specific Gravity:**	1.55

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	**Flammable Limits:**	Not applicable.
Fire / Explosion Hazards:	None known.		
Extinguishing Media:	As appropriate for surrounding fire; material itself does not burn.		
Special Fire Fighting Procedures:	As appropriate for surrounding fire.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong oxidizing agents.		
Hazardous Decomposition Products:	Not applicable.		
Conditions to Avoid:	Avoid temperature extremes that could shorten the shelf life of this product. See handling and storage requirements.		

HEALTH HAZARD DATA

Known Hazards:	**Acute**: Product is slightly alkaline; minor irritation is possible. **Chronic**: None known.
Signs and Symptoms of Exposure:	**Eyes -** Can cause slight irritation but injury is unlikely. **Skin -** Can cause irritation with some individuals. **Inhalation** - No effects expected. **Ingestion** - Not considered to be a route of exposure. Effects of ingestion have not been determined.
Routes of Exposure:	Inhalation, Dermal.
Medical Conditions Aggravated by Exposure:	Eye, skin, and respiratory conditions.
Carcinogenicity:	No ingredients are classified as a carcinogen by IARC, NTP or OSHA.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Flush with plenty of water. Contact a Physician if symptoms occur.
Skin:	Wash with soap and water.
Inhalation:	Move victim to fresh air. Call a Physician if symptoms occur.
Ingestion:	Seek medical attention. Do not induce vomiting unless directed by a Physician.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Safety glasses with side shields.
Skin Protection:	Impermeable gloves are recommended.
Respiratory Protection:	Not normally required. Where ventilation is inadequate to control vapors, use a NIOSH-approved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air supplied respirator.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry area. Keep from freezing. Shelf life is one year from date of manufacture if stored between 40° and 77° F (5 - 25° C). For industrial use only. Keep out of reach of children. Keep container sealed when not in use to prevent curing of the product. Avoid contact with the eyes and skin. Practice good hygiene; i.e. wash after using and before eating or smoking.
Spill Procedures:	Allow to cure and place in a container for proper disposal in accordance with all applicable local, state, or federal requirements. Not regulated as a hazardous waste according to federal EPA definitions.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B (Gloves, Glasses)
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product contains approximately 3% ethylene glycol which is subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x1003704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

Speed Sleeve (CP 653)

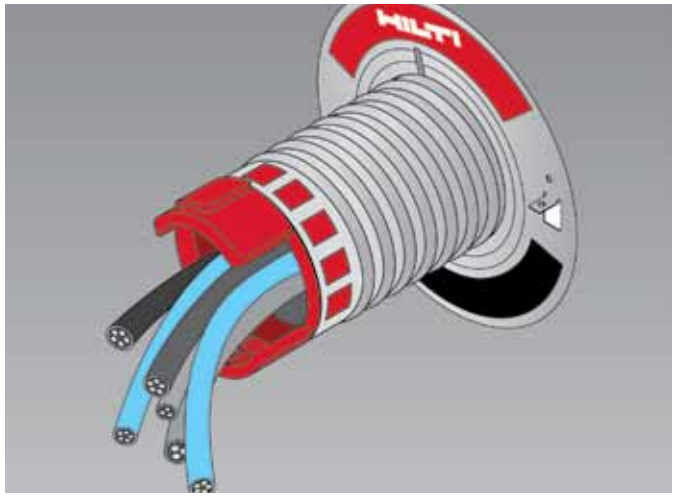
Product description
- Re-penetrable cable management device for electrical and telecom professionals

Product features
- Fast installation
- Easy penetration and re-penetration
- Low L-ratings
- Withstands the rigors of usage and time
- Can be installed in wall and floor applications

Areas of application
- Cable and cable bundles

For use with
- Concrete floor rated up to 3 hours
- Gypsum walls rated up to 4 hours

