

Product Data & Installation Guide

1. Product Description

Thermal Ceramics new FireMaster® FastWrap XL is the thinnest and lightest flexible wrap material available that passes the ASTM E2336 test standard required by the 2006 IMC and NFPA 96 for reduced clearance enclosure materials used to provide 1 or 2 hour fire rating for kitchen exhaust ducts. The FastWrap XL core blanket is manufactured using Thermal Ceramics' patented Superwool® fiber, a 2000°F rated, non-combustible, alkaline-earth silicate wool with low biopersistence. FastWrap XL is the product of extensive research and development resulting in break-through improvements in fiberization technology with significant enhancements in thermal properties beneficial to fire protection applications. FastWrap XL when used in combination with an approved firestop sealant provides an effective through penetration firestop in rated floor and wall assemblies. FastWrap XL is UL Classified and is part of UL's Listing and Follow-Up Service Program to ensure the consistent quality essential to the critical nature of this life-safety application.

Product Features

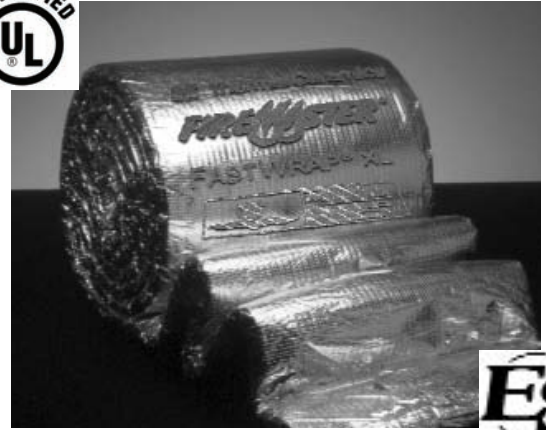
- Approval as a 1 or 2 hour shaft alternative in kitchen grease duct applications
- Zero clearance to combustibles at any location
- Thin and Lightweight at 1½ inch thick, 6 pcf density
- Contours easily to complex duct designs
- Butt Joints on inside layer to save labor and material
- Fully foil encapsulated for fast and clean installation
- Completely inorganic and non-combustible
- Contains 2000°F rated fibers for added safety margin
- Contains no low temperature mineral or glass fibers
- Wide variety of through penetration systems
- Resistant to mold growth (ASTM D6329)
- Extensive Listings and detailed installation instructions
- Recognized and accepted by inspectors requiring less job-site engineering judgments
- Available in space saving 50 and 100 square foot rolls for optimal job-site storage
- Available in 48 inch widths for less joints and installation labor

2. Applications

- Applied in 2 layers to provide 1 or 2 hour fire protection to grease ducts exhausting Type 1 hoods per IMC 2006, NFPA 96 and 2006 IAPMO UMC

3. Physical Characteristics

Duct FireMaster Fire Protection Product	Unit	Size	Units/Ctn.	Wt./Ctn.
FastWrap XL	Roll	1½" x 24" x 25'	1	37.5 lbs.
FastWrap XL	Roll	1½" x 48" x 25'	1	75 lbs.
FastWrap XL Collar	Roll	1½" x 6" x 25'	4	37.5 lbs.
Color	White blanket with silver foil encapsulation			



4. Performance Specifications

Reference Standard	Standard No.	Performance
GreaseDuct Enclosure System	ASTM E2336	Pass
Section 16.1 - Non-Combustibility	ASTM E136	Pass
Section 16.2-Fire Resistanance (wall)	ASTM E119	Pass
Section 16.3 - Durability Test	ASTM C518	Pass
Section 16.4 - Internal Fire Test	ASTM E2336	Pass
Section 16.5 - Fire Engulfment (duct)	ASTM E814/E119	Pass
Surface Burning Characteristics		
Flame Spread (foil/blanket)	ASTM E84	5/0
Smoke Developed (foil/blanket)	ASTM E84	5/0
Thermal Resistance (R-value)	ASTM C518 (70F)	4.2 per inch
Mold Growth (75% humidity)	ASTM D6329	Resistant
Mold Growth (95% humidity)	ASTM D6329	Resistant

5. Listings/Building Code Reports

Listed Uses	Agency	Listing
Grease Duct Enclosure System (Zero Clearance) - AC101 (ASTM E2336)	UL	G18
Grease Duct Enclosure System (Zero Clearance) - ASTM E2336	ICC-ES*	ESR 2213
Through Penetration FireStop System - ASTM E814/UL 1479	UL	C-AJ-7119

*International Code Council -Engineering Service

6. Storage:

FastWrap XL must be stored in a dry warehouse environment on pallets. Pallets should not be stacked.

