

FyreWrap® EZ 1.5 Duct Insulation – Single-Layer System

Introduction

Unifrax's FyreWrap® EZ 1.5 Duct Insulation is a new optimized single-layer flexible enclosure for 1- and 2-hour fire-rated kitchen exhaust ducts and chemical fume ducts. This slim, compact design offers the lightest system available and results in significant weight, space and labor savings when compared to traditional gypsum shaft walls or competitive wrap systems. FyreWrap EZ 1.5 provides the following features:

- Zero clearance to combustibles at all locations on wrap
- 1- and 2-hour fire endurance rating
- Alternate to fire-rated shaft enclosure
- Saves weight, space, labor
- Thinnest, lightest system available
- High-temperature, biosoluble insulation

Product Components

Core Material: FyreWrap EZ 1.5 incorporates Insulfrax® Thermal Insulation as its core material. Insulfrax is a high-temperature insulation made from a calcia, magnesia, silica chemistry designed to enhance biosolubility. It provides excellent insulation in a noncombustible blanket product form.

Encapsulating Material: The core insulation blanket is completely encapsulated in an aluminum foil fiberglass reinforced scrim covering. This scrim provides additional handling strength as well as protection from grease and moisture absorption and tearing.

Typical System Properties

Intertek Laboratories (OPL) Listed

ICC Evaluation Service

New York City MEA Approval

California State Fire Marshal Listing

UL 1978 Internal Grease Duct Test (June 2002)

ASTM E-119 Full Scale Engulfment Test

ASTM E-814 Through-Penetration Firestop Test

ASTM E-84/UL 723, UL File R14514

Flame Spread Rating:

Smoke Developed Rating:

ASTM E-136 Non-combustibility Test

ASTM C-518 Durability Test

File 16341-4, Design Nos. GD 572 F, GD 573 F, CFD 510 F
Large Duct Size: 52" x 52" (UL1978), 70" x 70" (ASTM E-814)

Legacy Report NER-609

97-04-M

No: 2440-1478:100

Zero Clearance to Combustibles at All Locations on Wrap

2-hour Fire Endurance Rating

F-Rating = 2 hrs.; T-Rating = 2 hrs

Unfaced Blanket	Encapsulated
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Zero	<25
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Zero	<50
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Passes

Passes

Data are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes.

Complies with : NFPA 96 (up through 2001 Edition), 90A, 90B, 101; 2000 and 2003 International Mechanical Code (IMC), 2000 and 2003 International Building Codes (IBC), BOCA National Building Code/1999, 1999 Standard Building Code, 1997 Standard Mechanical Code, and 1997 Uniform Building Code (UBC).



FyreWrap® EZ 1.5 Duct Insulation

Typical Product Parameters

Thickness	1.5"
Density	6pcf
Standard Product Form	Scrim Encapsulated
Product Availability	24"w x 25LF 48"w x 25LF



NYC
MEA
97-04-M



Installation

The FyreWrap EZ 1.5 Duct Insulation consists of a single-layer system applied directly on to the duct surface. Only encapsulated or scrim faced one side blanket should be utilized to ensure the outer surface of the insulation is protected. The insulation system may be installed at zero clearance to combustibles at all locations on the wrap, at material overlaps, and in the field between overlaps. Install insulation with a 3" minimum overlap on all joints. Seal all cut edges with aluminum foil tape. The longitudinal overlap of adjacent blanket may be installed using the following three techniques. See Figure 1 for details.

Telescoping Overlap Wrap Technique:

This wrap technique is the most common method of installing FyreWrap EZ 1.5 where each adjacent blanket has one edge exposed and one edge covered by the next blanket.

Checkerboard Overlap Wrap Technique:

This installation uses a 3" overlap pattern with both edges of each alternating blanket covered by each adjacent blanket whose edges are exposed. The overlap joints in alternate layers of blanket resemble a checkerboard pattern in the completed installation. This technique is often utilized when a small section of duct wrap must be repaired.