Examples
- Electrical wiring
- Premise wiring
- Low voltage and datacom



Technical Data	CP 653	
	2" (50 mm)	**4" (102 mm)**
OD (device only)	2.3" (60 mm)	4.3" (110 mm)
OD (flange)	4.7" (120 mm)	6.7" (170 mm)
ID	1.7" (48 mm)	3.6" (92 mm)
Total length	12.4" (315 mm)	12.4" (315 mm)
Weight (device and flanges)	1.5 lbs	2.6 lbs
Temperature resistance	22° F to 212° F (-6° C to 100° C)	
Intumescent activation	Approx. 320° F (160° C)	
Expansion ratio (unrestricted)	1:40	
Metal	Steel with zinc coating	
Plastic	ABS	
Fabric	Glass-fiber	

Tested in accordance with
- UL 1479
- ASTM E 814

CLASSIFIED C UL US
FIRESTOP DEVICE
FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY 5N76

FM APPROVED

Installation instructions for CP 653

Notice
Always refer to the MSDS before use and the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information.

Instructions for use
1. Use hole saw to create the appropriate hole.
2. Insert the sleeve.
3. Seal the gap with firestop sealant to impede smoke and gas migration. Repeat on other side of the wall
4. Spin the flange clockwise onto the device. Repeat on other side of the wall.
5. To open the device:

   (a) On one side of the wall, press the clip closures inward.

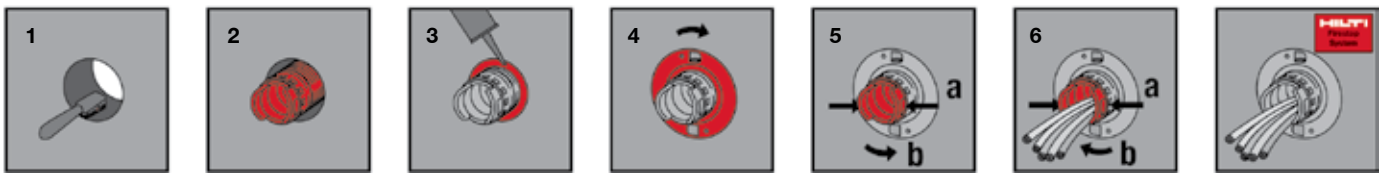
   (b) Twist the device counterclockwise and pull the red housing outwards to eliminate the bunching of the smoke seal fabric. A yellow label will be visible to indicate that the device is open.
6. To close the device:

   (a) On the same side of the wall, press the clip closures inward.

   (b) Twist the device clockwise until finger-tight, allowing it to engage with a click.

For repenetration of cables, repeat steps 5 and 6.

For installation options not presented here, consult your local Hilti representative for other rated firestop systems.



Hilti Firestop
Saving lives through innovation and education

Hilti. Outperform. Outlast.

Certificate of Compliance

Certificate Number 20071018-R15431
Report Reference 2007 October 18
Issue Date 2007 October 18

Underwriters Laboratories Inc.®

Issued to: Hilti, Inc.
5400 S 122ND East Ave.
Tulsa, OK 74146 USA

This is to certify that representative samples of Firestop Devices & Firestop Certified for Canada

Have been investigated by Underwriters Laboratories Inc.® (UL) or any authorized licensee of UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 1479 - Third Edition, CAN/ULC-S115-05

Additional Information: CP 653 Speed Sleeves for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

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

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

Look for the UL Classification Mark on the product

Issued by:
Mona Coulombe
Underwriters Laboratories Inc.

Reviewed by:
Steve Hoffman
Underwriters Laboratories Inc.

MATERIAL SAFETY DATA SHEET

Product name:	**CP 653 - Speed Sleeve**
Description:	Reusable Firestop Insert containing a black intumescent material.
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Not applicable. This product is considered to be an "article" as defined in the federal OSHA Hazard Communication Standard 29 CFR 1910.1200 / 1926.59.

