Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
Little Rock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Date: 11/8/2023
Return Request: 11/15/2023
Project: LRCC Healthscope Building
Supplier: Pro Insulation
Manufacturer: Various
Submittal: HVAC Duct Insulation
Submittal Number:
Drawing # and Installation: Mechanical Drawings

ARCHITECT
Johnson Architects
2725 Cantrell Rd.
Little Rock, AR 72202
501-374-7700

ENGINEER
EECI, Inc.
10 Corporate Hill Drive, Suite 100
Little Rock, AR 72205
501-244-0511

GENERAL CONTRACTOR
CBM Construction
401 N. Victory St.
Little Rock, AR 72201
501-945-0829

MECHANICAL SUBCONTRACTOR
Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

CSUSA PROJECT NO.
23-1027
jon@comfortar.com

Pro Insulation

4414 South 16th Street
Ft. Smith, AR 72901
Ph. 479-646-5644
Fax 479-646-5654

November 7, 2023

Comfort Systems USA, Inc.
P.O. Box 16620
Little Rock, AR 72231

Mr. Jon Davis

Re: Mechanical Insulation Submittals for LRCC Healthscope Building, Little Rock, Arkansas.

The following items will be insulated with ¾ lb Knauf Atmosphere Duct Wrap with a foil skrim kraft vapor barrier jacket. All joints and seams will be sealed with 3" wide FSK tape.

Item #1 Round Supply Duct---------- 2 3/16" Thick

Item #2 Round Return Duct---------- 2 3/16" Thick

Thank You,

Mike Galatzer

DATA SHEET

Atmosphere™ Duct Wrap

with ECOSE® Technology

DESCRIPTION

Atmosphere Duct Wrap is a thermal and acoustical insulation blanket made from highly resilient, inorganic fiberglass bonded by ECOSE Technology. It is available unfaced, with a foil-scrim-kraft (FSK) jacket and with a white metalized polypropylene-scrim-kraft (PSK) jacket. Vapor retarders provide a 2" (51 mm) staple flange on one edge, and the factory-applied facing assures uniform quality.

APPLICATION

- External insulation on commercial or residential heating or air conditioning ducts
- Suitable for the exterior of rectangular or round sheet metal ducts and spaces or surfaces where temperature and condensation must be controlled

SPECIFICATION COMPLIANCE

U.S.

- ASTM C1139 - unfaced; Type I, Type II,
  - Grade 1 - 0.75 PCF
  - Grade 2 - 1.0 PCF
  - Grade 3 - 1.5 PCF
- ASTM C553
  - Type I, Type II - 0.75 PCF
  - Type I, Type II - 1.0 PCF
  - Type I, II, III - 1.5 PCF
- ASTM C1136; Type II
- ASTM C1290
- NFPA 90A and 90B
- California Title 24 (installed at 25% compression)
- UL/ULC Classified

Canada

- CAN/ULC S102

INDOOR AIR QUALITY

- UL Environment
  - GREENGUARD Certified
  - GREENGUARD Gold Certified
  - Validated to be Formaldehyde-Free
- Does not contain polybrominated diphenyl ethers (PBDE) such as: Penta–BDE, Octa–BDE or Deca–BDE
- EUCEB Certified

CONTRACTOR: _____

JOB: _____

DATE: _____

DOING MORE FOR THE WORLD WE LIVE IN.

Knauf Insulation products with ECOSE® Technology are made using our patented, bio-based binder - a smarter alternative to the phenol/formaldehyde (PF) binder traditionally used in fiberglass products. The bio-based binder holds our product together, gives the product its unique appearance and makes it formaldehyde-free.

All of our products are made from sustainable resources, such as recycled glass and sand. And we're proud to be putting glass bottles back to work rather than into landfills. Our products are made with a minimum of 50% recycled glass—totaling an average of 26 million bottles each month.

with ECOSE® TECHNOLOGY

FIBERGLASS AND MOLD

Fiberglass insulation will not sustain mold growth. However, mold can grow on almost any material when it becomes wet and contaminated. Carefully inspect any insulation that has been exposed to water. If it shows any sign of mold, it must be discarded. If the material is wet but shows no evidence of mold, it should be dried rapidly and thoroughly. If it shows signs of facing degradation from wetting, it should be replaced.

