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 diam of opening 12-3/4 in. (324 mm).
   
   See Concrete Blocks (CAZT) category in Fire Resistance Directory for names of manufacturers.

1A. **Steel Sleeve** – (Optional, Not Shown) – Nom 12 in. (305 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.

2. **Through-Penetrant** – One metallic pipe or tubing installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:
   
   A. **Steel Pipe** – Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   
   B. **Iron Pipe** – Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
   
   C. **Copper Tubing** – Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   
   D. **Copper Pipe** – Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   
   E. **Conduit** – Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

3. **Firestop System** – The details of the firestop system shall be as follows:
   
   A. **Packing Material** – Min 1 in. (25 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material. When optional steel sleeve is used, packing material to extend through floor or wall thickness except for recesses needed to accommodate fill material (Item 3B).
   
   B. **Fill, Void or Cavity Materials* – Caulk, Sealant or Putty** – Min 1 in. (25 mm) thickness of caulk or putty applied within the annulus, flush with top surface of floor or with both surfaces of wall.

   **3M COMPANY** – CP 25WB+ caulk, FB-3000 WT sealant or MP+ putty

   (Note: W Rating applies only when FB-3000 WT is used.)

   C. **Duct Wrap Material* – Nom 2 in. (51 mm) thick duct wrap tightly wrapped around penetrant to extend 12 in. (305 mm) below floor and 36 in. (914 mm) above floor or 36 in. (914 mm) beyond both surfaces of wall. Longitudinal seams sealed with foil tape.

   **3M COMPANY** – Fire Barrier Duct Wrap 20A, 3M Fire Barrier Duct Wrap 615, 3M Fire Barrier Duct Wrap 615+

*Bearing the UL Classification Mark