PHYSICAL DATA

Appearance:	Galvanized metal sleeve with red plastic ends	**Odor:**	None.
Vapor Density: (air = 1)	Not applicable.	**Vapor Pressure:**	Not applicable.
Boiling Point:	Not applicable.	**VOC Content:**	7.6 g/l
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Not determined.
Specific Gravity:	Not determined.	**pH:**	Not applicable.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Use extinguishing media appropriate for surrounding fire.		
Special Fire Fighting Procedures:	None known.		
Unusual Fire and Explosion Hazards:	None known. Product serves as a firestop; intumescent material metal sleeve expands when exposed to temperatures > 160º C / 320º F.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	None known.	**Decomposition Products:**	None known.
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	None known.	**Routes of Exposure:**	None known.
Signs and Symptoms of Exposure:	None expected from routine use/installation according to manufacturer's specifications and technical guides.		
Carcinogenicity:	No ingredients are classified as a carcinogen by IARC, NTP or OSHA.		
Medical Conditions Aggravated by Exposure:	None known.		

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Call a physician if symptoms occur.
Skin:	Not applicable. Practice good hygiene; i.e. wash hands during breaks, before eating or smoking, and after work.
Inhalation:	Not applicable.
Ingestion:	Not a potential route of exposure.
Other:	Referral to a physician is recommended if there is any question about the seriousness of any injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Not required, however, safety glasses should be worn in most industrial settings.
Skin Protection:	None required; however, gloves recommended.
Respiratory Protection:	No respiratory protection is needed for normal application of this product.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry area. Follow installation instructions.
Spill Procedures:	No special requirements.

REGULATORY INFORMATION

Hazard Communication:	This product is considered to be an “article” as defined in the federal OSHA Hazard Communication Standard.
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product is classified as an "article" and is not subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

FS-ONE
High Performance Intumescent Firestop Sealant

Product description

- Intumescent (expands when exposed to fire) firestop sealant that helps protect combustible and non-combustible penetrations for up to 4 hours fire rating

Product features

- Smoke, gas and water resistant after material has cured
- Contains no halogen, solvents or asbestos
- High fire rating properties
- Water based, easy to clean
- Protects most typical firestop penetration applications
- Paintable
- Single component systems available
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

Areas of application

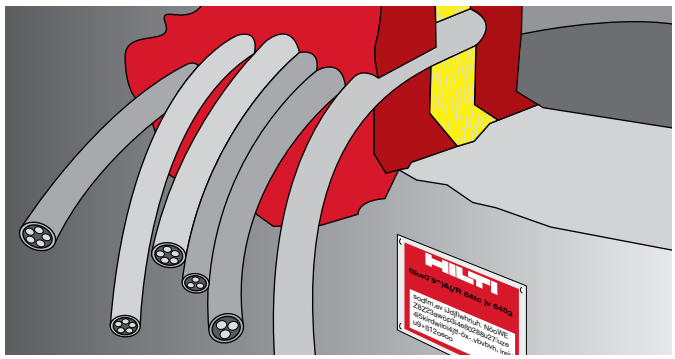
- Steel, copper and EMT pipes
- Insulated steel and copper pipes
- Cable bundles
- Closed or vented plastic pipes
- HVAC penetrations

For use with

- Concrete, masonry, drywall and wood floor assemblies
- Wall and floor assemblies rated up to 4 hours

Examples

- Sealing around combustible pipe penetrations in fire rated construction
- Sealing around non-combustible penetrations in fire rated construction



Technical Data*	FS-ONE
Chemical basis	Water-based intumescent acrylic dispersion
Color	Red
Application temperature	40°F to 104°F (5°C to 40°C)
Skin forming time	Approx. 20-30 min.
Curing time	Approx. 2 mm / 3 days
Average volume shrinkage (ASTM C1241)	24.1%
Movement capability	Approx. 5%
Expansion rate (unrestricted)	Up to 3-5 times original volume
Temperature resistance (cured)	–40°F to 212°F (–40°C to 100°C)
Surface burning characteristics (ASTM E 84-96)	Flame Spread: 0 Smoke Development: 5
Sound transmission classification (ASTM E 90-99)	56 (Relates to specific construction)
Tested in accordance with • UL 1479 • ASTM E 814 • ASTM E 84 • ASTM G21	

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

CLASSIFIED C UL US
FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
66Y7

FM APPROVED

FBC SYSTEM COMPATIBLE
Visit fbcsystemcompatible.com.
FBC™ is a trademark of the Lubrizol Corporation.