7. Installation

FastWrap XL shall be installed by a qualified contractor in accordance with manufacturer's instructions and referenced standards. See figures 1 to 5 for complete details.

Materials and Equipment:

- FastWrap XL blanket
- Aluminum foil tape
- Minimum ½" wide filament tape (*optional*)
- Carbon steel or stainless steel banding material, minimum ½" wide, minimum 0.015" thick, with steel banding clips
- Hand banding tensioner and crimping tool
- Minimum 12 gage steel insulation pins; steel speed clips, minimum 1½" x 1½" square or 1½" dia., or equivalent sized cup-head pins;
- Capacitor discharge stud gun
- FireMaster F2-HT-XL3 Prefabricated Door or Field Fabricated Door Hardware
- An approved firestop sealant

General:

To minimize waste, FastWrap XL blanket should be rolled out tautly before measuring. Cut edges of the blanket shall be taped with aluminum foil tape to prevent exposed edges of the insulation from wicking moisture from condensation or grease from a compromised leaking duct joint into the material and causing degradation of the fire barrier. Overlaps are used to block heat transfer in the event of duct deformation resulting from thermal expansion. FastWrap XL blanket may be installed with either a mechanical banding system or insulation pins and clips (see Mechanical Attachment Methods below and figures 1 and 2). Support hanger systems do not need to be wrapped provided that the hanger rods are at least a minimum of ¾" diameter and spaced a maximum of 60" on center along the length of the duct, and the angle iron is a minimum of 2" x 2" x ¼" or SMACNA equivalent support system (SMACNA band strap support do not apply). Horizontal trapeze support system may be incorporated into the wrap enclosure.

A. First Layer – Butt Joint (Figure 2)

The first layer of FastWrap XL is cut to completely wrap around the perimeter of the duct with enough excess to provide a tight butt joint where the blanket ends meet. The joints of adjacent blankets are firmly butted against each other. This interior layer can be held temporarily in place with filament tape spaced 1-1/2" from each blanket edge, and spaced on nominal 10-1/2" centers along the center of the blanket. While not required, the inside layer can be installed with 3" overlaps along perimeter and adjacent blankets.

B. Second Layer – 3" Overlap, or 6" Collar (Figure 2)

The second layer of FastWrap XL is cut to completely wrap around the perimeter of the first layer, with enough excess to overlap itself not less than 3". Joints in the second layer should be staggered a minimum of 12 inches from joints on the inner layer. Adjacent blankets on the second layer must overlap each other by not less than 3". As an alternative to overlaps on adjacent blankets installed on the second layer, adjacent blankets can be tightly butt jointed and wrapped with a 6" wide FastWrap XL collar centered over the butt joint. This outside layer can be held temporarily in place with filament tape spaced 1½" from each blanket edge, and spaced on nominal 10½" centers along the center of the blanket. Mechanical attachment as described in Section D must be used to make the installation permanent

C. 2 & 3 Sided Wrap Installation (Figure 1)

When space does not allow for a complete wrap applied to the duct on all four sides, the FastWrap XL is approved for 2 or 3 sided installations with mechanical attachment to a concrete or CMU assembly. The FastWrap XL is installed on the 2 or 3 sides of the duct as described in one of the installation methods described in sections A or B with the starting edge of the blanket attached to the concrete or CMU assembly and then wrapped around the duct until the other end can be affixed to the other concrete or CMU assembly, thus encapsulating the duct with insulation around all accessible sides. The blanket is to flange out onto the concrete or CMU assembly. It shall be secured to the adjoining assembly with min ¾" diameter, 4" long concrete anchors, footed to a minimum 1½" wide x ¾" thick steel strip/strap with pre-drilled holes spaced a maximum 10" on center. The steel strip is to be placed around the entire perimeter of the duct in the exposure area. The FastWrap XL insulation wrap is secured to the duct with minimum ½" wide steel banding 10½" centers. The ends of the banding are to loop into the steel strips/straps that foot the blanket to the concrete floor or wall, and tightened down. The trapeze support system may be incorporated within the wrap system.

