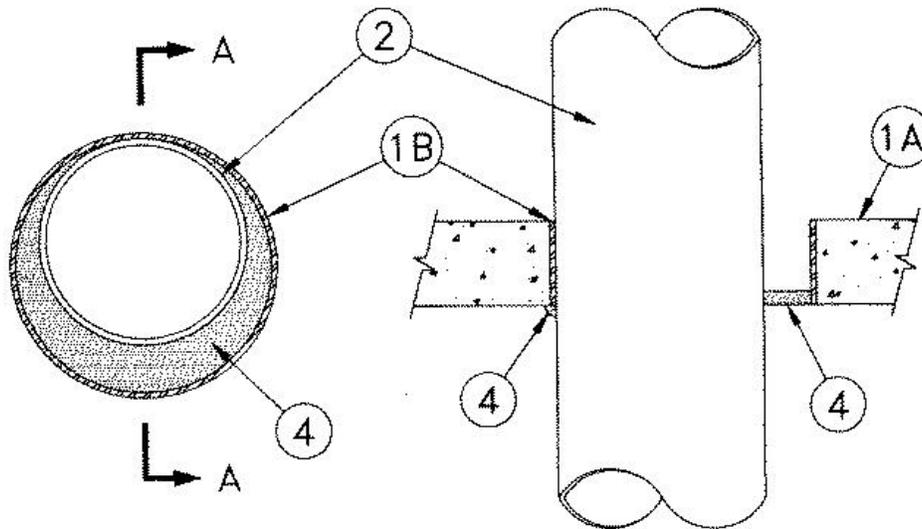


ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 and 3 Hr (See Item 4)	F Rating — 2 and 3 Hr (See Item 4)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 2 and 3 Hr (See Item 4)
L Rating At 400°F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
W Rating - Class 1 (See Items 2 and 4)	L Rating At Ambient — Less Than 5.1 L/s/m <sup>2</sup>
	L Rating At 204°C — Less Than 5.1 L/s/m <sup>2</sup>



**SECTION 'A-A'**

**1A. Floor or Wall Assembly** — Min 4-1/2 in. (114 mm) thick reinforced light weight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks\***. Floor may also be constructed of any 6 in. (152 mm) thick UL Classified hollow core **Precast Concrete Units**. Max diam of opening is 9-5/8 in. (254 mm). When precast concrete units are used the max diam of opening is 7 in. (178 mm).

See **Concrete Blocks (CAZT)** and **Precast Concrete Units\* (CFTV)** categories in the Fire Resistance Directory for names of manufacturers.

**1B. Metallic Sleeve** — (Optional) - Nom 5 in. (127 mm) (or smaller), Schedule 10 (or heavier) steel pipe sleeve, cast or grouted into floor or wall assembly. Sleeve to be flush with floor or wall surfaces.

**2. Through Penetrants** — One metallic pipe or tubing to be installed concentrically or eccentrically into opening such that the annular space between the pipe and the periphery of the opening is min 0 in. (point of contact) to max value shown in table below. When W Rating applies, min annular space is 1/2 in. (13 mm). Pipe to be firmly supported on both sides of opening. The following types and sizes of pipes may be used:

A. **Steel Pipe** — Nom 8 in. (203 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.

B. **Iron Pipe** — Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.

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

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

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

**3. Packing Material** — (not shown) Min 1 in. (25 mm) diam backer rod firmly pressed into opening as a permanent form. Forming material to be recessed by min depth of 1/2 in. (13 mm) from floor surface or both surfaces of wall.

**4. Fill, Void, or Cavity Materials\* - Caulk** — Fill material applied within the annulus, flush with either the bottom or top surface of

floor or one surface of the wall. When wall is constructed of concrete blocks, fill material shall be installed within the annular space on both sides of wall. A min 3/8 in. (10 mm) bead of the caulking material shall be applied, on the same side of the sealant in the annular space, at the point of contact of pipe and periphery of opening at bottom or top floor surface or at wall surface. In floors of precast concrete units, fill material shall be installed on the bottom side of the floor. For 3 Hr F and FH-ratings (see table below), an additional 1/4 in. (6 mm) of the caulk specified shall be applied around the entire circumference of the penetrant at the bottom or top floor surface or at wall surface. The fill material thickness is dependent on the hourly F and FH-ratings, the type and size of penetrant and type of fill material as tabulated below:

Type of Penetrant	Max Diam of Penetrant In. (mm)	Max Annular Space(In.)	Type of Fill Material	Thickness of Fill Material In. (mm)	F and FH-Ratings Hr
Steel or Iron Pipe	8 (203)	1 (25)	FlameSafe® <a href="#">FS900+</a> , FlameSafe FS1900, <a href="#">Metacaulk MC 150+</a> , <a href="#">Metacaulk 1000</a> , <a href="#">Metacaulk 350i</a> , Biostop BF <a href="#">150+</a> , Biostop 350i or Biostop 500+	1/2 (13)	2
Copper Pipe, Copper Tube, Conduit	4 (102)	1 (25)	FlameSafe® <a href="#">FS900+</a> , FlameSafe FS1900, <a href="#">Metacaulk MC 150+</a> , <a href="#">Metacaulk 1000</a> , <a href="#">Metacaulk 350i</a> , Biostop BF <a href="#">150+</a> , Biostop 350i or Biostop 500+	1/2 (13)	2
Steel or Iron Pipe	4 (102)	1/2 (13)	FlameSafe FS1900 <a href="#">Metacaulk 1000</a> , <a href="#">Metacaulk 350i</a> , Biostop 350i or Biostop 500+	3/4 (19)	2
Steel or Iron Pipe	8 (203)	1 (25)	FlameSafe® <a href="#">FS900+</a> , FlameSafe FS1900, <a href="#">Metacaulk MC 150+</a> , <a href="#">Metacaulk 1000</a> , <a href="#">Metacaulk 350i</a> , Biostop BF <a href="#">150+</a> , Biostop 350i or Biostop 500+	1 (25)	3
Copper Pipe, Copper Tube, Conduit	4 (102)	1 (25)	FlameSafe® <a href="#">FS900+</a> , FlameSafe FS1900, <a href="#">Metacaulk MC 150+</a> , <a href="#">Metacaulk 1000</a> , <a href="#">Metacaulk 350i</a> , Biostop BF <a href="#">150+</a> , Biostop 350i or Biostop 500+	1 (25)	3

**RECTORSEAL** — FlameSafe® [FS900+](#), FlameSafe FS1900, [Metacaulk MC 150+](#), [Metacaulk 1000](#), [Metacaulk 350i](#), Biostop BF [150+](#), Biostop 350i or Biostop 500+

**W Rating applies only when [Metacaulk MC 150+](#), [Metacaulk 1000](#), Biostop BF [150+](#), [FlameSafe FS900+](#) or FlameSafe [FS1900](#) is used.**

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

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