Installation instructions for FS-ONE

Notice

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

Opening

1. Clean the opening. Surfaces to which FS-ONE will be applied should be cleaned of loose debris, dirt, oil, moisture, frost and wax. Structures supporting penetrating items must be installed in compliance with local building and electrical standards.

Application of firestop sealant

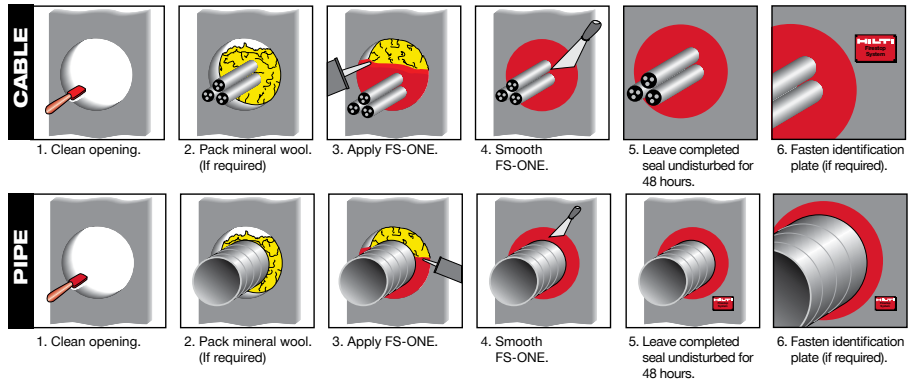
2. Install the prescribed backfilling material type and depth to obtain the desired rating (if required). Leave sufficient depth for applying FS-ONE.
3. Application of firestop sealant: Apply FS-ONE to the required depth in order to obtain the desired fire rating. Make sure FS-ONE contacts all surfaces to provide maximum adhesion. For application of FS-ONE use a standard caulking gun, foil pack gun, bulk loader and bulk gun. With FS-ONE buckets, Graco type sealant pumps may be used. (Contact pump manufacturer for proper selection).
4. Smoothing of firestop sealant: To complete the seal, tool immediately to give a smooth appearance. Excess sealant, prior to curing, can be cleaned away from adjacent surfaces and tools with water.
5. Leave completed seal undisturbed for 48 hours.
6. For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the identification plate and fasten it in a visible position next to the seal.

Not for use

- High movement expansion joints
- Underwater
- On materials where oil, plasticizers or solvents may bleed i.e. impregnated wood, oil based seals, green or partially vulcanized rubber
- In any penetration other than those specifically described in this manual or the test reports

Storage

- Store only in the original packaging in a location protected from moisture at temperatures between 40°F (5°C) and 86°F (30°C)
- Observe expiration date on the packag



Hilti. Outperform. Outlast.

Certificate of Compliance

Certificate Number **20100512-R13240**
Report Reference **2010 May 12**
Issue Date **2010 May 12**

Underwriters Laboratories Inc.®

Issued to: Hilti, Inc.

54 S 122ND East AVe
Tulsa, OK 74146 USA

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

Have been investigated by Underwriters Laboratories Inc.® (UL) or any authorized licensee of UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 1479, ANSI/UL 2079, CAN/ULC-S115-05
Third Edition, revised March 1, 2010

Additional Information: FS-ONE Sealant for use in Joint Systems and FS-ONE for use in Through-Penetration Firestop Systems as currently described in the UL Fire Resistance Directory.

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

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

Look for the UL Classification Mark on the product

Issued by:
Mona Couloute
Mona Couloute
Underwriters Laboratories Inc.