D. Mechanical Attachment Methods for Insulation Wrap

1. Banding (Figure 2) - Minimum ½" wide carbon steel or stainless steel banding, 0.015" thick, is placed around the entire perimeter of the insulated duct with maximum 10½" spacing centers and 1½" from each blanket edge or 1½" from each collar edge when using the butt joint and collar method. When banding, filament tape can be used to temporarily hold the blanket in place until the banding is applied. The banding is placed around the material and tightened so as to firmly hold the FastWrap XL in place against the duct, but not cause any cutting or damage to the blanket.

2. Pinning (Figure 3) - For duct spans 24" or larger, min. 12 gage, 5" long steel insulation pins are welded to the duct in columns spaced 12" apart, 6" - 12" from each edge and on 10½" centers along bottom horizontal and outside vertical runs to prevent blanket sag. Pins are also required 1" from the end of a duct and 1" from any edge near a 90° bend, spaced on 6" centers. Pins are locked into place with 1½" diameter round or square, galvanized steel, speed clips or cup head pins. Pins that extend beyond the outer blanket wrap layer shall be turned down to eliminate sharp edges or the excess length cut off.

E. Grease Duct Access Door Installation (Figure 4)

Four galvanized steel threaded rods, ¼" diameter by 4½" to 5" long are welded to the duct at the corners of the door opening. Four 4" long steel tubes fit over the threaded rods to hold the door to the duct and protect the wrap from damage as the door is removed. Four 5" long 12 gage insulation pins are welded to the door panel for installation of the blanket. Three layers of FastWrap XL are impaled over the 12 gage insulation pins on the 16 gauge door panel and held in place with speed clips. Each layer must have minimum 1" overlap over the previous layer. When the door is installed, this first and second layer must fit tightly against the wrap surrounding the door opening to form tight butt joints. Pins that extend beyond the outer layer of FastWrap XL shall be turned down to avoid sharp points on the door. The steel tubes are placed over the threaded rods. The insulated door panel is placed over the threaded rods covered by the steel tubes and held in place with washers and wing nuts. FireMaster F2-HT-XL3 Access Doors are tested and approved per ESR 2213 as alternatives to field fabricated doors. Installations instructions for the F2-HT-XL3 door are included with the complete assembly.

F. Through-Penetration Fire Stop System (Figure 5)

When the duct penetrates a fire rated wall, ceiling, or floor, an approved fire stop system must be employed.

Tremco Inc.	Fyre Sil [®] or Fire Sil S/L Sealant
Specified Technologies Inc.	Pensil [®] 300
Rectoseal	835+ [™] Sealant
HILTI Inc.	FS One [™] Sealant

Prior to installing this firestop system the surfaces of all openings and penetrating items needs to be clean and dry.

Cut the aluminum scrim facing off FastWrap XL blanket to expose the core blanket. FastWrap XL scrap blanket must be packed into the annular space at minimum 50% compression. The packing material must be recessed a minimum 1/4" from the surface of the concrete or gypsum wall. Install a minimum of 1/4" of approved firestop sealant into the recessed opening. When there is no room in the remaining annular space to wrap the duct with FastWrap XL material, the enclosure may terminate above and below the floor/ceiling or wall assembly as shown in figure 5 by mechanically attaching the FireMaster to the termination point above and below the termination area with bands or pins.

9. Maintenance and Repair

No maintenance is required when installed in accordance with Thermal Ceramics installation instructions.

If damage is limited to the foil facing, aluminum foil tape can be used to repair the foil facing.

If an area of blanket is found to be damaged the following procedure must be incorporated.

- If the damaged area is larger than 8" x 8" the entire wrap section must be removed and replaced according to Thermal Ceramics installation instructions.