Butt Splice with Collar Wrap Technique:

This wrap technique permits installation with the blanket edges butted together and a 6" wide collar of blanket that is centered over the butt splice, overlapping each adjacent blanket 3". The collar can be field fabricated from FyreWrap EZ 1.5 rolls or purchased separately.

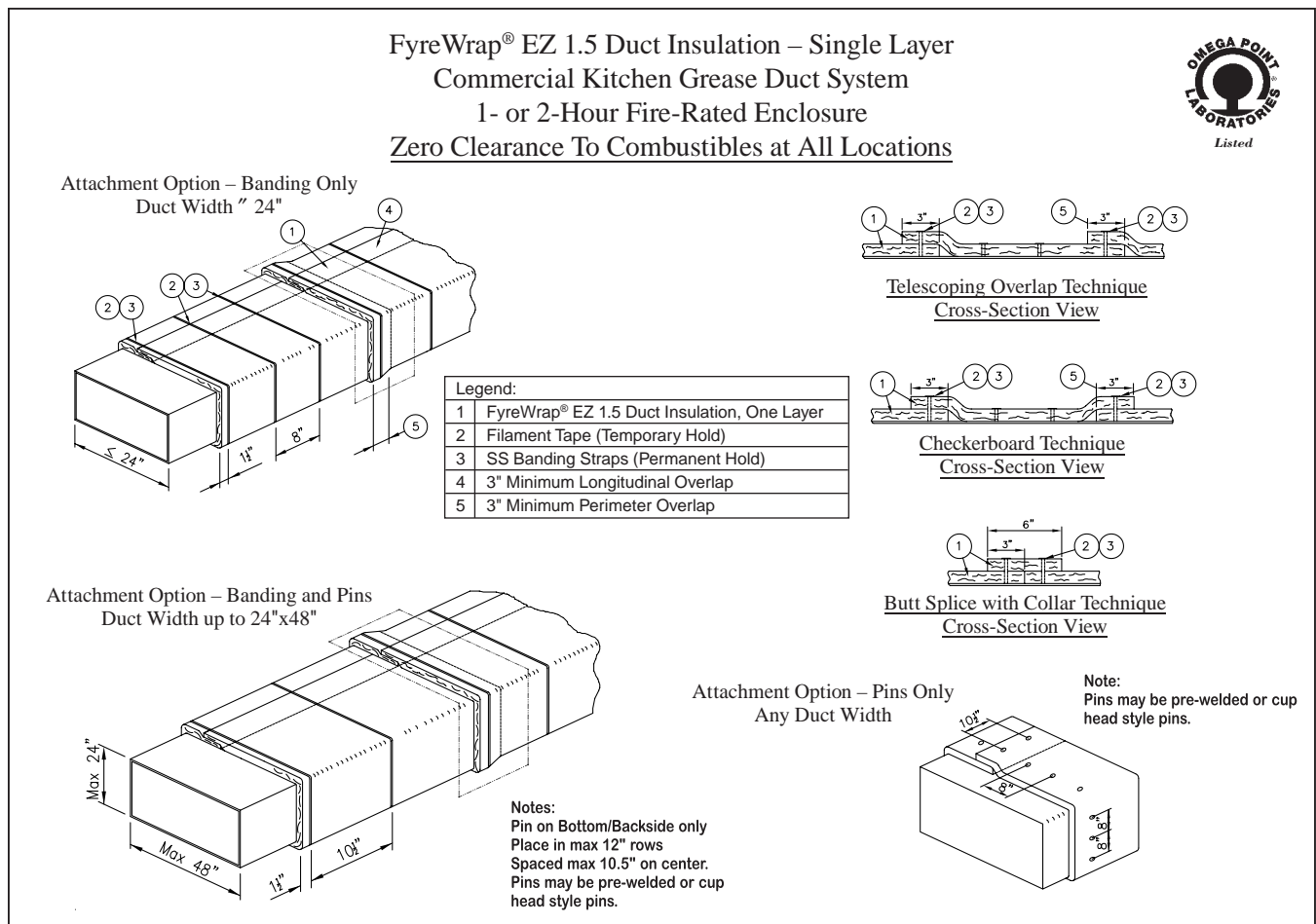


Figure 1. FyreWrap EZ 1.5 Single-Layer Installation Techniques

Vertical Duct Runs

For vertical duct runs, insulation may be applied to the duct in a continuous length parallel to the vertical length of the duct as opposed to wrapping around the duct. All overlaps shall be maintained at a minimum 3" and are to occur a minimum 6" from any corner of the duct. Pins spaced a maximum 8" on center are to be placed at the centerline of all vertically oriented overlaps. Pins may be pre-welded or cup head style pins. See Figure 2 for details.

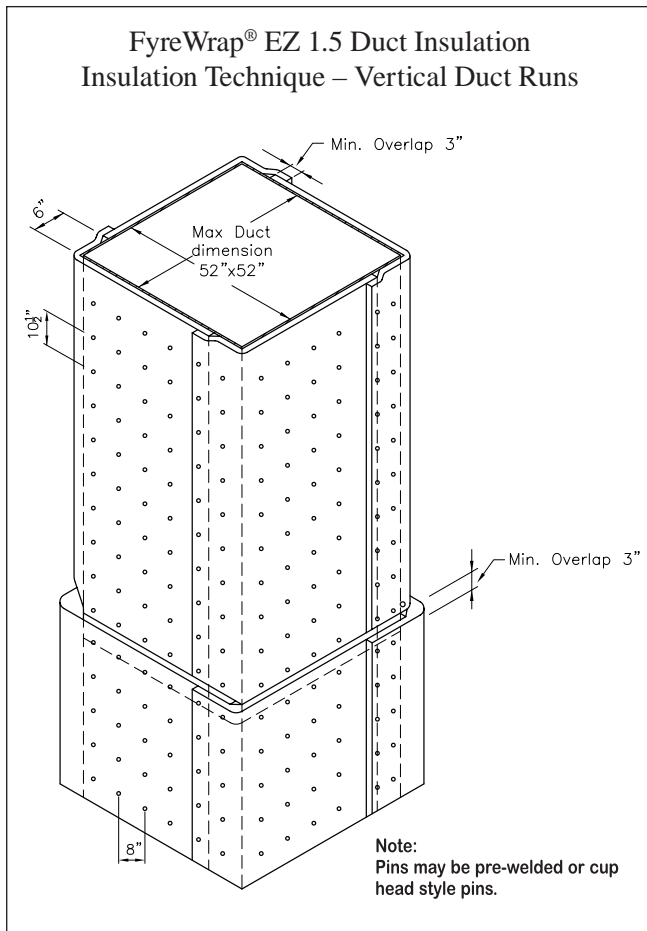


Figure 2. Optional Installation Technique – Vertical Duct Runs

Attachment Options

Three attachment options are available for installers. Choices are limited by the duct width dimension. Details on each option are provided below.

Banding Only: For Duct Widths 24" or Less

