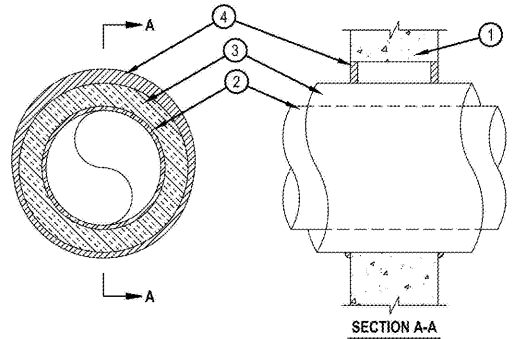


System No. W-J-5042

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)	F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)
T Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)	FT Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)
L Rating At Ambient — 4 CFM/Sq Ft	FH Ratings — 1, 2 and 3 Hr (See Items 1, 2 and 4)
L Rating At 400 F — Less Than 1 CFM/Sq Ft	FTH Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)
	L Rating At Ambient — 4 CFM/Sq Ft
	L Rating At 400 F — Less Than 1 CFM/Sq Ft



- Wall Assembly — Min 3-3/4, 5 and 7-1/4 in. (95, 127 and 184 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete for 1, 2 and 3 hr rated assemblies, respectively. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 18-5/8 in. (473 mm). See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
- Through-Penetrants — One metallic pipe or tubing to be installed within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:
 - Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
 - Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing. When the hourly F and FH Ratings of the firestop system are 3 hr, the nom diam of copper tube shall not exceed 4 in. (102 mm).
 - Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe. When the hourly F and FH Ratings of the firestop system are 3 hr, the nom diam of copper tube shall not exceed 4 in. (102 mm).

HILTI Firestop Systems

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PROPOSED UL DETAIL FOR THE LENGTH OF CONDUIT FOR EMERGENCY CIRCUITRY IN HIGH RISE. REFER TO ELECTRICAL RISERS FOR REQUIRED LOCATIONS

UL PRODUCT CATEGORY

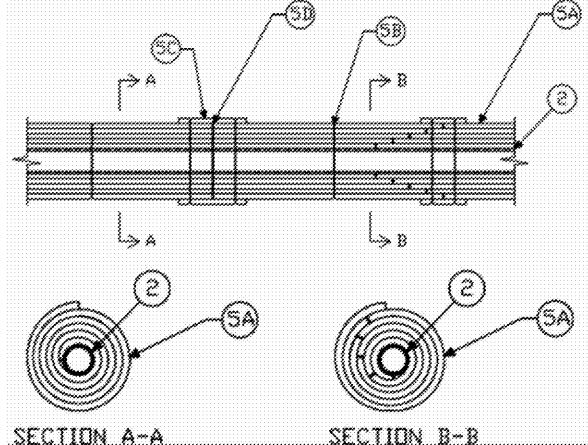
Assembly Usage Disclaimer

XCLF - Thermal Barrier Systems

System No. TB-8

July 31, 2013

Rating - 1 or 2 Hr.



1. Wall or Floor Assembly — (Not Shown) - Concrete or masonry wall or concrete floor having a fire rating equal to or greater than the fire rating of the electrical circuit protective system. Opening in wall or floor through which conduit passes is to be max 1.5 in. (38 mm) larger than the outside diam of the conduit or

place with steel tie wire (Item 5B) on outermost layer.

Raceway Type	1-Hr Rating	2-Hr Rating
Min. 1 in. (25.4mm) and Max 4 in. (102 mm) steel conduit or EMT	4 layers	5 layers
Min. 10 x 4 in. (254 x 102 mm) open ladder back steel cable tray	4 layers	—

THERMAL CERAMICS INC — FireMaster UL-T-Wrap

B. **Steel Tie Wire** — Min No. 16 Gage. (1.5 mm) galvanized steel tie wire. Tie wire used to secure outside layers of mat wrap and spaced max 8 in. (203 mm) OC and max 1 in. (25.4 mm) from both edges of collar strip (Item 5C).

C. **Electrical Circuit Protective Materials* — Collar Strip** — Mat wrap nom. 6 in. (152 mm) wide over butt seams that run through to raceway or nom. 4 in. (100 mm) wide over butt seams where joints between layers are staggered. Collar strip is installed by cutting to size and wrapping around the raceway and itself such that a min 1.5 in. (38 mm) overlap is present along the longitudinal seam.

THERMAL CERAMICS INC — FireMaster UL-T-Wrap

D. **Electrical Circuit Protective Materials* — Putty** — Thick layer of putty applied around entire face of joint between butted mat wrap sections and also used with firestop system and the floor or wall surface.

