07 00 00 Thermal and Moisture Protection
07 84 00 Firestopping
07 84 13 Penetration Firestopping

UNI/PHV 120-05

FIRE PENETRATION SEAL (GREASE DUCT)

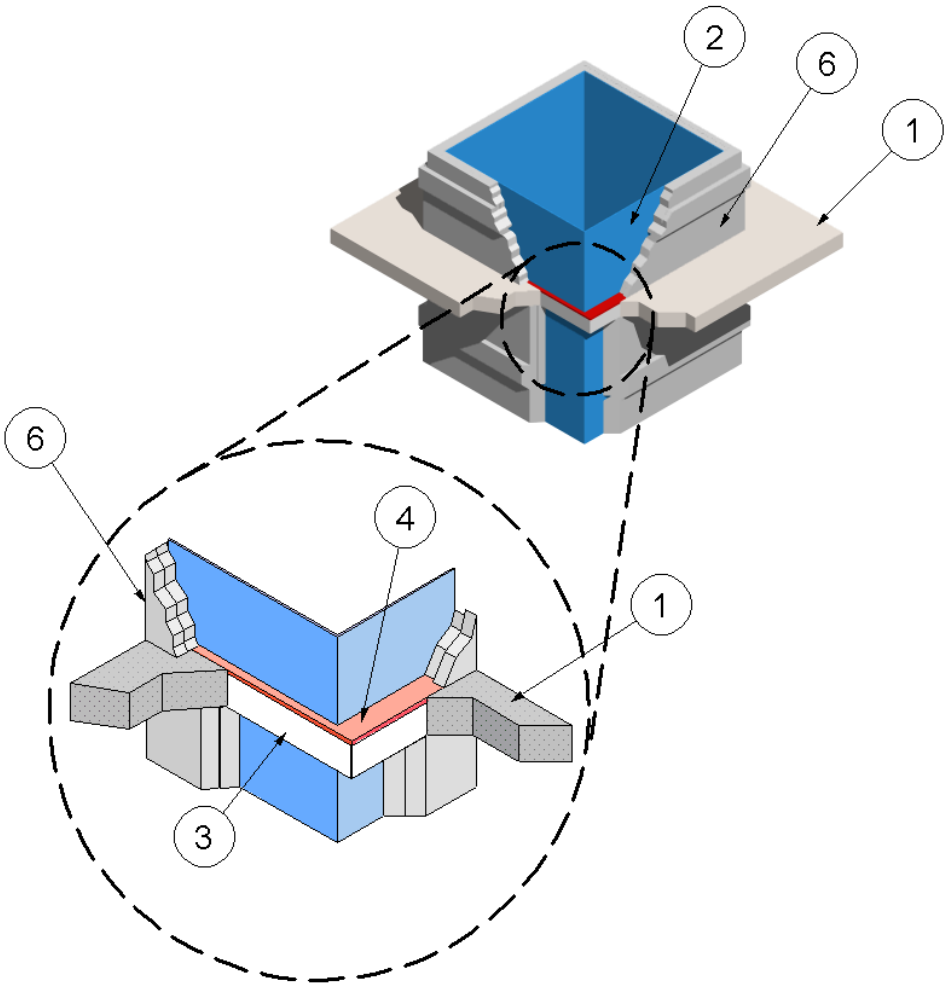
Unifrax I LLC

Unifrax FyreWrap® Elite™ 1.5

ASTM E 814-09

F-Rating – 2 hr

T-Rating – 2 hr



1. FLOOR/CEILING ASSEMBLY: Construct a two-hour fire-rated floor/ceiling assembly consisting of minimum 4-1/2-inch thick, normal weight (100 to 150 pcf) reinforced concrete. Create a rectangular opening in the floor/ceiling assembly with each side measuring a maximum of 53 inches, and establish a clearance to the penetrating item (Item 2) (grease duct) no greater than 3 inches and no less than 1 inch.