To temporarily secure the insulation, optional use of filament tape is permitted. Place stainless steel bands (min. 1/2" wide, nom. 0.015" thick) over joints and within the field around the wrap. Locate bands 1 1/2" from each edge of each blanket overlap. Place a minimum of two additional bands in the field area between the overlaps on maximum 8" centers. Tighten banding to firmly hold the wrap system in place but not so tight as to cut or damage the blanket. Pins are NOT required when this banding technique is used.

Banding and Pins: For Duct Widths Up to 24" x 48"

Weld 12-gauge steel insulation pins to the underside of horizontal runs and backside of vertical runs. Place pins at maximum 12" rows and on maximum 10 1/2" centers. To temporarily secure the insulation, optional use of filament tape is permitted. Impale FyreWrap EZ 1.5 over the pins and hold in place with 2 1/2" square galvanized steel speed clips (washers). Turn down or cut off exposed ends of pins to eliminate safety hazards. Locate carbon steel or stainless steel bands (min. 1/2" wide, nom. 0.015" thick) 1 1/2" from each edge of an overlap joint. Locate a second band midpoint between the overlapped joints, approximately 10 1/2" on center. Tighten banding to firmly hold the wrap system in place but not so tight as to cut or damage the blanket. Cup head style pins are also permitted and shall be located at the same spacing as pre-welded pins.