- If the damaged area is small (less than 8" x 8"), the damaged area must be cut away and replaced with a new section 1" larger in length and width than the cut out area, such that the new section can be compressed tightly into the cut out area. All cut edges of the new section must be taped and sealed with aluminum foil tape. The new section must be held in place with either pinning or banding per Thermal Ceramics installation instructions/

10. Limitations

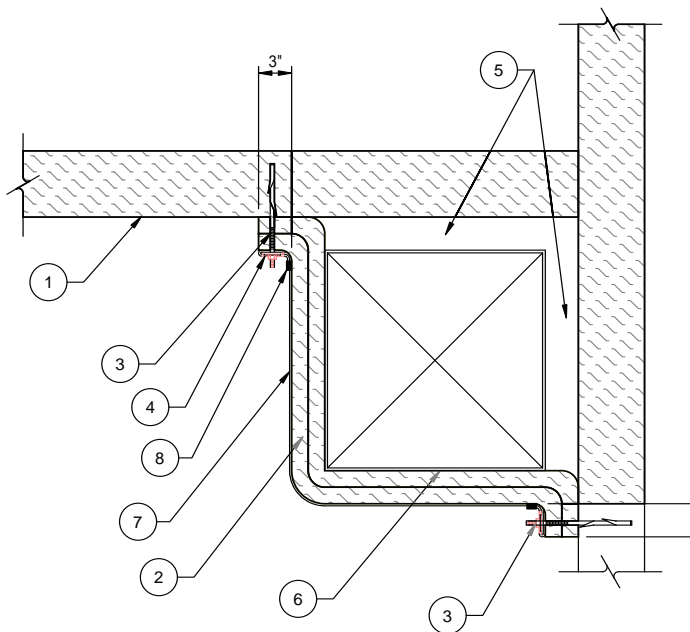
- Thermal Ceramics FastWrap XL shall be installed in accordance with these installation instructions. The integrity of FastWrap XL systems is limited to the quality of the installation.

**For personal protective equipment recommendations see the MSDS.*

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Thermal Ceramics

FireMaster FastWrap XL 2 Sided Wrap Detail for Attaching to Walls/Ceilings 1 or 2 Hour Grease or Air Duct



Thermal Ceramics

FireMaster FastWrap XL 3 Sided Wrap Detail for Attaching to Walls/Ceilings 1 or 2 Hour Grease or Air Duct