2. PENETRATING ITEM: Use a continuously-welded, liquid-tight grease duct constructed of 16-GA sheet steel with a maximum 2401-inch^2 area, a maximum 49-inch dimension, and meeting the following requirements:

   A. Use a grease duct constructed of sections joined to each other with welded joints.

B. Use a grease duct that is reinforced to IMC or NFPA 96 requirements and designed to carry the weight of the grease duct assembly covered with two layers of insulation (Item 6) under a fire load equivalent to the ASTM E 119 time-temperature curve.

C. Use a grease duct that is supported in accordance with IMC or NFPA 96 requirements.

3. CERTIFIED COMPANY: Unifrax I LLC

   CERTIFIED PRODUCT: Duct Insulation

   MODEL: FyreWrap® Elite™ 1.5 (6 pcf)

   PACKING MATERIAL: Use only duct insulation indicated as certified above, bearing the Intertek mark. Remove the poly-foil-scrim facing or encapsulation material from the duct insulation, exposing the core fiber insulation blanket. Use the core fiber insulation blanket as the packing material for the annular space. Cut the core fiber insulation blanket at least 6-inches wide. Use core fiber insulation blanket thickness that is at least 1 inch greater than the width of the annular space. Cut and layer the core fiber insulation blanket as needed to achieve the required thickness. Pack the core fiber insulation blanket into the annular space in the 4-1/2-inch deep floor/ceiling assembly (Item 1). Pack the core fiber insulation blanket with the fibers running parallel to the length of the annular space such as to create a 3/8-inch recess on the top of the floor/ceiling assembly (Item 1) and ensuring that the packing material does not protrude beyond the bottom face of the floor/ceiling assembly (Item 1).

4. CERTIFIED COMPANY: 3M

   CERTIFIED PRODUCT: Firestop Sealant

   MODEL: Fire Barrier™ 1000 NS;

   CERTIFIED COMPANY: TREMCO

   CERTIFIED PRODUCT: Firestop Sealant

   MODEL: TREMstop Fyre-Sil GG;

   LISTED COMPANY: HILTI

   LISTED PRODUCT: Firestop Sealant

   MODEL: FS-ONE; or,

   LISTED COMPANY: SPECIFIED TECHNOLOGIES, INC. (STI)

   LISTED PRODUCT: Firestop Sealant

   MODEL: SpecSeal® Series SSS

   FILL, VOID OR CAVITY MATERIAL:

   Use only the above sealants indicated as certified, bearing the Intertek mark or listed sealants as indicated above, bearing the corresponding listing agency's mark. Apply minimum 3/8-inch depth of sealant to the recess of the packing material (Item 3) on the top of the floor/ceiling assembly (Item 1). Overlap the sealant onto the top of the floor/ceiling assembly (Item 1) and the penetrating item (Item 2) (grease duct) a minimum of 1 inch.

5. PINS: (Not Shown) Use one of the following options:

   Option 1: Use this pin installation option in combination with banding (Item 7). Use minimum 12-gauge, minimum 7-inch long stainless steel insulation pins and weld them to the penetrating item (Item 2) (grease duct) at the following locations:

   - For the vertical section install at least on one side of penetrating item (Item 2) (grease duct)
   - Horizontal spacing – maximum 6 inches from edges of penetrating item (Item 2) (grease duct) and maximum 12 inches o.c. in the field.
   - Vertical spacing - maximum 3-1/2 inches from each side of the floor/ceiling assembly (Item 1) and maximum 10-1/2 inches o.c.
   - All insulation (Item 6) overlap joint locations along the centerline of the joint overlap using spacing indicated above.

Option 2 (Pins Only): Use this pin installation option when no banding (Item 7) is employed. Weld the pins on all four sides of the penetrating item (Item 2) (grease duct). Follow the same pin horizontal and vertical spacing as described in Option 1.

Option 3 (No Pins): Requires no pins when penetrating item (Item 2) width is equal to or less than 24 inches Refer to Banding (Item 7), Option 3, "Banding Only" method.

