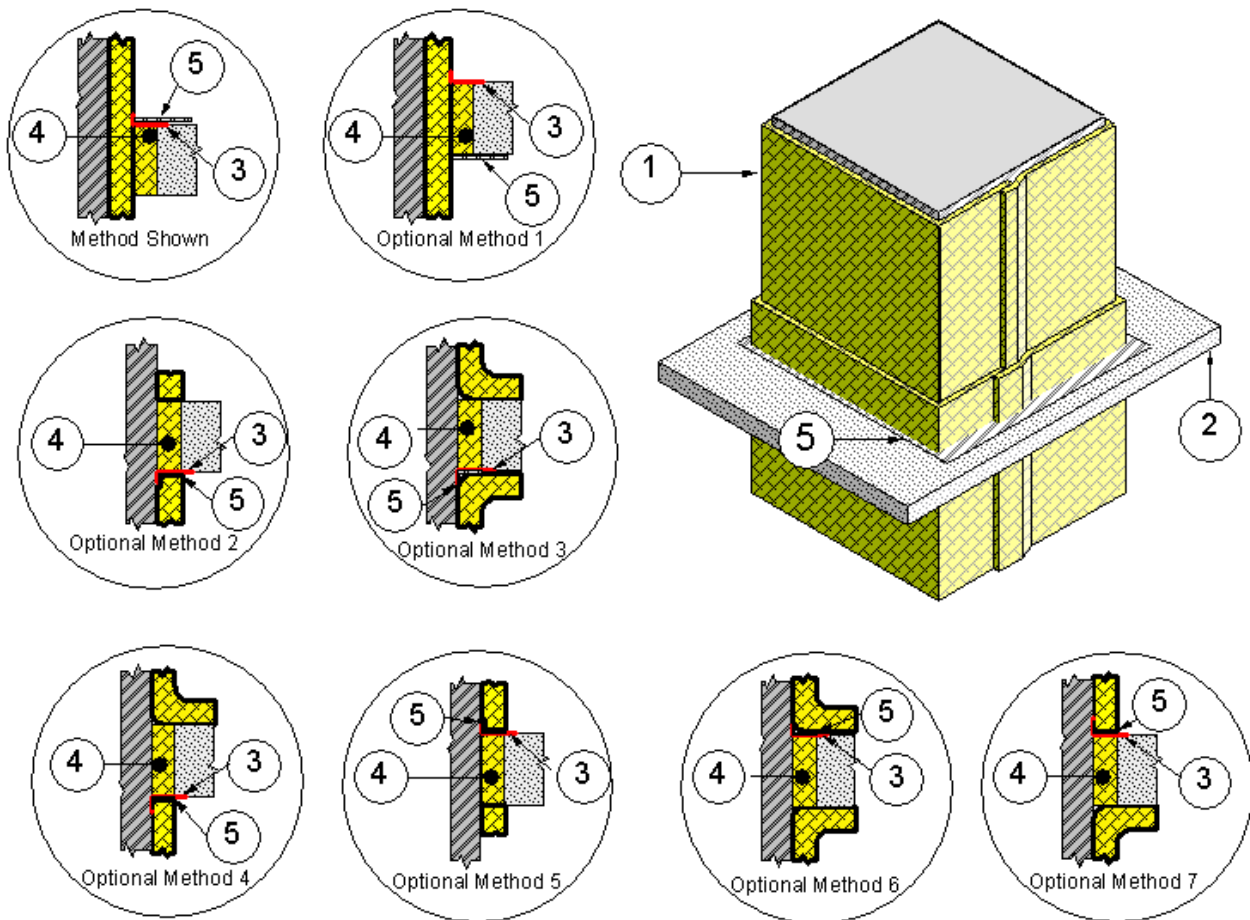


DESIGN No. UNI/FRD 120-24
OPL Design No. FS 611 F
FIRE PENETRATION SEAL (Ventilation Duct)
Unifrax I LLC
FyreWrap® Duct Insulations

ASTM E 119
F-Rating – 2 hr
T-Rating – 2 hr



1. PENETRATING ITEM: An airtight duct system with vertical duct sections constructed of min. 26 GA (0.0179 in) plain sheet steel with max. 1296-in. area and max. 54-in. width (max. dim. 24-in. x max. 54-in.) and insulated as detailed in Design VAD 560 F.

2. CERTIFIED MANUFACTURER: Unifrax I LLC

CERTIFIED PRODUCT: Insulation Blanket

MODEL: FyreWrap® Elite™ 1.5 Duct Insulation (6 pcf)

MODEL: FyreWrap® EZ 1.5 Duct Insulation (6 pcf)

MODEL: FyreWrap® 1.5 Duct Insulation (8 pcf)

MODEL: FyreWrap® MAX 2.0 Duct Insulation (8 pcf)

INSULATION: Use nom. 1-1/2-in. thick, 6-pcf (FyreWrap® Elite™ 1.5 or FyreWrap® EZ 1.5), 1-1/2-in. thick, 8-pcf (FyreWrap® 1.5), or nom. 2 in. 8pcf (FyreWrap® MAX 2.0) blanket made of soluble amorphous wool fibers or calcium magnesium silica fibers. Use one layer min. 1-1/2-in. thick, 6-pcf blanket. Use blanket that is fully encapsulated or single faced with foil-scrim-metallized polyester facing

Run the FyreWrap® Duct Insulation continuously through the floor/ceiling assembly (Item 3). Also applies to Optional Method 1.

