Contractor Submittal Sheet

Contractor: _____

Project: _____

FyreWrap® Elite® Duct Insulation Two-Layer Fire Rated ASTM E-2336 Grease Duct System

Product

Unifrax's FyreWrap® Elite® 1.5 Duct Insulation is a high temperature insulation blanket specifically designed to provide a flexible enclosure for 1 and 2-hour rated commercial kitchen grease ducts (GD). FyreWrap Elite 1.5 Duct Insulation provides a tested, fire-protective enclosure acceptable as an alternate to a fire-rated shaft. Installed as a two-layer system, FyreWrap Elite 1.5 complies with 2006 and 2009 Editions of IMC and UMC, ASTM E-2336, NFPA 96 and ICC ES Grease Duct Enclosure Acceptance Criteria, AC101.

Product Description

FyreWrap Elite 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. 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.

Product Properties

Product	Unit/Box	Size	WT
Elite 1.5	1 roll	1 ½" x 24" x 25'	37.5 lbs
Elite 1.5	1-roll	1 ½" x 48" x 25'	75 lbs
Elite 1.5 collar	4-rolls	1 ½" x 6" x 25'	37.5 lbs

Product Performance

Test Criteria	Description
ASTM E 2336 / AC101	2-Hour Kitchen Exhaust Duct – Zero clearance at all points on duct
ASTM E 814	Firestop: 2-hour F & T Ratings
ASTM E 84/UL 723	Encapsulated: Flame <25, Smoke <50
	Unfaced: Flame = 0 , Smoke = 0
ASTM C 518	R-Value: 4.8 per inch at 75 F R-Value: Elite 1.5 (1-1/2") = 7.2
EN 1094	Temperature Grade 2300°F
	Recommended Operating Temperature 2012°F
ASTM E 119	2-hour Engulfment
IMC, UMC codes	Complies with 2006-2012 Editions, Sect. 506.3.10, 506.3.6
NFPA 96	Complies with all editions

Green Building Contribution:
Contains No VOCs
Manufacturing plant location: New Carlisle, IN.

Microbial Resistant, per ASTM D 6329-03
R-value: Elite 1.5 (1-1/2") = 7.2 at 75°F

Product Listings

Listing Agency	Listing Number
Intertek Laboratory (formerly OPL)	Duct: UNI/FRD 120-16, UNI/FRD 120-17, UNI/WA 120-01
Intertek Laboratory (formerly OPL)	Firestop: UNI/FRD 120-19, UNI/PHV 120-05, UNI/PHV 120-06
ICC Evaluation Service (ES)	ESR-2224
California State Fire Marshal	# 2440-1478:100

System Installation

The FyreWrap Elite 1.5 Duct Insulation System consists of a fully encapsulated, two-layer system applied directly to the duct surface. 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. To minimize waste, unroll tautly prior to measuring or making material cuts. The first layer can be installed with transverse (perimeter) joints butted and minimum 3" longitudinal overlaps. All overlaps for the second, or outer layer, are a minimum of 3". For the second layer, transverse (perimeter) overlaps of adjacent blankets may be installed using one of these three techniques.

Telescoping Overlap Wrap Technique:

This wrap technique is the most common method of installing FyreWrap Elite 1.5 where each adjacent blanket has one edge exposed and one edge covered by the next blanket to form a 3" overlap.

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 Elite 1.5 rolls or purchased separately.

Unifrax I LLC ■ 2351 Whirlpool Street ■ Niagara Falls, NY 14305-2413
Telephone: 716-278-3800 ■ Telefax: 716-278-3900 ■ Website: www.unifrax.com

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 carbon steel or stainless steel bands (min. ½" wide, nom. 0.015" thick) 1½" from each edge of each blanket overlap. Place additional bands in the field area between the overlaps on maximum 10½" 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 ≤ 49"