Pins Only: For Any Duct Width

Weld 12-gauge steel insulation pins on all sides of the duct. Place insulation pins in rows (perpendicular to the length of the duct) spaced maximum 10 1/2" on center. Pins in each row are maximum 6" from each duct edge and maximum 8" on center. Locate insulation overlaps so they are centered on the pins. Impale FyreWrap EZ 1.5 over the pins and hold in place with 2 1/2" square galvanized steel speed clips (washers) to keep the system from sagging. Turn down or cut off exposed ends of pins to eliminate safety hazards. Cup head style pins are also permitted and shall be located at the same spacing as pre-welded pins.

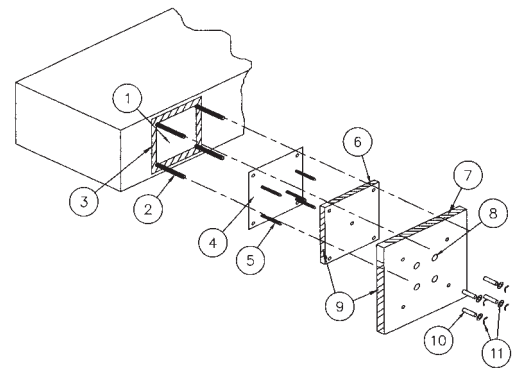
Attachment Options (Summary Chart):

Duct Dimension	Banding Only	Banding & Pins (Pins on Bottom)	Pins Only (All Four Sides)
Width ≤ 24"	●	●	●
Width Up To 48"		●	●
Width > 48"			●

Access Door

Field fabricated access doors are protected with two layers of FyreWrap EZ 1.5 Duct Insulation. Cut away the one layer of FyreWrap EZ 1.5 already installed and covering the duct to a dimension that matches the door opening to be used. Mark and cut a clean-out access opening in the duct. Weld ¼ inch diameter threaded rod to each corner on the access door opening. Cover with hollow steel tubes (optional) for easy removal of blanket. Cut a 16 gauge cover plate with dimensions two inches larger than the opening. Drill holes in the door to match the rod pattern. Use a gasket of 0.5" thick unfaced FyreWrap or ceramic fiber blanket between the duct and the access door cover. Install the cover over the threaded rod overlapping the opening 1" on all sides. Weld at least four steel insulation pins to the outside of the door cover panel, approximately 1" from each corner. Cut a piece of FyreWrap EZ 1.5 that matches the door opening size and install over pins to fit within the insulation area cut away. Cut an additional piece of FyreWrap EZ 1.5 with perimeter dimensions that extend 1" beyond the layer below. Install over the insulation pins. Throughout the installation process, seal all cut edges with aluminum foil tape. Secure with washers and bend over excess pin lengths to eliminate safety hazards. Place washers on threaded rod and secure with nuts. Do not install banding over this area. See Figure 3 for details.

FyreWrap® EZ 1.5 Duct Insulation – Single Layer Commercial Kitchen Grease Duct System 1- or 2-Hour Fire-Rated Enclosure Field Fabricated Access Door



Legend:

1	Access Door Opening
2	¼" Dia. Threaded Rods
3	Unfaced FyreWrap® EZ 1.5 or RCF Blanket Gasket, ½" Thick
4	Access Door Cover Panel (16 gauge)
5	Insulation Pins – Welded to Cover
6	First Layer FyreWrap® EZ 1.5
7	Second Layer FyreWrap® EZ 1.5 – w/1" perimeter overlap on all sides
8	Speed Clips/Washers
9	Cut Edges Sealed With Aluminum Foil Tape
10	Hollow Steel Tubing, 5/16" ID (optional)
11	¼" Dia. Wing Nuts and Washers

Figure 3. Access Door Installation

Duct Support

Horizontal duct support systems are not required to be insulated (wrapped) when constructed using a minimum 0.5" diameter uninsulated all-thread steel rod and 2" x 2" x 0.25" uninsulated steel angle spaced a maximum 120" on center along the length of the duct. A minimum clearance of 3" is required between the protected duct and the steel rod. For all other duct support configurations, a single layer of FyreWrap EZ 1.5 Duct Insulation is required on all components. Utilize a minimum 3" overlap (approximately a 1/4" turn) on all joints.

