

- 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 described in the individual U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. Studs Wall framing shall consist of steel channel studs. Steel studs to be min 64 mm (2-1/2 in.) wide and spaced max 610 mm (24 in.) OC.
 - B. Gypsum Board* The gypsum board type, thickness number of layers, fastener type and sheet orientation shall be specified in the individual U400 Series Design in the UL Fire Resistance Directory. Max area of opening is 347 sq cm (54 sq in.) with max dimension of 457 mm (18 in.). The hourly F and T Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
- 2. Air Conditioning (AC) Line Set One or more AC line sets installed eccentrically or concentrically within opening. Each AC line set consists of two pipes or tubes (Item 2A), tubing insulation (Item 2B) and a thermostat cable (Item 2C). The space between AC line sets shall be min 25 mm (1 in.) to max 35 mm (1-3/8 in.). The space between AC line sets and the periphery shall be min point contact to max 100 mm (4 in.).
- 2A. Through Penetrant A max of two pipes or tubes to be installed in each AC line set. Pipe of tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of through penetrants may be used:
 - 1. Steel Pipe Nom 25 mm (1 in.) diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - 2. Iron Pipe Nom 25 mm (1 in.) diam (or smaller) cast or ductile iron pipe.
 - 3. Copper Pipe Nom 25 mm (1 in.) diam (or smaller) Regular (or heavier) copper pipe.
 - 4. Copper Tube Non 25 mm (1 in.) diam (or smaller) Type L (or heavier) copper tube.
- 2B. Tube Insulation Plastic# Nom 19 mm (3/4 in.) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The tube insulation may be installed on one max 25 mm (1 in.)pipe or tube in each AC line set. The annular space between line sets shall be min 25 mm (1 in.) to max 35 mm (1-3/8 in.) The annular space between the penetrating items and the periphery of the opening shall be min 0 in. (point contact) to max 4 in. The space between the pipes or tubing within each AC line set shall be point contact.
 - See Plastics (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
- 2C. Cable One 4 pair No. 18 AWG (or smaller) thermostat cable with polyvinyl chloride (PVC) insulation and jacket materials may be installed with each AC line set. Cable to be rigidly supported on both sides of wall assembly.
- 3. Fill, Void or Cavity Material Sealant* Min 16 mm (5/8 in.) thickness of fill material applied within annulus around the penetrants and between penetrants and the gypsum board, flush with surfaces of wall. At point contact, a min 6 mm (1/4 in.) bead of fill material shall be applied at the insulated penetrant/wall and bare penetrant/wall interfaces on both sides of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

*Bearing the UL Classification Mark

#Bearing the UL Recognized Component Mark



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