Air handling insulation used in the air stream must be discarded if exposed to water.

TECHNICAL DATA		
Property (Unit)	**Test**	**Performance**
Corrosiveness	ASTM C665	Does not accelerate corrosion of steel
Corrosion	ASTM C1617	Pass
Maximum Service Temperature	ASTM C411	Faced: 250° F (121° C), Unfaced: 350° F (177° C)
Water Vapor Permeance	ASTM E96, Procedure A	0.02 perms or less (FSK and PSK facings)
Water Vapor Sorption (by weight)	ASTM C1104	Less than 5%
Mold Growth	ASTM C1338	Pass
Surface Burning Characteristics (flame spread/smoke developed)	ASTM E84, UL 723, CAN/ULC S102	UL/ULC Classified FHC 25/50 (Unfaced and FSK facing)
	ASTM E84	25/50 (PSK facing)

FORMS AVAILABLE						
Density	**Thickness**	**Width**	**Length**	**Facing**	**R-Value (K Value) @ 75°F Mean Temperature**	
					Out-Of Package	**Installed [at 25% Compression]**
0.75 PCF (12 kg/m³)	1½" (38 mm)	48" (1,219 mm)	100' (30.48 m)	FSK, PSK, Unfaced	R-5.1 (0.29)	R-4.2 (0.27)
	2" (51 mm)		75' (22.86 m)		R-6.8 (0.29)	R-5.6 (0.27)
	2 3/16" (56 mm)		75' (22.86 m)		R-7.4 (0.29)	R-6.0 (0.27)
	3" (76 mm)		50' (15.24 m)		R-10.2 (0.29)	R-8.4 (0.27)
1.0 PCF (16 kg/m³)	1½" (38 mm)		100' (30.48 m)		R-5.6 (0.27)	R-4.5 (0.25)
	2" (51 mm)		75' (22.86 m)		R-7.4 (0.27)	R-6.0 (0.25)
1.5 PCF (24 kg/m³)	1½" (38 mm)		75' (22.86 m)		R-6.1 (0.24)	R-4.8 (0.23)
	2" (51 mm)		50' (15.24 m)		R-8.2 (0.24)	R-6.4 (0.23)

STRETCH-OUTS				
Labeled Thickness	**Installed Compressed Thickness**	**Round**	**Square**	**Rectangular**
1½" (38 mm)	1⅛" (29 mm)	P+9½" (241 mm)	P+8" (203 mm)	P+7" (178 mm)
2" (51 mm)	1½" (38 mm)	P+12" (305 mm)	P+10" (254 mm)	P+8" (203 mm)
2 3/16" (56 mm)	1⅝" (42 mm)	P+13" (330 mm)	P+11" (279 mm)	P+8½" (216 mm)
3" (76 mm)	2¼" (57 mm)	P+17" (432 mm)	P+14½" (368 mm)	P+11½" (292 mm)

P = Perimeter of duct to be installed.

INSERTION LOSS | (REDUCTION OF SOUND TRANSMITTED THROUGH DUCT WALL)
(SOUND AND VIBRATION DESIGN AND ANALYSIS, NATIONAL ENVIRONMENTAL BALANCING BUREAU, 1994)