Reviewed by:
Chris J. Johnson
Underwriters Laboratories Inc.

MATERIAL SAFETY DATA SHEET

Product name: **FS-ONE High Performance Intumescent Firestop Sealant**

Description: One-part acrylic-based sealant

Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121

Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	PEL:	TLV:	STEL:
Polyacrylate dispersion	Mixture	NE	NE	NE
Calcium carbonate	001317-65-3	5 mg/m^3 (R)	NE	NE
Zinc borate	138265-88-0	NE	NE	NE
Talc	014807-96-6	20 mppcf	2 mg/m^3(R)	NE
Ethylene glycol	000107-21-1	NE	NE	C:100 mg/m^3 (A)
Iron oxide	001309-37-1	10 mg/m^3 (F)	5 mg/m^3(R)	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **C** = Ceiling. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **(T)** indicates "as total dust". **(R)** indicates "as respirable fraction". **(A)** indicates "as an aerosol". **mppcf** = million particles per cubic foot. **F** = Fume

PHYSICAL DATA

Appearance:	Red paste.	**Odor:**	Odorless.
Vapor Density: (air = 1)	Not determined.	**Vapor Pressure:**	23mbar @ 20C / 68F
Boiling Point:	Not applicable.	**VOC Content:**	75.0 g/L.
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Soluble.
Specific Gravity:	1.5	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Non-flammable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Not applicable. Use extinguishing media as appropriate for surrounding fire.		
Special Fire Fighting Procedures:	None known. Use a self-contained breathing apparatus when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Thermal decomposition products can be formed such as oxides of carbon, sulfur and phosphorous.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong acids, peroxides, and oxidizing agents.		
Decomposition Products:	Thermal decomposition can yield CO and CO_2.		
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	Possibly irritating upon contact with the eyes or upon repeated contact with the skin.
Medical Conditions Aggravated by Exposure:	Eye and skin conditions.
Routes of Exposure:	Dermal.
Carcinogenicity:	No ingredients are classified as carcinogens.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Immediately flush with plenty of water. Contact a physician if symptoms occur.
Skin:	Immediately wipe off material and wash with soap and water. Contact a physician if symptoms occur.
Inhalation:	Move victim to fresh air if discomfort develops. Contact a physician if symptoms occur. persist.
Ingestion:	Seek medical attention. Do not induce vomiting unless directed by a physician.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Safety glasses with side shields.
Skin Protection:	Impermeable gloves. Other protective clothing as required to prevent skin contact.
Respiratory Protection:	None normally required. Where ventilation is inadequate to control vapors, use a NIOSH-approved respirator with organic vapor cartridges. Never enter a confined space without an appropriate air-supplied respirator.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool, dry area preferably between 40º and 77º F. Keep from freezing. Do not store in direct sunlight. Avoid contact with the eyes or skin. Practice good hygiene; i.e. always wash thoroughly after handling and before eating or smoking. For industrial use only. Keep out of reach of children. Follow label/use instructions.
Spill Procedures:	Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE B
DOT Shipping Name:	Not regulated.
IATA / ICAO Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product contains < 3% ethylene glycol (CAS 107-21-1) and < 15% zinc borate (re: zinc compounds) which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste.
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x71003704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

CONSIGLI
Est. 1905

Submittal

Job: 1150
Hyatt Place - Portland
433 Fore Street
Portland, ME 04101

Spec Section No: 078413
Submittal No: 002
Revision No: 0
Sent Date: 7/12/2013
Due Date: 7/25/2013

Spec Section Title: Penetration Firestopping

Submittal Title: P/D: Electrical Outlet Fire Stop

Contractor:
Consigli Construction Co., Inc.