THERMAL CERAMICS INC — FireMaster UL-T-Wrap

E. **Steel Pins** — (Not shown) — Min No. 12 Gage (2.5 mm) steel pins. Pins welded on both sides of the top and bottom rail of cable tray and spaced max 8 in. (200 mm) OC. Mat wrap is impaled on pins and the outside layer secured using min. 1.25 in. (32 mm) self-drilling washers. Sharp ends of steel pins are either clipped flush with friction washer or turned down.

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

Last Updated on 2013-07-31

System No. W-J-5042

- Pipe Covering* — Nom 1, 1-1/2 or 2 in. (25, 38 or 51 mm) thick hollow-cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. For 1 and 2 hr F and FH Ratings, the annular space between insulated penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). For 3 hr F and FH Ratings, the annular space shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm). See Pipe and Equipment Covering Materials (BRGU) category in the Building Materials Directory for the names of the manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used. The hourly T, FT and FTH Ratings of the firestop system are 1/2 hr for 1 hr rated walls and 1 hr for 2 hr rated walls. For 3 hr rated walls, the hourly T, FT and FTH Ratings when steel and iron pipes are used are 1 hr. For 3 hr rated walls, the hourly T, FT and FTH Ratings when copper penetrants are used are 1-1/4 hr for 2 in. (51 mm) thick pipe covering and 0 hr for pipe covering thickness less than 2 in. (51 mm).
- Fill, Void or Cavity Material* — Sealant — For 1 and 2 hr F and FH Rating, min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. For 3 hr F and FH Rating, min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between pipe covering and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/wall interface on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

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

HILTI Firestop Systems

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length and width of the cable tray. Conduit installed eccentrically or concentrically in the opening with a min 0 in. (point contact) to max 3/4 in. (19 mm) annular space. Through opening in wall or floor to be firestopped prior to installation of the electrical circuit protective system using min 4 pcf (64 kg/m³) mineral wool batt packing material throughout the thickness of the floor or wall except for a recess at each surface to accommodate the caulk fill material (Item 5D). A min 1/2 in. (13 mm) depth of caulk fill material (Item 5D) is required to be installed in the annular space flush with each surface of the floor or wall assembly. The perimeter of the firestopped through opening shall be within the outer bounds of the electrical circuit protective system.

2. **Raceway** — Conduit, EMT or min 10 x 4 in. (254 x 102 mm) steel ladder back cable tray (not shown). Conduit, EMT or cable tray shall be installed as a complete system in accordance with all provisions of the current National Electrical Code.

3. **Raceway Supports** — (Not Shown) - Conduit system shall be supported by steel pipe hangers in conjunction with min 3/8 in. (10 mm) diameter threaded steel cable. Cable trays shall be supported by U-shaped welded hangers formed of min 0.093 in. (2.4 mm) thick painted or galvanized steel channels, 1-5/8 in. (41 mm) wide by min 1-5/8 in. (41 mm) deep with the flange edges hemmed for stiffness.

4. **Cables** — Cables to be installed in conduit in accordance with all provisions of the current National Electrical Code.

5. **Electrical Circuit Protective System** — The electrical circuit protective system consists of a flexible mat, foil tape, min No. 16 gage steel tie wire and putty. The system shall be installed in accordance with the detailed installation instruction manual supplied by the manufacturer of the Electrical Circuit Protective Materials*. The details of the electrical circuit protective system are summarized below:

A. **Electrical Circuit Protective Materials*** — Nom 0.4 in. (10 mm) thickness flexible sheet material. A min of four or five layers of mat wrap are required (See table below for raceway type, hourly rating, and required layers). Mat wrap is installed by concentrically wrapping raceway until required number of layers is achieved and with minimum 6 inch (152 mm) overlap over starting end of mat. Adjacent sections of mat are tightly butted with putty (Item 5D) applied in joint and with collar strip (Item 5C) centered over joint. Alternatively, individual layers of mat wrap can be installed with each layer of mat wrap installed by cutting to size and wrapping around the raceway and itself such that a min 1.5 in. (38 mm) overlap is present along the longitudinal seam and with adjacent lengths of mat wrap in each layer to be installed with tightly-butted end seams. Successive layers of mat wrap installed in same manner with butted end seams offset min 1.5 in. (38 mm) from butted end seams of preceding layer, and a collar strip (Item 5C) installed over the final layer butt-seam. Cut edges of mat wrap seal with foil tape. Mat wrap layers secured in

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
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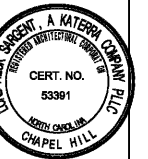
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SCO PROJECT ID: 11-09861-02G
7th & 8th FLOORS FOR DERMATOLOGY
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