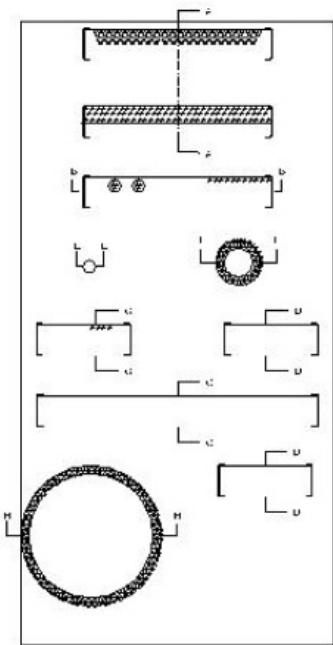
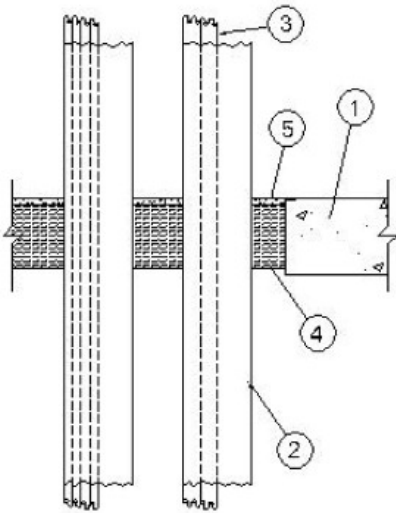


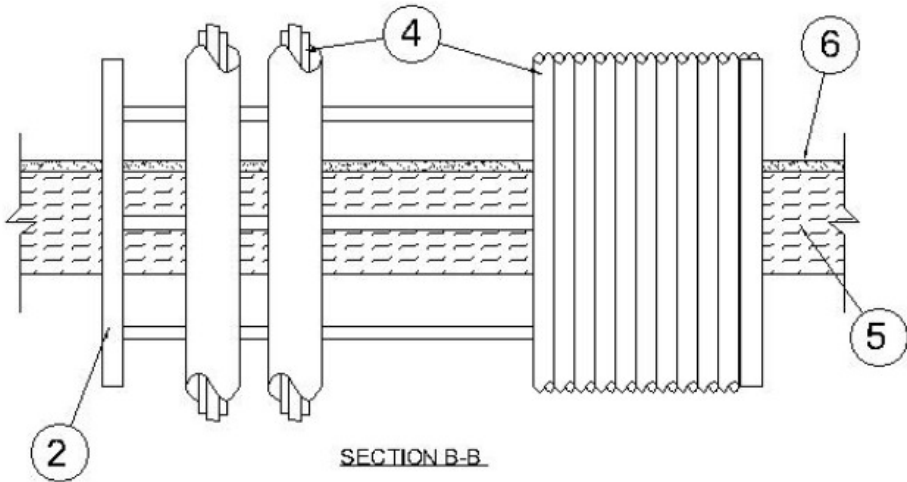
ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Ratings — 0, 1/2, 3/4 & 1-1/2 Hr (See Item 2)	FT Ratings —0, 1/2, 3/4 & 1-1/2 Hr (See Item 2)
L Rating At Ambient — Less Than 1 CFM/ft ²	FH Rating — 2 Hr
L Rating At 400°F —5 CFM/ft ²	FTH Ratings — 0, 1/2, 3/4 & 1-1/2 Hr (See Item 2)
	L Rating At Ambient — Less Than 5.1 L/s/m ²
	L Rating At 204°C —25.5 L/s/m ²





