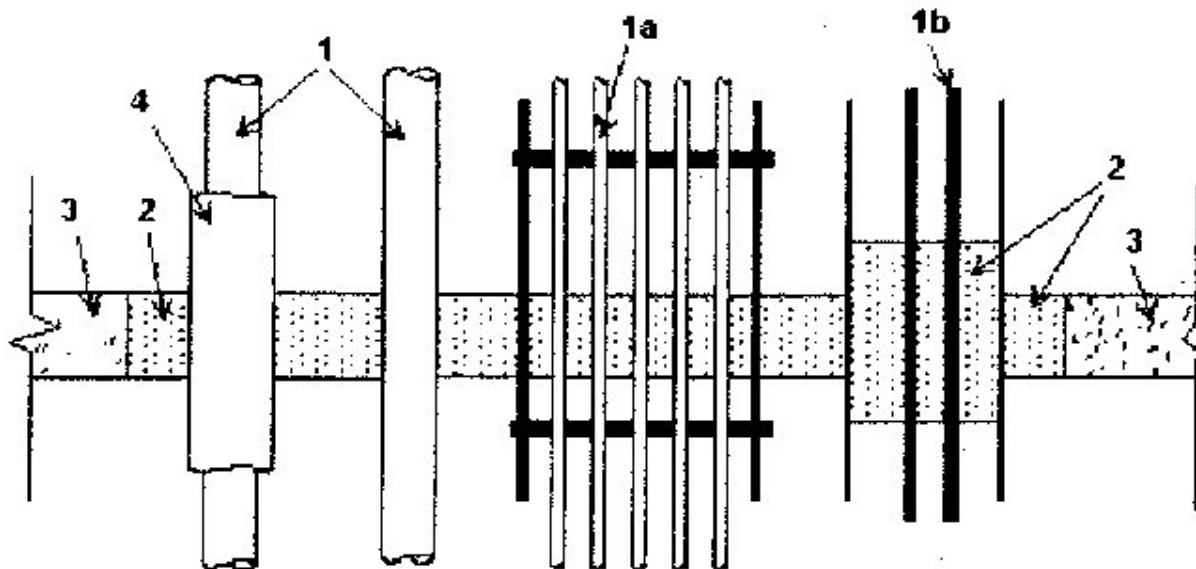


**DESIGN NO. 3M/PHV 120-01**  
**HORIZONTAL OR VERTICAL (FLOOR OR WALL), RATINGS - SEE BELOW, ANNULAR**  
**SPACING - 1/4" MINIMUM, NO MAXIMUM**  
**TEST PRESSURE DIFFERENTIAL - 2.5 Pa (0.01" OF WATER)**

Penetration Material	Size	CAN/ULC-S115		ASTM-E814	
		F/FH	FT/FTH	F	T
Copper Tubing, Type L or DWV	1/2" - 3"	2 Hr	0 minutes	2 Hr	0 minutes
EMT Steel Conduit	1/2" - 4"	2 Hr	1 Hr	2 Hr	1 Hr
Steel Pipe Sch. 10S or Heavier	1/2" - 8"	2 Hr	1 Hr	2 Hr	1 Hr
Steel U-Channel Supports	1-5/8" x 3-1/4" max.	2 Hr	1 Hr	2 Hr	1 Hr
Cable Tray, Steel or Aluminum 10S or Heavier Ladder Type	36" x 6'	2 Hr	50 minutes	2 Hr	50 minutes
Bus Duct Assembly	Max. 111.3" <sup>2</sup>	2 Hr	2 Hr	2 Hr	2 Hr
Pipe Insulation	Various (See Item 4)	2 Hr	2 Hr	2 Hr	2 Hr
No Penetrant	12" x 12" Rectangular or 12" Diameter	2 Hr	2 Hr	2 Hr	2 Hr



1. **Penetrations:** As per table of ratings; maximum number of penetrants is not limited. Penetrant spacing is limited only by good structural practice for complete mortar penetration except bus ducts or cable trays which shall be spaced a minimum of 4" apart. Steel U-Channel supports may penetrate at angles up to 45° from perpendicular.
  - a) **Cable trays** have a maximum fill of 45% by area, (100% visual fill) of Control, Communication or Power Cables of any type or size, including Mineral Insulated (MI) cable.
  - b) **Bus ducts** may contain Copper conductors (4500 A maximum) or aluminum conductors (3400 A maximum) and be internally firestopped with 3M Fire Barrier Mortar 8" in depth, centered in wall or floor. Conductors to be suitably insulated at location of contact with mortar.
  - c) **No Penetrant (Not Shown):** Maximum opening size is 12" x 12" rectangular or 12" diameter.

2.	<p><b>Filler Material:</b> *3M™ Fire Barrier Mortar, minimum depth 4", minimum depth 8" in bus ducts.</p> <p><b>a) Slip Cover:</b> 1/8" thick ceramic paper blankets may be used to wrap moving pipes within 3M Fire Barrier Mortar as a bond breaker to prevent mechanical damage. Blankets must be securely held on pipes and/or pipe covering by suitable tapes or wire.</p>
3.	<p><b>Floor or Wall:</b> Concrete slab, or concrete block wall with a minimum density of 100 lbs/ft<sup>3</sup> density minimum depth as necessary for required fire resistance rating but not less than 4". Maximum size of opening 22.7 sq.ft., maximum length 8 ft.</p>
4.	<p><b>Pipe Insulation (Optional):</b> For steel pipe, 1" to 6" pre-molded calcium silicate or rockwool, or 6" perlite based insulation with minimum 0.016" thick aluminum jacket, or minimum 0.010" thick steel or stainless steel jacket. For copper pipe a minimum 1" rockwool pipe wrap insulation with foil scrim craft jacket. All insulation and jacketing must be securely fastened.</p>

**Note:** Metric conversion factor, inches x 25.4 = mm.

Refer to 3M literature for complete installation information.

\*Component bearing the Warnock Hersey Certification Mark.