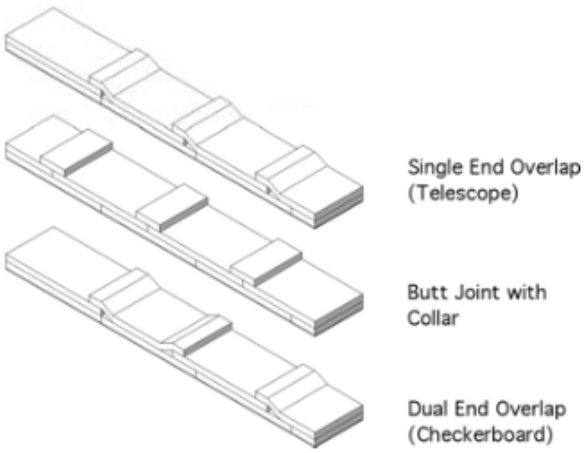
6. CERTIFIED COMPANY: Unifrax I LLC

   CERTIFIED PRODUCT: Duct Insulation

   MODEL: FyreWrap® Elite™ 1.5 (6 pcf)

   INSULATION: Use only the above duct insulation indicated as certified, bearing the Intertek mark. Use two layers of nominal 1-1/2-inch thick, nominal 6-pcf duct insulation to insulate the penetrating item (Item 2) (grease duct). Use minimum 24-inch wide sections of insulation that are fully encapsulated or single-faced with a poly-foil-scrim material. Install insulation with facing exposed. Install first layer of insulation with required minimum 3-inch overlaps at the transverse joints (horizontal) and longitudinal joints (vertical). Alternatively, install the first layer of insulation with transverse joints butted and minimum 3-inch overlaps at the longitudinal joints. Install the second (outer) layer of insulation with minimum 3-inch overlaps at all joints. For the second layer, make the transverse overlap joints of adjacent section of insulation using one of the following three methods as depicted in the drawings to follow:

   - 3-inch overlap telescoping method where each adjacent insulation blanket has one edge exposed and one edge covered by the next insulation blank,
   - Butt splice with collar method where the blankets are butted together and a 6-inch wide collar of poly-foil-scrim-encapsulated insulation blanket is centered over the butt splice overlapping each adjacent insulation blanket by 3-inches, or
   - 3-inch overlap checkerboard pattern where both edges of each alternating insulation blanket are covered by the adjacent insulation blankets whose edges are exposed.



   Butt the insulation using a minimum 1-inch of compression against the fill, void or cavity material (Item 4) (firestop sealant) and floor/ceiling assembly (Item 1) on the top side of the floor/ceiling assembly (Item 1) and against the packing material (Item 3) and floor/ceiling assembly (Item 1) on the bottom side of the floor/ceiling assembly Item 1). Ensure that the fill, void or cavity material (Item 4) (firestop sealant) has reached a "skinned-over" condition prior to butting insulation against it.

   Secure the insulation to the pins (Item 5) with 2-1/2-inch square or round stainless steel speed clips. Turn down or cut off pins (Item 5) that extend beyond the outer layer of insulation.

7. BANDING: (Not Shown) Use one of the following options:

   Option 1: Use this banding method in combination with pins (Item 5), Option 1. Use minimum 1/2-inch wide, minimum 0.015-inch thick carbon steel or stainless steel bands. When required, use filament

tape as a temporary holding method for the insulation (Item 6) prior to banding for ease of handling. Place bands on overlap joints 1-1/2 inches from edges of insulation (Item 6) blankets and between overlaps spaced maximum 10-1/2 inches o.c. Tension the banding to hold the insulation (Item 6) in place without tearing or damaging the insulation (Item 6) or penetrating item (Item 2) (grease duct).

Option 2 (No Banding): Banding not required when pins (Item 5), “Pins Only” Option 2, installation method is used.

Option 3 (Banding Only): Option available when penetrating item (Item 2) width equal to or less than 24 inches: pins not required. When selected, use minimum 1/2-inch wide, minimum 0.015-inch thick carbon steel or stainless steel bands. When required, use filament tape as a temporary holding method for the insulation (Item 6) prior to banding for ease of handling. Locate and center bands on the overlap joint (1-1/2 inches from edges of insulation (Item 6) for 3-inch overlaps), and locate in the field area between the overlaps spaced a maximum 10-1/2 inches o.c.