Firestop Systems

Refer to Figures 4, 5, 6 and 7 for details. Contact Unifrax Application Engineering Group at 716-278-3888 or visit www.unifrax.com for the latest information on available firestop systems.

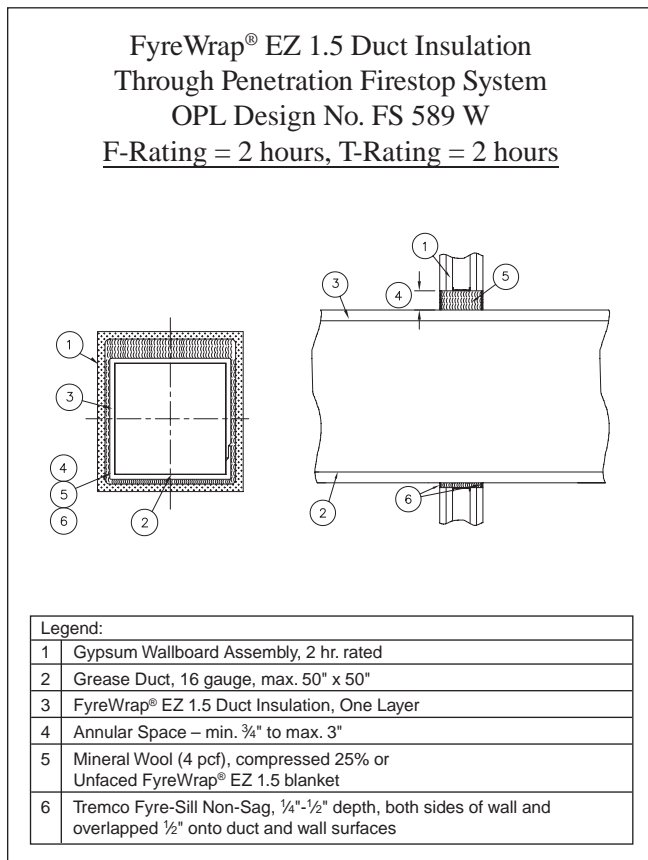


Figure 4. Firestop Installation

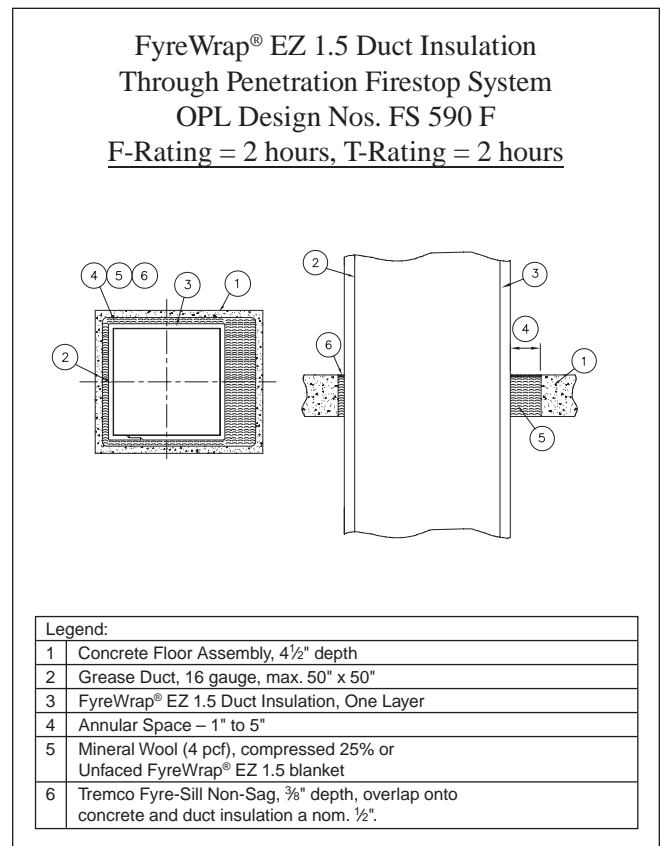
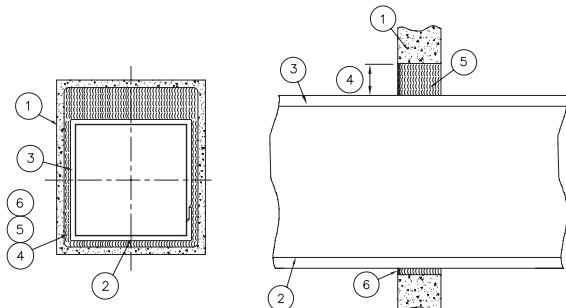