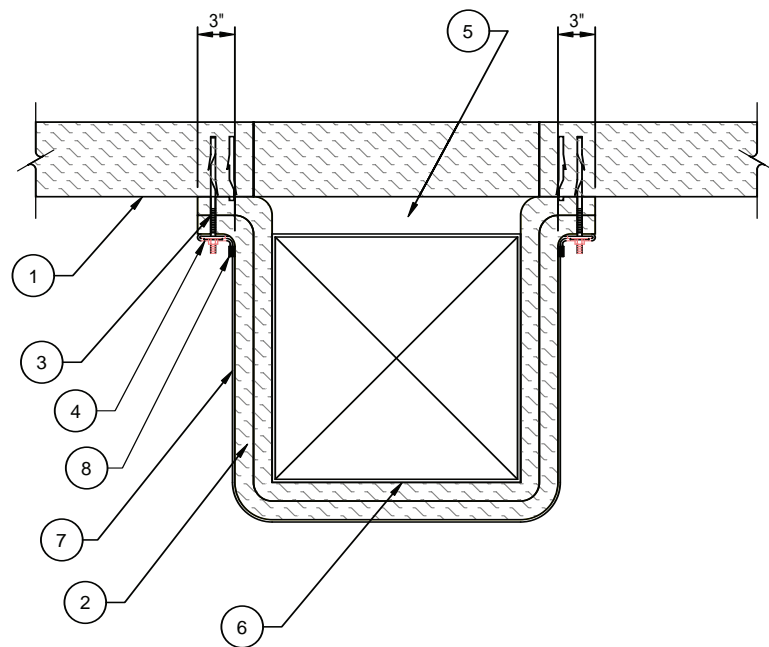


Figure 1

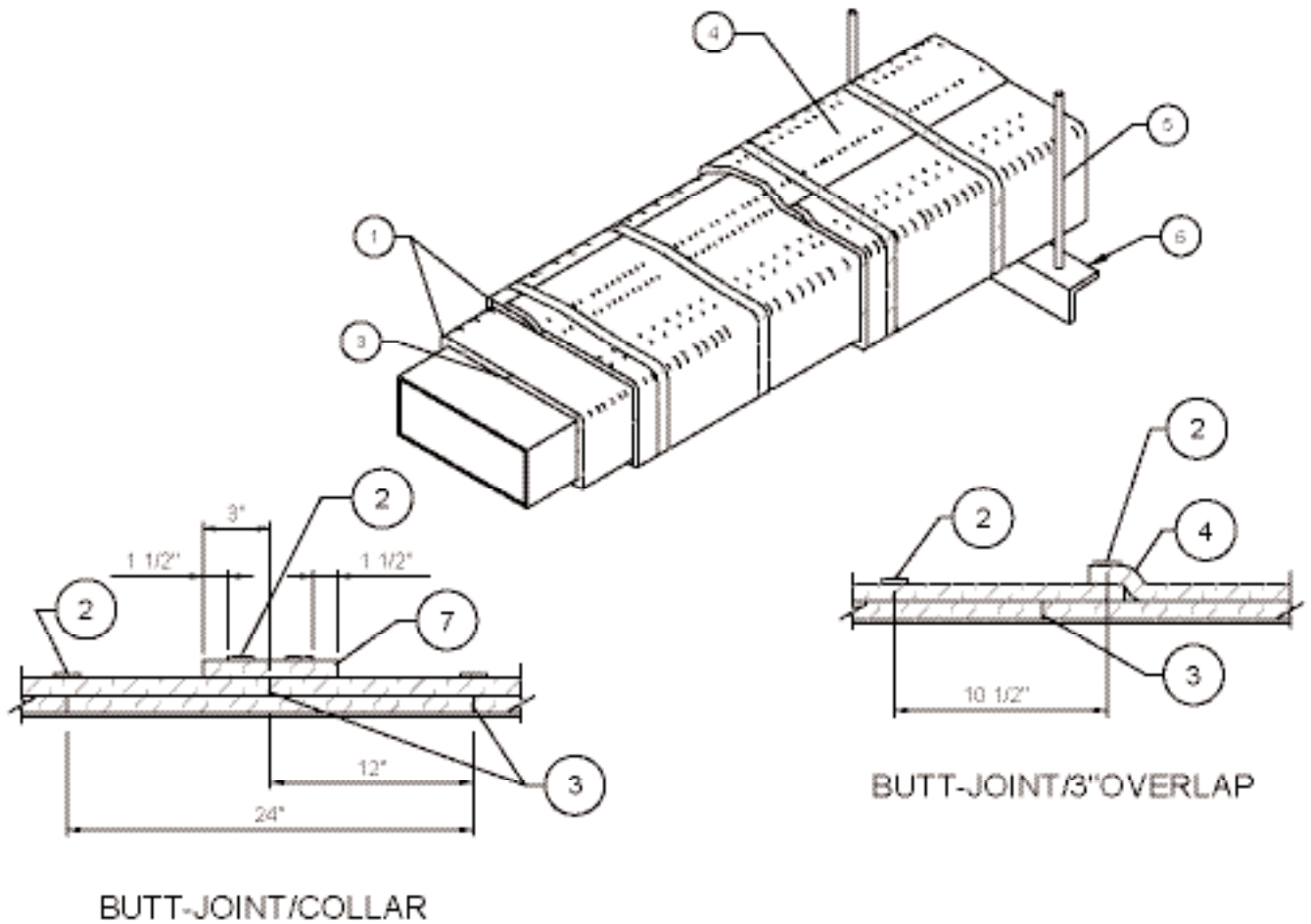
1. Concrete slab	5. Air gap (8" maximum)
2. Two layers FireMaster FastWrap XL	6. Duct
3. Concrete fastener system	7. Steel banding 1/2" wide minimum
4. 1/8" thick x 2"-3" wide bar stock perforated 12" o.c.	8. Banding clip