Optional Methods 2 & 5 – Terminate straight down the FyreWrap® Duct Insulation on the top to cover all or part of the fill, void or cavity material (Item 4) and terminate straight up to cover all or part of the packing material (Item 5) on the bottom of the floor/ceiling assembly (Item 3).

Optional Methods 3 & 6 – Terminate and flare out the FyreWrap® Duct Insulation for a minimum distance of one inch on the bottom side of the floor/ceiling assembly (Item 3), covering the packing material (Item 5). Terminate and flare out the FyreWrap® Duct Insulation three inches to cover the fill, void or cavity material (Item 4) on the top side of the floor/ceiling assembly (Item 3).

Optional Method 4 – Terminate and flare out the FyreWrap® Duct Insulation three inches to cover the fill, void or cavity material (Item 4) on the top side of the floor/ceiling assembly (Item 3). Terminate straight up the FyreWrap® Duct Insulation to cover all or part of the packing material (Item 5) on the bottom side of the floor/ceiling assembly (Item 3).

Optional Method 7 – Terminate and flare out the FyreWrap® Duct Insulation for a minimum distance of one inch on the bottom side of the floor/ceiling assembly (Item 4), covering the packing material (Item 5). Terminate straight down the FyreWrap® Duct Insulation on the top to cover all or part of the fill, void or cavity material (Item 4).

- 3. FLOOR/CEILING ASSEMBLY:** The two-hour fire-rated floor/ceiling assembly consists of min. 4-1/2 in. thick normal weight (100 to 150 pcf) reinforced concrete. Create an opening in the floor assembly measuring max. 29-1/2 in. long x 59-in. wide. Position the duct assembly concentrically or eccentrically in the opening so that the annular space ranges from min. 1 in. on one side to max. 2 in. on the other. Allow another opening size provided that the size does not create an annular space greater than 2 in. or smaller than 1 in. between the penetrating item (Item 1) and the face of the opening in the floor/ceiling assembly (Item 3).
- 4. FILL, VOID OR CAVITY MATERIAL:** Apply min. 1/4-in. depth of sealant to the recess around the top surface of the packing material (Item 5). Overlap the sealant material nom. 3/4-inch onto the top surface of the floor/ceiling assembly (Item 4) and the surface of the penetrating item (Item 1).

CERTIFIED MANUFACTURER: Specified Technologies Inc. (STI)

CERTIFIED PRODUCT: Firestopping Sealant

MODEL: SpecSeal Series SSS Intumescent Firestop Sealant

- 5. PACKING MATERIAL:** Fill the annular space with leftover FyreWrap® Duct Insulation without the foil facing, 6 pcf fibrous blanket. Cut the blanket into 9 in strips and fold the blanket into a

"U" shape and compress it a minimum of 33%. Put it into the annular space. Recess the surface of packing material a min. 1/4 inch from the top surface of the floor/ceiling assembly (Item 3), as required to accommodate the necessary depth of the fill, void or cavity material (Item 4).

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MODEL: FyreWrap® MAX 2.0 Duct Insulation (8 pcf)

6. DUCT REINFORCEMENT: Where the duct passes through the floor/ceiling assembly, reinforced the duct wall to equate to a 16 GA wall thickness. Place a minimum 1/8-inch thick steel plate over the fill, void or cavity material (Item 4) so that it protrudes into the penetrating item (Item 1) compressing the FyreWrap® Duct Insulation at least 1/4 inch and extends onto the unexposed surface of the floor/ceiling assembly (Item 3) a minimum of 2 inches. Attach the 1/8-inch thick steel plate to the unexposed side of the floor/ceiling assembly (Item 3) using 1/4-inch diameter concrete screws spaced 6 inches on center.

Optional Method 1 – Where the duct passes through the floor/ceiling assembly, reinforced the duct wall to equate to a 16 GA wall thickness. Place a minimum 1/8-inch thick steel plate over the packing material (Item 5) so that it protrudes into the penetrating item (Item 1) compressing the FyreWrap® Duct Insulation at least 1/4 inch and extends onto the exposed surface of the floor/ceiling assembly (Item 3) a minimum of 2 inches. Attach the 1/8-inch thick steel plate to the exposed side of the floor/ceiling assembly (Item 3) using 1/4-inch diameter concrete screws spaced 6 inches on center.

Optional Methods 2, 3 & 4 – Place a minimum 1/8-inch thick steel angle with a minimum 1-inch tall vertical leg and a horizontal leg wide enough to cover the packing material (Item 5). Attach the 1/8-inch thick steel angle to the duct wall of penetrating item (Item 1) using 1/4-inch diameter steel pop-rivets (minimum shear strength 1200 lbs. and a minimum tensile strength of 850 lbs) spaced a maximum of 6 inches on center.

Optional Methods 5, 6 & 7 – Place a minimum 1/8-inch thick steel angle with a minimum 1-inch tall vertical leg and a horizontal leg wide enough to cover the fill, void or cavity material (Item 4). Attach the 1/8-inch thick steel angle to the duct wall of penetrating item (Item 1) using 1/4-inch diameter steel pop-rivets (minimum shear strength 1200 lbs. and a minimum tensile strength of 850 lbs) spaced a maximum of 6 inches on center.