Figure 5. Firestop Installation

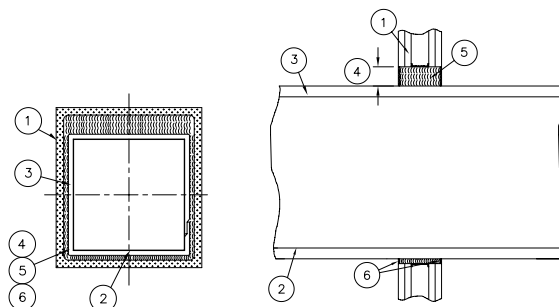
FyreWrap® EZ 1.5 Duct Insulation
Through Penetration Firestop System
OPL Design No. FS 591 W
F-Rating = 2 hours, T-Rating = 2 hours



Legend:	
1	Concrete or CMU block wall assembly, 5½"
2	Grease Duct, 16 gauge, max. 50" x 50"
3	FyreWrap® EZ 1.5 Duct Insulation, One Layer
4	Annular Space – ¾" to 3"
5	Mineral Wool (4 pcf), compressed 25% or Unfaced FyreWrap® EZ 1.5 blanket
6	Tremco Fyre-Sill Non-Sag, ¾" depth, overlap onto wall surface and duct insulation a nom. ½".

Figure 6. Firestop Installation

FyreWrap® EZ 1.5 Duct Insulation
Through Penetration Firestop System
OPL Design No. FS 121 W
F-Rating = 2 hours, T-Rating = 2 hours



Legend:	
1	Gypsum Wallboard Assembly, 2 hr. rated
2	Grease Duct, 16 gauge, max. 70" x 70"
3	FyreWrap® EZ 1.5 Duct Insulation, One Layer
4	Annular Space – 1¼" to max. 4¾"
5	Unfaced FyreWrap® EZ 1.5 blanket compressed 48%.
6	Specified Technologies spec seal SSS100 intumescent firestop sealant, ½" nominal depth, both sides of wall and overlapped ½" onto duct and wall surfaces.

Figure 7. Firestop Installation

Data are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes.

Refer to the product Material Safety Data Sheet (MSDS) for recommended work practices and other product safety information.

Unifrax has a wide range of FyreWrap fire protection materials available to provide passive fire protection solutions in a variety of applications in the commercial building, industrial facility and transportation industries.

For additional information about product performance or to identify the recommended product for your fire protection application, please contact the Unifrax Application Engineering Group at 716-278-3888.



**OMEGA POINT
LABORATORIES**

Listed

APPLIED FIRE PROTECTION

UNIFRAX CORPORATION
New Carlisle, IN.

Listing # 16341-4

FYREWRAp® EZ 1.5
Maximum Density: 6 pcf

Tested per:
UL 1978 (June 2002) – Sec. 14 & 15 – Passed
ASTM E 119 – Fire Resistance Rating: 2 hr.
ASTM E 814 – T-Rating: 2 hr., F-Rating: 2 hr.
AC 101 (Engulfment) – Passed