Weld 12-gauge steel insulation pins to the underside of horizontal runs and backside (side of duct having largest dimension) of vertical runs. Place pins at maximum 12" rows and on maximum 10½" centers. To temporarily secure the insulation, optional use of filament tape is permitted. Impale FyreWrap Elite 1.5 over the pins and hold in place with minimum 2½" square or 1.5" round 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. ½" wide, nom. 0.015" thick) 1½" from each edge of an overlap joint. Locate a second band midpoint between the overlapped joints, or maximum 10½" 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 Duct Widths > 49"

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 10½" on center. Pins in each row are maximum 5" from each duct edge and maximum 8" on center. Locate insulation overlaps so they are centered on the pins. Impale FyreWrap Elite 1.5 over the pins and hold in place with 2½" square or 1½" round 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. The pins only attachment method may be used for duct widths less than 49", but is optional.

Attachment Options Summary

Duct Dimension	Banding Only	Banding & Pins (pins on bottom)	Pins Only (All Four Sides)
Width ≤ 24"	•	•	•
Width ≤ 49"		•	•
Width > 49"			•

Supports

The duct support systems do not require FyreWrap insulation when constructed using a minimum 3/8" diameter all-thread steel rod and 1½" x 1½" x 1/8" steel angle spaced a maximum 60" on center along the length of the duct. To extend spacing to 72", use of ½" all-thread and 2"x2"x1/4" angle is required. A minimum clearance of 1" is required between the protected duct and the steel rod. For all other duct support configurations, a single layer of FyreWrap Elite 1.5 Duct Insulation is required on all components. Utilize a 3" overlap (approximately one quarter turn) on all joints.

Access Door

Field fabricated access doors are protected with three layers of FyreWrap Elite 1.5 Duct Insulation. A gasket of ½" thick unfaced FyreWrap or ceramic fiber blanket is initially installed between the duct and the access door cover. Weld threaded rod to each corner of the access door opening. Cover with hollow steel tubes (optional) for easy removal of blanket. Weld at least four steel insulation pins to the outside of the door cover panel, 1" from each corner. Cut through the two layers of FyreWrap Elite 1.5 Duct Insulation already covering the duct and access door opening. Leave the interior piece in place. Cut back the outer layer to form an opening with perimeter dimensions that extend 1" beyond the inner layer. Cut a piece of FyreWrap Elite 1.5 that matches the dimensions of the opening and install over pins to fit tightly within the existing material. Cut an additional piece of insulation 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.

Ductmate Ultimate and Ductmate F2-HT prefabricated access doors are permitted and must be installed in accordance with Ductmate Industries, Inc. installation instructions and the applicable code. The prefabricated access door is protected with three layers of FyreWrap Elite 1.5 similar to the field fabricated access doors. Contact www.ductmate.com or 1 800 245 3188 for additional information or local distributors.

WM TAO & ASSOCIATES
CONSULTING ENGINEERS

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: February 7, 2017

Attention: **stl-cac@cannondesign.com**

Contact Person / WTA Field Inspector: Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Nolte

Project No. WT 14127.01

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	232500M01	(Submittal No.'s:) (R&B CxSRC)
		(Cannon #232500-001) - (Paric #15051-0453) – ~~(WES #607)~~
		➢ **Mechanical Insulation Product Data**

*Remarks: See Review Comments on PAGE 2.

c: **Kelvin Patel**
Kpatel@cannondesign.com

☐ Furnish as Submitted ☒ ***Furnish as Noted**

☐ Rejected ☐ Revise & Resubmit

☐ Reviewed ☐

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

WM TAO & ASSOCIATES
CONSULTING ENGINEERS

Shop Drawing Submittal Review

Submittal Review Comments

1. Contractor responsible to verify that all adhesives, sealants and sealant primers meet the requirements of LEED Credit IEQ 4.1. Provide Product Data for Credit IEQ 4.1 for all adhesives, sealants and sealant primers, including printed statement of VOC content. The submittal does not appear to contain this information for all sealants submitted.