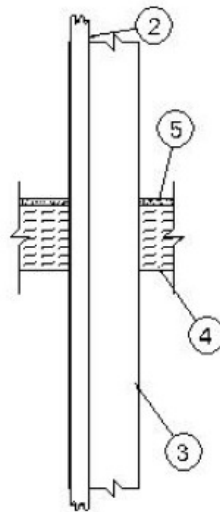
SECTION A-A

FIRESTOP CONFIGURATION A



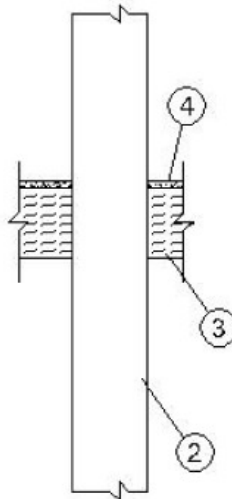
SECTION B-B

FIRESTOP CONFIGURATION B



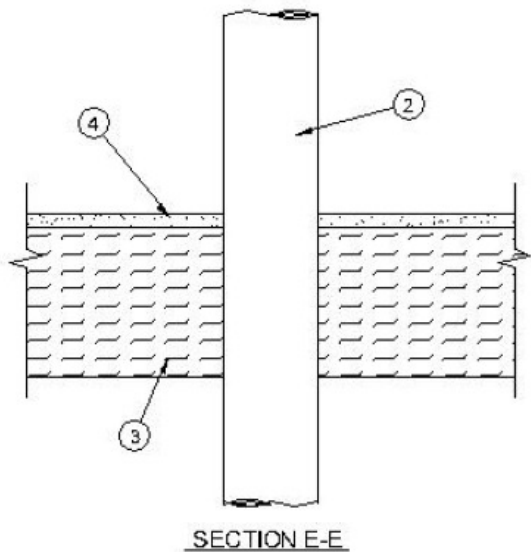
SECTION C-C

FIRESTOP CONFIGURATION C

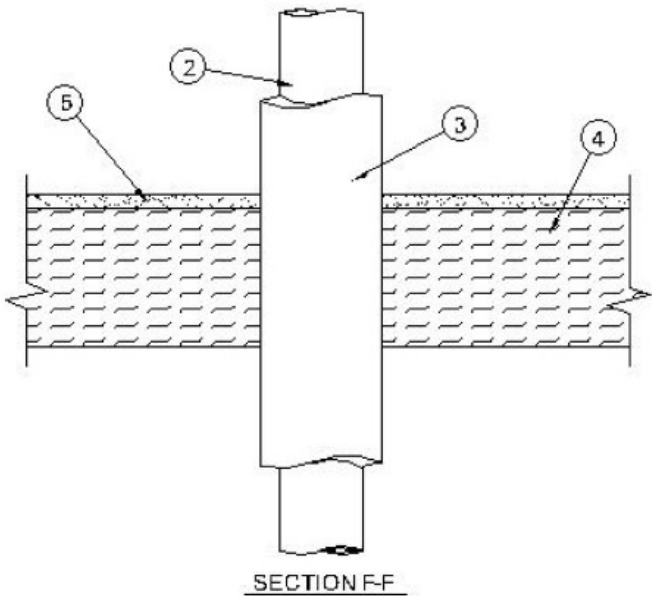


SECTION D-D

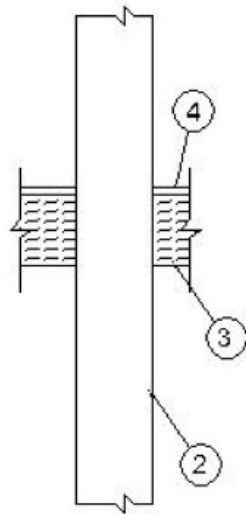
FIRESTOP CONFIGURATION D



FIRESTOP CONFIGURATION E

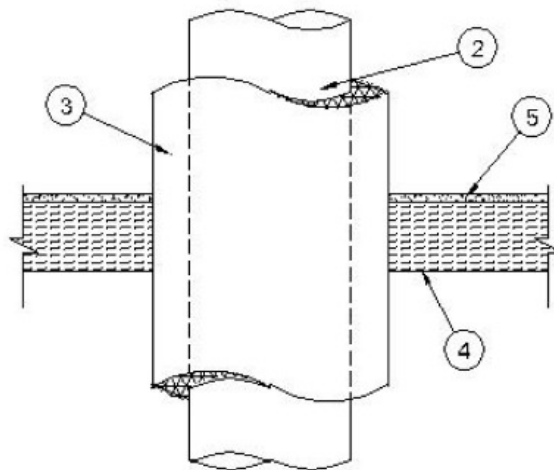


FIRESTOP CONFIGURATION F



SECTION G-G

FIRESTOP CONFIGURATION G



SECTION H-H

FIRESTOP CONFIGURATION H

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening is 3520 ir². (2.27m²) with max dimension of 88 in. (2.235 m).

