1. **Wall Assembly** – The 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** – Wall framing shall consist of steel “C” studs min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC. Additional framing members shall be used to completely frame around opening.
   B. **Gypsum Board** – Min 5/8 in. (15.9 mm) thick, 4 ft (1220 mm) wide with square or tapered edges as specified in the individual U400 or V400 Wall and Partition Design.

Max size of opening is 17.3 sq ft (1.61 m²) with a max width of 89 in. (2.26 m).

See **Gypsum Board** (CKNX) category in the Fire Resistance Directory for names of manufacturers.

2. **Steel Air Duct** – Max 85 by 24 in. (2160 by 610 mm) 0.030 in. (0.76) mm thick (22 GA) galvanized steel duct to be installed either concentrically or eccentrically within the opening. The annular space shall be min 1 in. (25 mm) to max 3 in. (76 mm) within the framed opening. The duct shall be constructed and reinforced in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible. Steel duct to be rigidly supported on both sides of wall assembly.

3. **Duct Wrap Materials** – Nom 1-1/2 in. (38 mm) thick ceramic fiber batt or blanket (min 6 pcf or 96 kg/m³) jacketed on the outside with a foil-scrim-poly facing, installed in a telescope, checkerboard or butt-joint-and-collar pattern with 3 in. (76 mm) transverse and longitudinal overlaps, in accordance with the requirements of Ventilation Assembly No. V-20. See Ventilation Duct Assemblies in Vol. 2 of the UL Fire Resistance Directory. Longitudinal and transverse joints sealed with aluminum foil tape.

   **3M COMPANY**
   **3M FIRE PROTECTION PRODUCTS** – 3M FireBarrier Duct Wrap 615 or 3M FireBarrier Duct Wrap 615+.

4. **Firestop System** – The firestop system shall consist of the following:
   A. **Packing Material** – Min 4-3/4 (121 mm) thickness of min 6 pcf (96 kg/m³) duct insulation firmly packed into 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.

   **3M COMPANY**
   **3M FIRE PROTECTION PRODUCTS** – 3M FB-1000 NS

   B. **Fill Void or Cavity Material** – Sealant – Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall.

   **3M COMPANY**
   **3M FIRE PROTECTION PRODUCTS** – 3M FB-1000 NS

   C. **Steel Retaining Angles** – Stiffening angle 1-1/2 by 2 by 1/8 in. (38 by 52 by 3.2 mm), applied around the perimeter of the duct with the 2 in. (52 mm) leg against the sealant (Item 4B above). Angles attached to steel duct on both sides of wall with min No. 10 steel sheet metal screws spaced a max of 1 in. (25 mm) from each end of steel duct and spaced a max of 6 in. (152 mm) OC.

*Bearing the UL Classification Mark*

This material was extracted and drawn by 3M Fire Protection Products from the 2009 edition of the UL Fire Resistance Directory.