2. Provide aluminum jacketing on all exterior piping per Specification 232500-2.2-D-5: For insulation installed outdoors and insulation subject to water damage, provide an additional 0.016 inch aluminum jacket with lock seam, longitudinal joint and gasketed bands for butted joints as required for a watertight installation. Jacket shall be complete with waterproof, laminated paper lining and shall be manufactured by ITW Insulation System or RPR Products.

14127.01 - 232500 M01 MTN TO REVIEW - 01/18/17

From: STL-CAC <STL-CAC@CANNONDESIGN.COM>
To: 'Patrick Garner' <pgarner@wmtao.com>, "WTASHOP (WTASHOP@wmtao.com)" <WTA...
CC: "Patel, Kelvin" <kpatel@CANNONDESIGN.COM>
Date: 1/18/2017 3:01 PM
Subject: Webster ISB - 23 2500-001
Attachments: 232500-001 Mechanical Insulation Product Data.pdf

Attached for review.

Melissa Pirtle

[cid:image001.png@01D2719B.8CD710A0]
1100 Clark Ave
St. Louis, Missouri 63102
T 314.425.8797
cannondesign.com

CANNONDESIGN

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB
PROJECT NAME

8274 BIG BEND BLVD
ADDRESS

NUMBER

WEBSTER UNIVERSITY
OWNER

CANNON DESIGN
ARCHITECT / ENGINEER

Joe Voypick
SUBMITTED BY

232500-001
CONTRACTOR / CM SUBMITTAL NO.

CANNON DESIGN SUBMITTAL NO.

DRAWING / DETAIL REFERENCE

232500
SPECIFICATION SECTION / PARAGRAPH

icon Mech
MANUFACTURER / SUPPLIER

ITEM / PRODUCT ID

REQUIRED DATE

PRIORITY

☐ CRITICAL

ITEM BEING SUBMITTED (check only one)

- ◯ Shop Drawings
- ◯ Samples (_____ copies)
- ◯ LEED Submittal
- ◯ Certification / Qualifications
- ◯ Record Documents
- ◯ Product Data
- ◯ Coordination Drawing
- ◯ Calculations
- ◯ Schedules
- ◯ O&M Manuals
- ◯ Other _____

ITEM BEING SUBMITTED FOR (check only one)

◯ Action ◯ Information Only ◯ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:
Devin D. Gates

Joe Voypick
REVIEWED BY

1/17/17
DATE

To be completed by Reviewer

23 2500-001
CANNON DESIGN SUBMITTAL NUMBER

1/18/17
RECEIVED DATE

- ◯ A. No Exceptions Taken
  No further review of submittal is required.
- ◯ B. Make Corrections Noted
  Incorporate corrections in work; resubmission is not required.
- ◯ C. Revise and Resubmit
  Revise as noted, and resubmit for review.
- ◯ D. Rejected
  Submittal is not in compliance with Contract Documents; provide new submittal.
- ◯ E. For Record / Information Only
  Submittal was reviewed for Record / Information purposes only.
- ◯ F. Not Required for Review
  Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS ◯ See attached sheet(s) for additional comments

REVIEWED BY

DATE

77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0453

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 01/17/2017

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

Fax;
314-241-2203

RE: Mechanical insulation product data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☑ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	**SENT VIA:**	☐ Returned
☐ Specifications	☐ Attached	☐ Returned for Corrections
☑ Other: Product Data	☐ Separate Cover Via:	☑ Due Date: 08/26/2016

Item	*Package*	*Code*	*Rev.*	*Copies*	*Date*	*Description*	*Status*
Submittal		232500-001	1		01/17/2017	Mechanical insulation product data	Submitted

NOTES:

CC:

Signed: _____

Devin Gates

Mechanical

LETTER OF TRANSMITTAL

TO: Paric Corporation
77 West Port Plaza #250
St. Louis, MO 63146

ATTN: Jason Szachnieski, Devin Gates

DATE: 1/16/17
JOB # : 5768
RE: Webster ISB

We are sending you
( ) Attached ( ) Under separate cover
(X) Shop drawings ( ) Prints ( ) Plans ( ) Samples ( ) Specifications
( ) Copy of letter ( ) Change order ( ) Other

