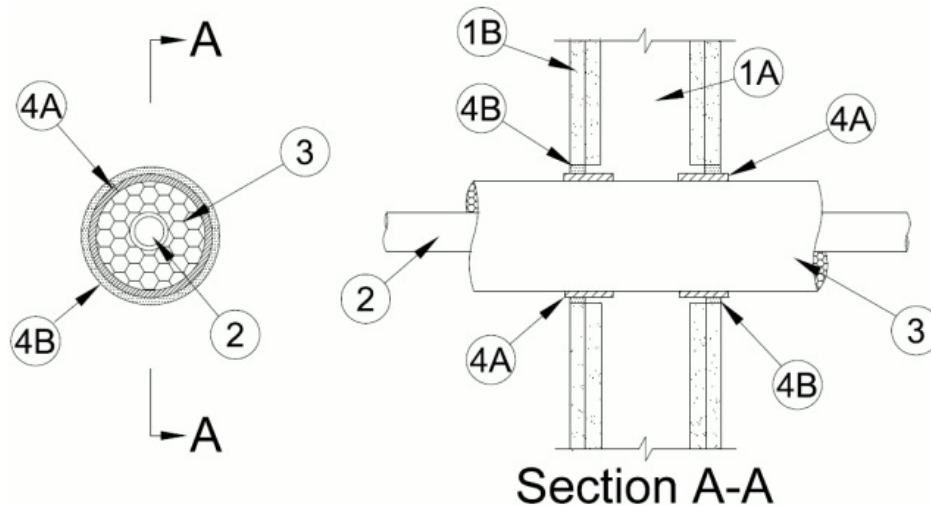


F Ratings — 1 and 2 Hr (See Item 1)  
 T Ratings — 0 and 1 Hr (See Item 1)



**1. Wall Assembly** — The 1 and 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

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

B. **Gypsum Board\*** — 5/8 in. (16 mm) thick with square or tapered edged. The type, thickness, number of layers and fasteners shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Diam of opening to be max 1-1/4 in. (32 mm) larger than outer diameter (OD) of insulated penetrant. Max diam of opening is 4-1/2 in. (114 mm).

**The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating of the firestop system is 0 hr and 1 hr, for 1 and 2 hr rated walls, respectively.**

**2. Through Penetrants** — One tube centered within opening. Tube to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic tubing may be used:

A. **Aluminum Tubing** — Reflok 6061-T4 ASTM B210 seamless aluminum tubing for use in closed (process or supply) piping systems. Tubing size shall be maximum 2-1/8 in. (29 mm) to minimum 1/4 in. (6 mm) outer diameter (OD) having wall thickness ranging from 0.080 in. (2 mm) to 0.030 in. (0.8 mm) respectively.

**3. Pipe Covering** — The following pipe covering shall be used with each Through Penetrant (Item 2).

A. **Tube Insulation-Plastics+** — Min 1/2 in. (13 mm) thick Aerocel Ethylene Propylene Diene Terpolymer (EPDM) pipe insulation furnished in the form of tubing. The annular space between the insulated penetrant and the edge of the opening shall not exceed 5/8 in. (16 mm).

See **Plastics+** - (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications of having a UL 94 Flammability Classification of 94-5VA may be used.

**4. Firestop System** — The firestop system shall consist of the following:

A. **Fill, Void or Cavity Material\* - Wrap Strip** — One layer of nom 1/4 in. (6 mm) thick by 2 in. (51 mm) wide intumescent wrap strip wrapped around the outer circumference of the insulated pipe on each side of the wall. Wrap strip installed with butted seam and located within the annular space such that edge of wrap strip projects nom 1/4 in. (6 mm) beyond face of wall at both sides of wall. Wrap strip temporarily secured with tape or tie wire.

**RECTORSEAL** — [Metacaulk Wrap Strip](#), Biostop Wrap Strip or Flamesafe Wrap Strip

B. **Fill, Void or Cavity Material\*—Sealant** — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus between wrap strip and periphery of opening, flush with both surfaces of wall.



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**RECTORSEAL** — [Metacaulk 1000](#), Biostop 500+, FlameSafe FS1900

\*,+ 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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