Thermal Ceramics

FireMaster FastWrap XL

Commercial Kitchen Grease Duct System 1 or 2 Hour Shaft Alternative

Zero Clearance to Combustible



1.	Two layers FireMaster FastWrap XL
2.	Steel banding 1/2" wide minimum
3.	Tight butt joints on inner layer
4.	Minimum 3" overlap on perimeter and between adjacent blanket on outside layer
5.	Minimum 3/8" diameter hanger rod
6.	Minimum 2" x 2" x 1/8" angle
7.	Optimal 6" FastWrap XL collar

Thermal Ceramics

FireMaster FastWrap XL

Typical Insulation Pin Layout

For Duct Spans $\geq 24"$ Wide To Prevent Blanket Sag

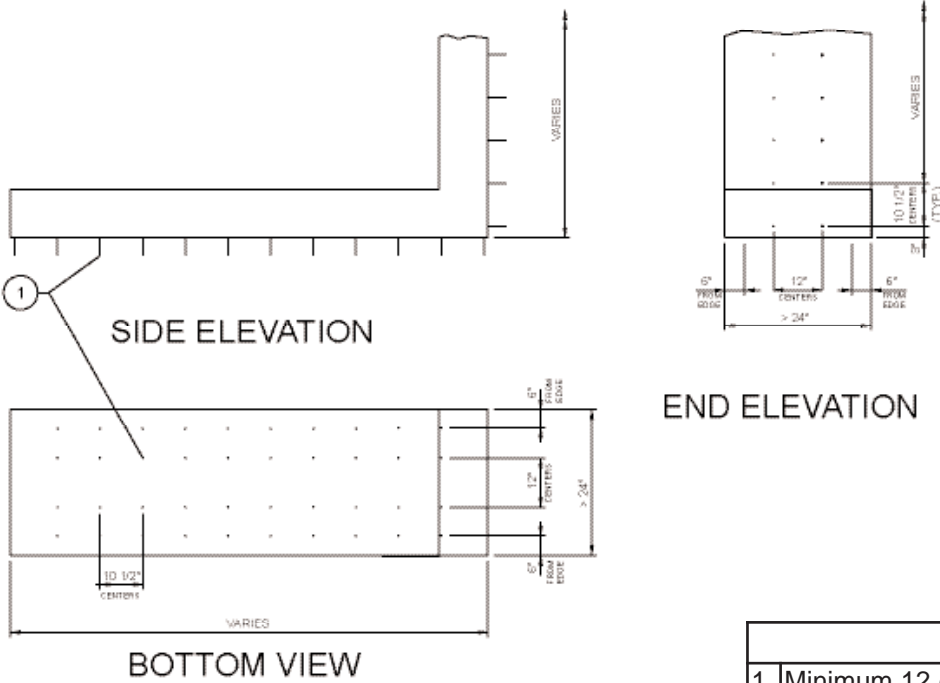


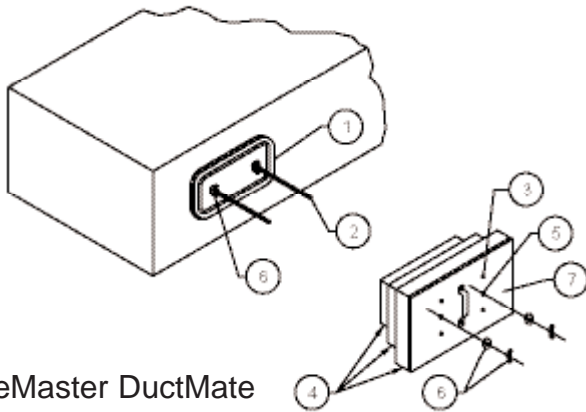
Figure 3

- | | |
|----|--|
| 1. | Minimum 12 gauge steel insulation pins |
|----|--|

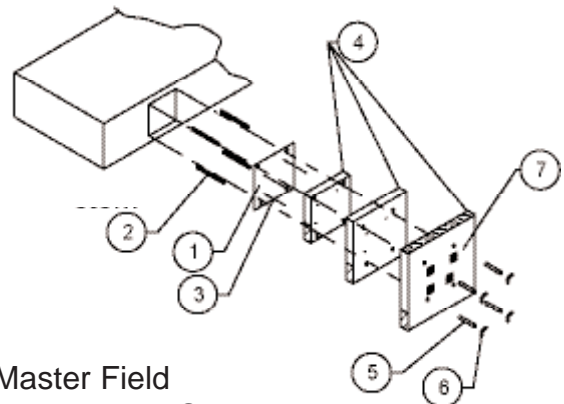
Thermal Ceramics

FireMaster FastWrap XL

Access Door Systems Commercial Kitchen Grease Duct



FireMaster DuctMate
F2-HT Door System



FireMaster Field
Fabricated Door System