COPIES	DATE	NO.	DESCRIPTION
1	1/16/17	232500	Mechanical Insulation

These are transmitted as checked below:

( ) For signature ( ) Approved as submitted ( ) Resubmit ( ) copies for approval
( ) For your use ( ) Approved as noted (X) Submit ( ) copies for distribution
( ) As requested ( ) Returned for corrections ( ) Return ( ) corrected prints
( ) For bids due ( ) Prints returned after loan to us
(X) For review and comment ( ) Other

Remarks: Please return by 1/24/17

COPY TO: file

SIGNED: Alex Chambers

Mechanical

Webster University ISB
Webster Groves, MO

Submittal #:	232500
Submittal Description:	Mechanical Insulation
Return By:	1/24/17

Please Note: To avoid scheduling delays and equipment release delays, please submit by the "Return By" date.

CHECKED BY:

DESIGNER: | ENGINEER: X

X	NO EXCEPTION TAKEN		MAKE CORRECTIONS NOTED
	SUBMIT SPECIFIED ITEM		REVISE AND RESUBMIT
	REJECTED		

Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Equipment supplier is responsible for: dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and satisfactory performance of his work.

icon Mechanical

Job #:	5768
Date:	1/16/17
By:	ARC

TDK Mechanical Services
745 Merus Ct.
Fenton, Missouri 63026
636-600-1662 phone / fax

SUBMITTAL TRANSMITTAL

DATE: **December 21, 2016**

COMPANY: **Trenholm Mechanical Insulation**
ATTENTION TO: **Audra Trenholm**
EMAIL: audra@trenholminsulation.com

FROM: **Dan Esker**
PHONE: **(636) 290-3733 cell / (636) 600-1662 office**
EMAIL: dan@tdkmechanical.com

PROJECT: **Webster University Interdisciplinary Science B**
St. Louis, MO

DESCRIPTION:

Mechanical System	Insulation	Thickness	Occurs at
Heating Hot Water	Fiberglass ASJ Pipe Covering	1"	Indoors - Pipe Sizes Under 4"
Heating Hot Water	Fiberglass ASJ Pipe Covering	1-1/2"	Indoors - Pipe Sizes 4" & Over
Chilled Water	PolyISO Pipe Covering	1"	Indoors - All Pipe Sizes
Chilled Water Equipment	Elastomeric Sheet Rubber	1"	Indoors - Mechanical Room
PCS/PCR	PolyISO Pipe Covering	1"	Indoors - All Pipe Sizes
Glycol Piping	Elastomeric Pipe Covering	1"	Indoors - All Pipe Sizes
Refrigeration Piping	Elastomeric Pipe Covering	1"	Indoors - All Pipe Sizes
Medium Pressure Supply Air Duct	FSK Fiberglass Duct Wrap	1-1/2" / 0.75#	Indoors - Concealed
Fume Exhaust Duct	Unifrax Fyre Wrap	(1) layer of 1-1/2"	Indoors - Concealed
Kitchen Exhaust Hood Duct	Unifrax Fyre Wrap	(2) layers of 1-1/2"	Indoors - Concealed
Outside Air Duct	FSK Fiberglass Duct Board	1-1/2" / 3#	Indoors - Concealed
All Duct Work Systems	Foil Tape	4"	Indoors - Concealed
PVC Fittings	Proto PVC Fittings	N/A	At Fiberglass & PolyISO Pipe Covering Fittings
Vimasco Adhesive	WC-5	N/A	At Fiberglass Pipe Covering
Armaflex Adhesive	Armaflex 520 Adhesive	N/A	At Elastomeric Pipe Covering
PolyISO Adhesive	Childer's CP-10	N/A	At PolyISO Pipe Covering

NOTES/CLARIFICATIONS:

Low Pressure Round Supply Air Duct. FSK Fiberglass Duct Wrap. 1-1/2" / 0.75#. Indoors - Concealed