Contractor's Stamp

Consigli Construction Co., Inc.
15 Franklin Street - Portland, ME 04101

☒ Approved for A/E Review ☐ Revise & Resubmit
☐ Approved as Noted for A/E Review ☐ Rejected

Spec. Section 078413	Submittal No. 002
Date 7/12/2013	By Matt Hossfeld

If so marked, approval is given for design only. It does not relieve the subcontractor from complying with the requirements of the contract, contract drawings and specifications. The subcontractor shall be responsible for all dimensions, quantities, schedules and field conditions.

Architect:
Canal5Studio
Hart, Tim

ARCHITECT'S REVIEW Date: 2013-07-16

Approval is for the limited purpose of checking for conformance with information given and the design concept expressed in contract documents. Review is NOT conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Approval does NOT authorize changes to contract documents.

- [X] Approved
- [ ] Approved as Noted
- [ ] Revise / Resubmit
- [ ] Rejected / Resubmit
- [ ] _____

By: JPGauthier

CANAL 5 STUDIO

Engineer / Government / Other Approval

ELECTRICAL OUTLET FIRESTOP

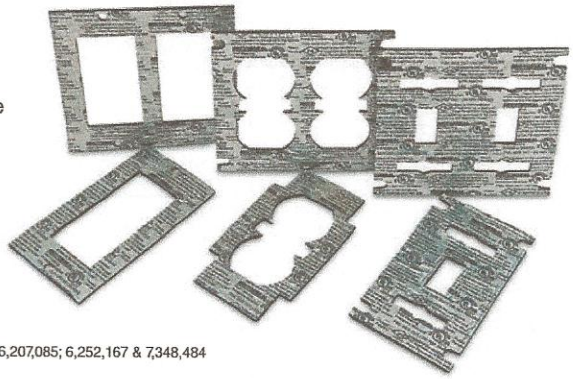
Cover Guard™

Fire-rated gasket for electrical boxes

Code	Description	Qty.
66272	Single receptacle	50
66270	Double receptacle	50
66276	Single switch	50
66274	Double switch	50
66265	Single decor	50
66266	Double decor	50

FEATURES
- Reduces sound transmission
- Easy to install
- Highly intumescent
- STC rating 54

Application • A single component fire-rated gasket for use with electrical boxes to reestablish fire-rating of assemblies with electrical box penetrations
• Fits under the cover plate and does not take up interior box volume



US Patent No. 6,207,085; 6,252,167 & 7,348,484

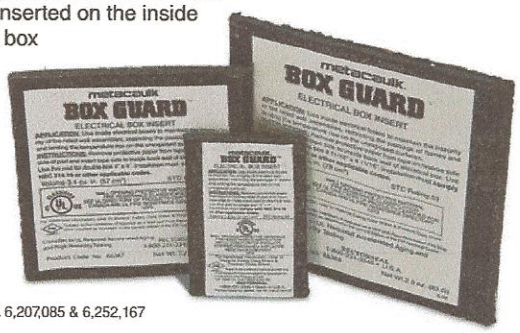
Box Guard™

Fire-rated insert for electrical boxes

Code	Description	Qty.
66366	Single box	50
66367	Double box	50
66369	4-$^{11}/_{16}$" x 4-$^{11}/_{16}$"	50

FEATURES
- Adheres to back of electrical box
- Non-conductive
- Highly intumescent
- STC rating 53

Application • One component fire-rated for use in electrical boxes • It is inserted on the inside back wall of an electrical box prior to wiring



US Patent No. 6,207,085 & 6,252,167

Putty Sticks & Pads

Fire-rated pad for electrical boxes

Code	Description	Qty.
66345	18 cu./in. - stick	12
66340	6" x 7" x $^{1}/_{8}$" thick	20
66335	7" x 7" x $^{1}/_{8}$" thick	20

FEATURES
- Applied by hand
- No asbestos fillers
- Pads - STC rating 60
- For interior use
- Adheres to all common building surfaces

Application • Putty sticks are used to seal around penetrating items through fire-rated walls, floors and within blank openings
• Putty pads are used to maintain the hourly rating of fire-rated walls containing electrical outlet boxes and to reduce sound transmission • Hand moldable with no curing time