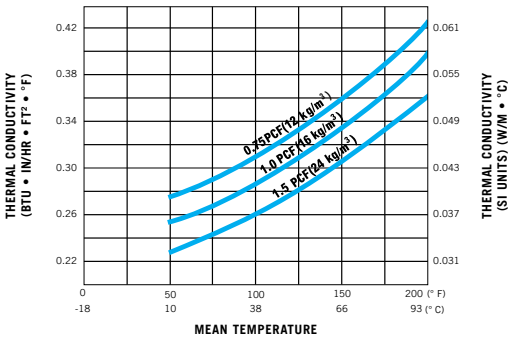
		Duct Wrap		Insertion Loss, dB/LF of Duct						
Duct Dimensions	Sheet Metal	Nominal Thickness	Nominal Density	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz
12" x 12" (305 mm x 305 mm)	24 GA	1½" (38 mm)	0.75 PCF (12 kg/m³)	0.6	0.6	0.6	0.7	7.4	14.2	20.9
24" x 12" (610 mm x 305 mm)	24 GA	1½" (38 mm)		0.6	0.6	0.6	0.7	7.4	14.2	20.9
48" x 12" (1219 mm x 305 mm)	22 GA	1½" (38 mm)		0.5	0.5	0.5	0.6	7.4	14.1	20.9
24" x 24" (610 mm x 610 mm)	22 GA	1½" (38 mm)		0.5	0.5	0.5	0.6	7.4	14.1	20.9
24" x 12" (610 mm x 305 mm)	26 GA	1½" (38 mm)		0.8	0.8	0.8	0.8	7.5	14.2	21.0
24" x 8" (610 mm x 203 mm)	26 GA	2" (51 mm)		1.0	1.0	1.0	3.6	10.4	17.1	23.9

CONDENSATION CONTROL | RECOMMENDED MIN. INSTALL R-VALUES FOR CONDENSATION CONTROL ON FLAT SURFACES.
SURFACE EMITTANCE: 0.2 (AGED ALUMINUM FOIL OR GALVANIZED SHEET METAL)

RH	Operating Temperature														
	45° F (7° C) Ambient Temperature (° F)					55° F (13° C) Ambient Temperature (° F)					60° F (18° C) Ambient Temperature (° F)				
%	70	80	90	100	110	70	80	90	100	110	70	80	90	100	110
60	2.2[1]	3.3[1]	4.3[2]	4.3[2]	5.4[3]	1.1[1]	2.2[1]	3.3[1]	3.3[1]	4.3[2]	1.1[1]	1.1[1]	2.2[1]	3.3[1]	4.3[2]
70	3.3[1]	5.4[3]	6.5[4]	7.6[5]	—	1.1[1]	3.3[1]	4.3[2]	6.5[4]	6.5[4]	1.1[1]	1.1[1]	3.3[1]	5.4[3]	6.5[4]
80	7.0[4]	—	—	—	—	3.3[1]	6.5[4]	—	—	—	2.2[1]	3.3[1]	6.5[4]	—	—
90	—	—	—	—	—	—	—	—	—	—	6.5[4]	—	—	—	—

[1]All Duct Wrap products
[2]0.75 PCF, 2" and greater; 1.0 PCF, 1½" and greater; 1.5 PCF, 1½" and greater
[3]0.75 PCF, 2" and greater; 1.0 PCF, 2"; 1.5 PCF, 2"
[4]0.75 PCF
[5]0.75 PCF, 3"

THERMAL EFFICIENCY | ASTM C177



Mean Temperature	0.75 PCF		1.0 PCF		1.5 PCF	
	k	k (SI)	k	k (SI)	k	k (SI)
50° F (10° C)	0.28	0.040	0.26	0.037	0.23	0.033
75° F (24° C)	0.29	0.042	0.27	0.039	0.24	0.035
100° F (38° C)	0.31	0.045	0.29	0.042	0.26	0.037
125° F (52° C)	0.33	0.048	0.31	0.045	0.28	0.040
150° F (66° C)	0.36	0.052	0.34	0.049	0.31	0.042
175° F (80° C)	0.39	0.056	0.37	0.053	0.33	0.048
200° F (93° C)	0.43	0.063	0.40	0.058	0.36	0.052

APPLICATION & SPECIFICATION GUIDELINES

Storage

- Protect stored insulation from water damage, construction damage and other abuse.
- If stored outside, proper protection from weather conditions should be provided.