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

2. Through Penetrants — A max of 8 firestop configurations may be installed within the opening. The space between firestop configurations shall be min 5-3/4 in. (146 mm) to max 7 in. (178 mm). The space between firestop configurations and periphery of opening shall be min 0 in. (0 mm, point contact) to max 17-1/2 in. (445 mm). Pipe, conduit, tubing or cable tray to be rigidly supported on both sides of floor or wall assembly. The T rating of the system is dependent on the firestop configuration, as shown in the table below. Any combination of the following firestop configurations detailed herein may be used:

Firestop Config	T Rating Hr
A	0
B	1/2
C	1/2
D	1/2
E	0
F	3/4
G	1-1/2
H	0 & 1 (see Item 3)

Firestop Configuration A

2. **Cable Trays** — Max 36 in. (914 mm) wide by max 3-1/2 in. (89 mm) deep open-ladder or solid-back cable trays with channel-shaped side rails formed of min 0.050 in. (1.3 mm) thick steel. Cable trays are provided with min 0.050 in. thick steel rungs spaced a max of 12 in. (305 mm) apart, or a min 0.050 in. (1.3 mm) thick steel solid back. A max of 2 cable trays are permitted per opening.

3. **Cables** — Aggregate cross-sectional area of cables in cable trays to be max 40 percent of the cross-sectional area of the cable tray based on a max 3.0 in. (76 mm) cable loading depth within the cable tray. Any combination of the following types and sizes of copper or aluminum conductor cables may be used:

A. Max 1/C 500 kcmil cable with cross-linked polyethylene (XLPE) jacket and insulation.

B. Max 4/C No. 2 AWG cable with XLPE jacket and insulation.

4. **Packing Material** — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

5. **Fill, Void or Cavity Material* — Sealant** — Min 3/8 in. thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [Metacaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling](#), [Metacaulk 835+](#) Self Leveling (floors only)

Firestop Configuration B

2. **Cable Tray** — Max 36 in. (914 mm) wide by max 3-1/2 in. (89 mm) deep open-ladder cable tray with channel-shaped side rails formed of min 0.091 in. (2.3 mm) thick aluminum. Cable trays are provided with min 0.091 in. (2.3 mm) thick aluminum rungs spaced a max of 12 in. (305 mm) apart. One cable tray to be installed in the opening.

3. **Nonmetallic Sleeve** — (Optional) — Nom 3-1/2 in. (89 mm) diam (or smaller) Schedule 10 polyvinyl chloride pipe. In floors, sleeve installed with nom 2 in. (51 mm) projecting above floor. In walls, sleeve installed to project min 2 in. (51 mm) beyond each surface of the wall. A max of 2 nonmetallic sleeves to be installed in the cable tray. The space between the sleeves and the cable tray should be min 1 in. (25.4 mm).

4. **Cables** — A max of eleven 12/C No. 14 AWG copper or aluminum conductor cables with cross-linked polyethylene (XLPE) jacket and insulation to be installed within the cable tray. Within each sleeve a max of two 12/C No. 4 AWG copper or aluminum conductor cables may be installed.

5. **Packing Material** — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening and sleeves as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

6. **Fill, Void or Cavity Material* — Sealant** — Min 3/8 in. (9.5 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [Metacaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling](#), [Metacaulk 835+](#) Self Leveling (floors only)

Firestop Configuration C

2. **Cable Tray** — Max 36 in. (914 mm) wide by max 3-1/2 in. (89 mm) deep open-ladder cable tray with channel-shaped side rails formed of min 0.050 in. (1.3 mm) thick steel. Cable trays are provided with min 0.050 in. (1.3 mm) thick steel rungs spaced a max of 12 in. (305 mm) apart. One cable tray to be installed in the opening.

