1. **Wall Assembly** — Min 5-5/8 in. (143 mm) thick lightweight or normal weight (100-150 (1600-2400 kg/cu meter)) concrete wall assembly. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 13 in. (330 mm).
   
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Steel Sleeve** — (Optional) - Cylindrical sleeve fabricated from min 0.013 in. (0.330 mm) thick (No. 30 gauge) galv steel sheet and having a min 2 in. (51 mm) lap along the longitudinal seam. Length of sleeve to be nom 1 in. (25 mm) less than thickness of wall. Sleeve to be installed by coiling the sheet metal to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil to let it uncoil against the cutout in the wall. Sleeve to be centered within thickness of wall.

3. **Through Penetrants** — One pipe or tube to be installed within the opening. Pipe or tube to be rigidly supported on both sides of wall assembly. The following types and sizes of pipes or tubing may be used:
   
   A. **Steel Pipe** — Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   
   B. **Iron Pipe** - Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
   
   C. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   
   D. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

4. **Pipe Covering*** — Nom 1-1/2 in. (38 mm) thick hollow cylindrical heavy density (3.5 pcf (56 kg/cu meter)) 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. The annular space between the insulated pipe and the opening shall be min 1/4 in. (6 mm) to max 5/16 in. (8 mm).
   
   See Pipe Equipment Covering — Materials — (BRGU) Category in the Building Materials Directory for names of 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.

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

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**TREMCO Commercial Sealants & Waterproofing**

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www.tremcosealants.com
A. **Packing Material** — Min 3-5/8 in. (92 mm) thickness of min 4 pcf (64 kg/cu meter) mineral wool batt insulation firmly packed into the opening as a permanent form. Packing material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material. The T Rating is 1-3/4 hr when the mineral wool packing material is used.

A1. **Alternate Packing Material** — Min 3-5/8 in. (92 mm) thickness of min 6 pcf (96 kg/cu meter) ceramic blanket insulation firmly packed into the opening as a permanent form. Packing material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material. The T Rating is 2-1/2 hr when the ceramic blanket packing material is used.

**TREMCO INC** — TREMstop FS Blanket

B. **Fill, Void or Cavity Material*** — Min 1 in. (25 mm) thickness of fill material applied within the annular space, flush with both surfaces of wall.

**TREMCO INC** — TREMstop Intumescent Acrylic, TREMstop IA+

*Bearing the UL Classification Mark