Preparation

- Install over clean, dry sheet metal ducts.
- All sheet metal joints and seams must be sealed to prevent air leakage from the duct.

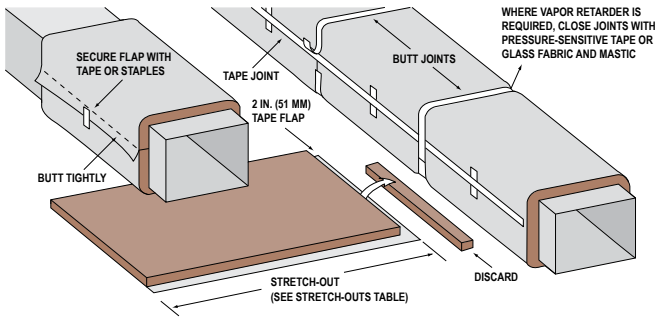
Application

- Install with facing to the outside to obtain specified R-value using a maximum of 25% compression.
- Butt all insulation joints firmly together. Longitudinal seam of the vapor retarder must be overlapped a minimum of 2" (51 mm). A 2" (51 mm) tab is provided for the circumferential seam and must be overlapped.
- Where vapor retarder performance is necessary, all penetrations, joints, seams and damage to the facing should be sealed with an FSK, PSK or foil tape or glass fabric and mastic prior to system startup.
- Pressure sensitive tapes should be a nominal 3" (76 mm) wide and be applied with moving pressure using an appropriate sealing tool. Staples should be outward clinch and placed approximately 6" (152 mm) on center.
- Closure systems should have a 25/50 F.H.C. per UL 723.
- For rectangular ducts over 24" (610 mm) wide, secure the insulation to the bottom side of the duct with mechanical fasteners spaced on 18" (457 mm) centers to reduce sag. Care should be taken to avoid over-compressing the insulation with the retaining washer.
- It is neither necessary nor desirable to adhere duct wrap to duct surfaces with adhesive.
- Unfaced Duct Wrap should be overlapped with a minimum of 2" (51 mm) and fastened with 4" (102 mm) to 6" (152 mm) nails or skewers placed 4" (102 mm) apart, or secured with a wire or banding system. Care must be taken to avoid damaging the duct wrap. Refer to diagram for staple stitching and butt-joint method.

Installation Procedures

- Use the Application graphic to determine stretch-outs required for the nominal thickness of insulation to limit average compression of the insulation 25% or less.

APPLICATION



CERTIFICATIONS

Check with your Knauf Insulation Territory Manager to ensure information is current.

The chemical and physical properties of this product represent average values determined in accordance with accepted test methods. The data is subject to normal manufacturing variations. The data is supplied as a technical service and is subject to change without notice. References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

This product is covered by one or more U.S. and/or other patents.
See patent www.knaufnorthamerica.com/patents

Visit **knaufnorthamerica.com** to learn more.

KNAUF INSULATION, INC.
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Shelbyville, IN 46176

Technical Support
(317) 398-4434 ext. 8727
info.us@knaufinsulation.com

02-20

FASSON® 0828

Suitable for die-cut shapes, shielding, moisture and vapor barrier sealing components or lamination to insulation materials.

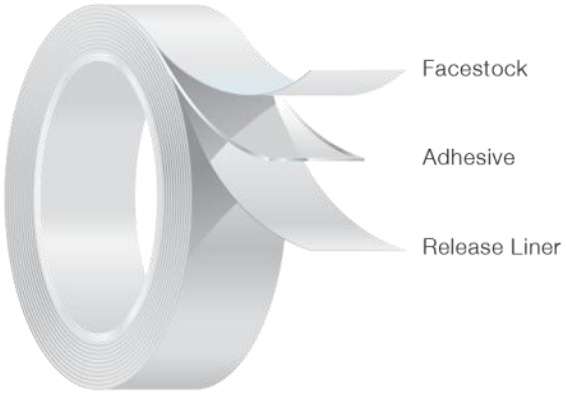
FEATURES:

- Specially formulated antimicrobial, extreme weather, COLD TOUGH™ acrylic adhesive
- High initial tack and quick stick
- Meets ASTM C-1136 Type II and Type IV
- PSA complies with South Coast Air Quality Management District's (SCAQMD) Rule 1168.
- UL 723 Recognition under File No. BVYS.R7078
- UL ULC S102 Recognition under File No. BVYS7.R7078

BENEFITS:

- Tri-directional 8.0 mil FSK facestock reinforces seal
- Strong bond to a variety of substrates
- High-strength reinforced FSK reinforces seal
- All weather acrylic insulation sealant tape
- Foil laminate facing (FSK) is decaBDE free
- Application temperature as low as 0ºF

Made in the USA



CONSTRUCTION:

Carrier:
Tri-directional FSK Foil Laminate
Adhesive:
COLD TOUGH™ Acrylic
Liner:
Densified Kraft

CLASSIFIED C UL US

General Use Tape Surface Burning Characteristcs to

UL 723	Flame Spread	15
	Smoke Developed	10
		722S

LEED® Point Contributor

* Contributes to Energy Atmosphere (SA) Credit 1
* Contributes to Indoor Environmental Quality (IEC) Credit 4.1

FASSON® 0828

Adhesive Properties:		Typical Values		
Thickness	Test Method(s): PSTC-133	**US Mils**	**MM's**	**Microns (µm)**
Liner:		3.6	0.09	91
Adhesive:		1.7	0.04	43
Carrier:		8.0	0.20	203
Total Caliper:		13.3	0.34	338

PEEL ADHESION	Test Method(s): PSTC-101, ASTM D-3330, STD-10			
Product 180º 12" min				
Substrate		**Lbf / In**	**US Oz / In**	**N / Meter**
SS	Initial	6.5	104	1138

TLMI RELEASE	Test Method(s): PSTC-4, STD-8			
Product 90º 300" / min				
Substrate		**Gf / 2 In w**		
SS	Initial	40.0		

TENSILE	Test Method(s): PSTC-131, ASTM D-882, STD-3A,B,C			
Product 180º				
Substrate		**Lbf / In**	**US Oz / In**	**N / Meter**
Product	Initial MD	40.0	640	7004
	Initial CD	25.0	400	4378

ELONGATION	Test Method(s): PSTC-131, ASTM D-882, STD-3A,B,C			
Product 90º MD				
Substrate		**%**		
Product	Initial MD	< 1		
	Initial CD	< 1		

STATIC SHEAR	Test Method(s): PSTC-107, ASTM D 3654, STD-9			
Aluminum Foil 1" sq (6.5 cm2) 2500 g				
Substrate		**Min to Fail**		
SS		> 10,000		

VOC Content				
Product				
Substrate		**g / L**		
Product		< 15		

TEMPERATURES	**º F**	**º C**
Min Application Temp	0 º F	-17 º C
Max Continuous Operating Temp	200 º F	93 º C
Max Intermittent Operating Temp	250 º F	121 º C

THE LISTED VALUES ARE TYPICAL AND NOT INTENDED TO SERVE AS PRODUCT SPECIFICATIONS

APPLICATION TECHNIQUES

- It is essential, as with all pressure-sensitive tapes, that the surface to which the tape is applied be clean, dry, and free of grease or oil
- Bond strength is dependent upon the amount of adhesive-to-surface contact developed
- Note that different pressure, time and temperature on different (film / rigid) surface achieves different performance

STORAGE / SHELF LIFE

- One year when stored at 64-72ºF (18-22ºC) / 30-70% relative humidity, out of direct sunlight and in original packaging.

Please refer to Tapes.AveryDennison.com for complete terms and conditions, including warranty terms, relating to this product. You should periodically review the site as terms and conditions are subject to change without notice.

AVERY DENNISON Performance Tapes

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