3. **Cables** — A max of four 12/C No. 14 AWG copper or aluminum conductor cables with cross-linked polyethylene (XLPE) jacket and

insulation to be installed within the cable tray.

4. Packing Material — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

5. Fill, Void or Cavity Material* — Sealant — Min 3/8 in. (9.5 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [Metacaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling, Metacaulk 835+](#) Self Leveling (floors only)

Firestop Configuration D

2. Cable Tray — Max 12 in. (305 mm) wide by max 3-1/2 in. (89 mm) deep open-ladder cable tray with channel-shaped side rails formed of min 0.063 in. (1.6 mm) thick steel. Cable trays are provided with min 0.051 in. (1.3 mm) thick steel rungs spaced a max of 12 in. (305 mm) apart. A max of four cable trays to be installed in the opening.

3. Packing Material — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

4. Fill, Void or Cavity Material* — Sealant — Min 3/8 in. (9.5 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [MetaCaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling, Metacaulk 835+](#) Self Leveling (floors only)

Firestop Configuration E

2. Steel Conduit — Nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing or steel conduit. One conduit to be installed within the firestop system. Conduit to be rigidly supported on both sides of floor or wall assembly.

3. Packing Material — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

4. Fill, Void or Cavity Material* — Sealant — Min 3/8 in. (9.5 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [Metacaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling, Metacaulk 835+](#) Self Leveling (floors only)

Firestop Configuration F

2. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tubing or nom 6 in. diam (or smaller) Type L (or heavier) copper tubing. One tube to be installed within the firestop system. Tube to be rigidly supported on both sides of floor or wall assembly.

3. Pipe Covering* — Nom 1 in. (25.4 mm) thick hollow cylindrical heavy density (min 7.0 pcf or 112 kg/m³) mineral fiber units 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.

See **Pipe and Equipment Covering — Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. Packing Material — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

5. Fill, Void or Cavity Material* — Sealant — Min 3/8 in. (9.5 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [MetaCaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling, Metacaulk 835+](#) Self Leveling (floors only)

Firestop Configuration G

2. Cable Tray — Max 36 in. (914 mm) wide by max 3-1/2 in. (89 mm) deep open-ladder cable tray with channel-shaped side rails formed of min 0.050 in. (1.3 mm) thick steel. Cable trays are provided with min 0.050 in. (1.3 mm) thick steel rungs spaced a max of 12 in. (305 mm) apart. One cable tray to be installed in the opening.

3. Packing Material — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top

surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

4. Fill, Void or Cavity Material* — Sealant — Min 3/8 in. (9.5 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [Metacaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling](#), [Metacaulk 835+](#) Self Leveling (floors only)

Firestop Configuration H

2. Steel Pipe — Nom 16 in. (406 mm) diam (or smaller) Schedule 30 (or heavier) or nom 36 in. (914 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe. Pipe to be rigidly supported on both sides of floor or wall assembly.

3. Pipe Covering* — (Optional) — Nom 1 or 1-1/2 in. (25.4 or 38 mm) thick hollow cylindrical heavy density (min 7.0 pcf or 112 kg/m³) mineral fiber units 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. **T Rating is 0 Hr when pipe covering is not used.**

See **Pipe and Equipment Covering — Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. Packing Material — Min 3-3/4 in. (95 mm) thickness of min 4.5 pcf (72.0 kg/m³) mineral wool batt insulation firmly packed into the opening as a permanent form so that the width of the wool is compressed at least 50 percent. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

5. Fill, Void or Cavity Material* — Sealant — Min 3/8 in. (9.5 mm) thickness of caulk applied within the annulus, flush with top surface of floor or with both surfaces of wall.

RECTORSEAL — FlameSafe FS 4000 Silicone Sealant Caulk Grade, [Metacaulk 835+](#) Caulk Grade (floors or walls) or FlameSafe FS 4000 [Silicone Sealant Self Leveling](#), [Metacaulk 835+](#) Self Leveling (floors only)

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