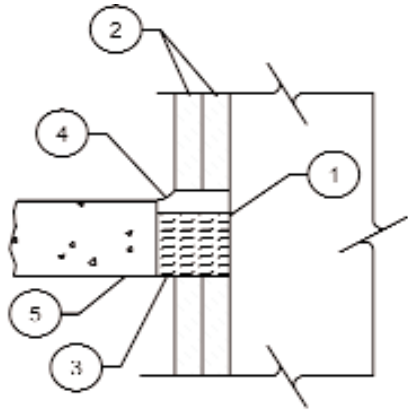
Figure 4

1.	DuctMate® F2-HT Access Door or 16 gauge cover plate	5.	Spool pieces
2.	All thread rods	6.	Wing nuts and washers
3.	Installation pins with speed clips	7.	Outer cover plate labeled "ACCESS DOOR-DO NOT OBSTRUCT"
4.	Three layers FastWrap XL with minimum 1" overlaps and all edges sealed with aluminum tape		

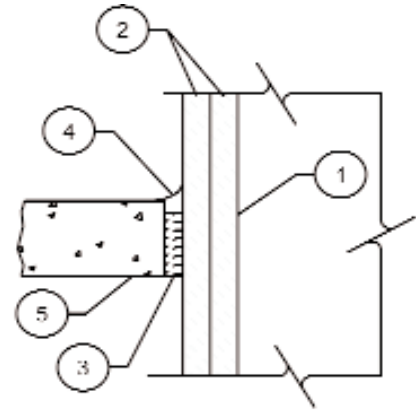
Thermal Ceramics

FastWrap XL

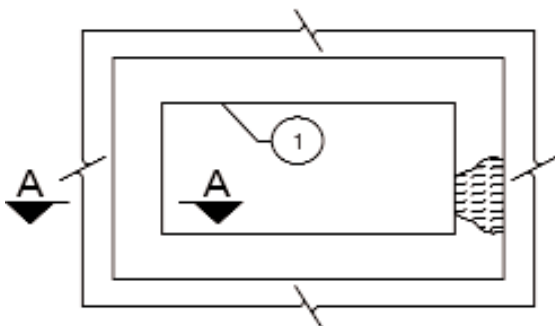
Through Penetration System 1 or 2 Hour Grease Duct



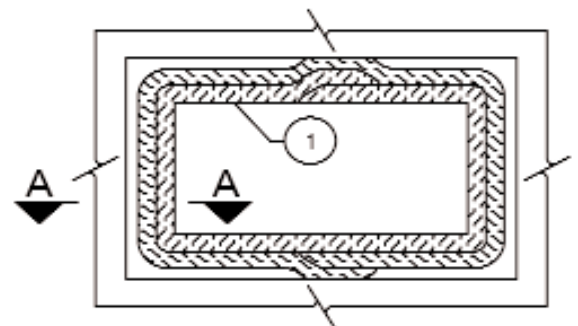
SECTION A-A



SECTION A-A



FLOOR VIEW



FLOOR VIEW

FastWrap XL
Terminated At The Top And Bottom
Surface Of The Floor/Ceiling Assembly

FastWrap XL
Continuous Through
The Floor/Ceiling Assembly

Figure 5

1	Duct
2	Two layers FastWrap XL
3	Scrap pieces of FastWrap XL
4	Approved Through Penetration FireStop Sealant
5	Rated floor or wall

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