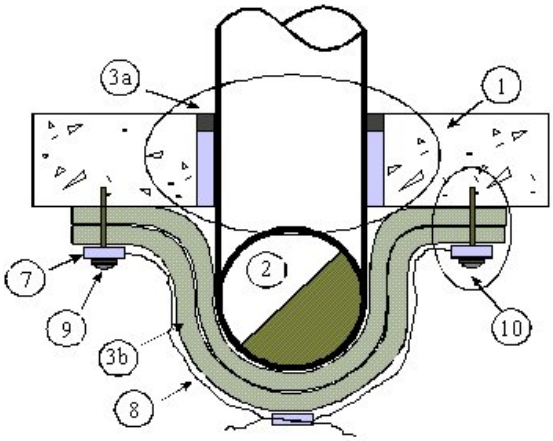
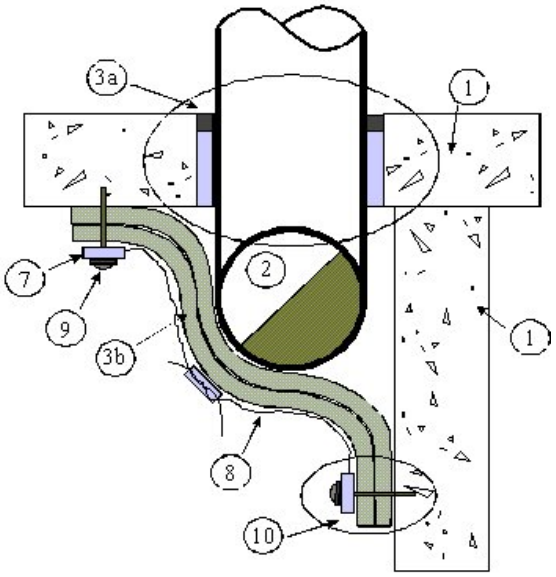
DESIGN NO. 3M/PHV 120-06
SINGLE & MULTIPLE PENETRATIONS, HORIZONTAL OR VERTICAL (FLOOR/CEILING AND WALLS)
TEST PRESSURE DIFFERENTIAL - 2.5 Pa (0.01" OF WATER)

Penetrant	Pipe Size Diameter	Length Wrapped	Seams	Layers	CAN/ULC-S115		ASTM-E814	
					F, FH	FT, FTH	F	T
Steel	4"	30"	Overlap 3"	1	2 Hr	1 Hr	2 Hr	1 Hr
Steel	4"	30"	Butt	2	2 Hr	2 Hr	2 Hr	2 Hr
Cast Iron	4"	30"	Overlap 3"	1	2 Hr	1 Hr	2 Hr	1 Hr
Cast Iron	4"	30"	Butt	2	2 Hr	2 Hr	2 Hr	2 Hr
EMT/RSC	4"	30"	Overlap 3"	1	2 Hr	1 Hr	2 Hr	1 Hr
EMT/RSC	4"	30"	Butt	2	2 Hr	2 Hr	2 Hr	2 Hr
Copper	4"	36"	Overlap 3"	1	2 Hr	1 Hr	2 Hr	1 Hr
Copper	4"	36"	Butt	2	2 Hr	2 Hr	2 Hr	2 Hr
Steel	Over 4" to 8"	36"	Overlap 3"	1	2 Hr	1 Hr	2 Hr	1 Hr
Steel	Over 4" to 8"	36"	Butt	2	2 Hr	2 Hr	2 Hr	2 Hr
Cast Iron	Over 4" to 8"	36"	Overlap 3"	1	2 Hr	1 Hr	2 Hr	1 Hr
Cast Iron	Over 4" to 8"	36"	Butt	2	2 Hr	2 Hr	2 Hr	2 Hr

(5) THREE-SIDED SYSTEM



(6) TWO-SIDED SYSTEM



1. **Floor or Wall Assembly:** Code conforming 1 or 2 hour fire-rated floor or wall assembly, nominal 2-1/2" thick, normal low density cast concrete, or hollow core concrete. F rating will equal that of floor or wall fire resistance rating.

2.	**Penetrant:** (See table of ratings) Nominal 8" diameter or smaller Steel (Schedule 10 & heavier) or Cast Iron pipe, nominal 4" diameter EMT, Rigid Steel Conduit and Copper Pipe or Tubing.
3.	**Firestop System Components:** **a) Firestop Design:** Installed a listed 3M Fire Protection Product design to seal the penetrant. **Firestop Forming Material: Substitute listed material with 4 pcf mineral wool, installed to the full thickness of the floor or wall. Apply the listed 3M™ sealant, caulk, putty or spray as detailed in the design**. **b)** *3M™ FireMaster® Duct Wrap is wrapped in a "U" shape around the pipe and attached to the substrate as detailed in Items 5 and 6 to meet the application layers as detailed in the table, seams and cut edges are sealed with aluminum foil tape, secure with 1/2" wide stainless steel banding (Item 8) at 8" intervals, at the fire separation and the end of the wrap length of pipe. **c)** (Not Shown) At the wrapped end point, *3M™ FireMaster® Duct Wrap is positioned into the space between the concrete slab and the pipe to fill all void spaces to a depth of 3". **d) Floor Applications (Not Shown):** Install the *3M™ FireMaster® Duct Wrap to the underside of the floor. **Wall Applications:** Install the *3M™ FireMaster® Duct Wrap to both sides of the wall.
4.	**Wrap Methods:** **a) Single Layer** (Not shown): *3M™ FireMaster® Duct Wrap is wrapped in a "U" shape around the pipe, longitudinal seams overlapped 3". **b) Double Layer**: *3M™ FireMaster® Duct Wrap is wrapped in a "U" shape around the pipe, butt longitudinal seams on both layers. Exterior layer seams are offset from those of the inner layer seams.
5.	**Three-Sided Wrap Method:** *3M™ FireMaster® Duct Wrap is wrapped around the pipe such that a minimum flare of 3" (Item 10) is attached to the substrate, secured with a Clamping Plate (Item 7) to the underside of the floor slab or wall on both sides of the pipe.
6.	**Two-Sided Wrap Method:** *3M™ FireMaster® Duct Wrap is wrapped around the pipe such that a minimum overlap of 3" (Item 10) onto the substrate, is secured with a Clamping Plate (Item 7) to the underside of the floor slab and wall.
7.	**Clamping Plate:** Minimum 1-1/2" x 3/16" thick steel plate with pre-drilled nominal 1/4" diameter holes at 8" oc used to clamp the wrap material against the bottom of the floor slab and surface of the wall. Fasten stainless steel banding (Item 8) to the clamping plates with tails that will permit mating at the mid point of the pipe, prior to securing to substrate. Secure the clamping plate with steel masonry anchors (Item 9) or Tapcon Fasteners (Item 9) passing through the *3M™ FireMaster® Duct Wrap.

Note: Metric conversion factor, inches x 25.4 = mm.
*Component bearing the Warnock Hersey Certification Mark.