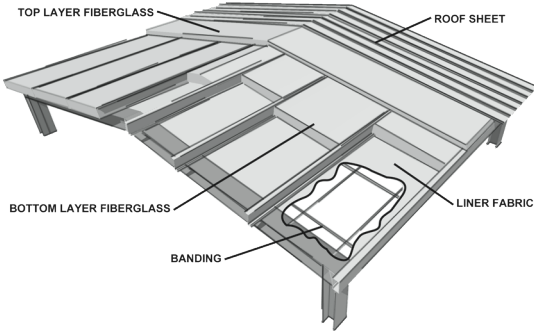


Banded Liner System

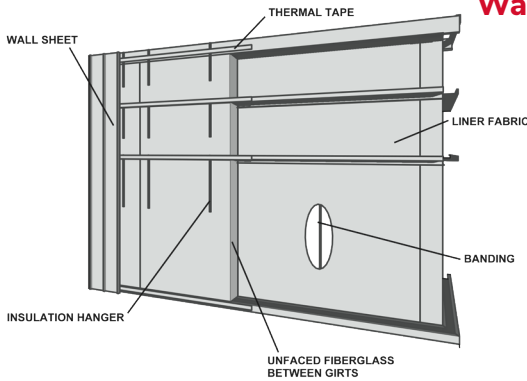
Bi-Directional Banding featuring OSHA-compliant leading edge fall protection

Product Data Sheet

Roof System



Wall System



Physical Properties

Property	Test Method	Value
Insulation		
Surface Burning Characteristics:	ASTM E84	
* Flame Spread Index		< 25
* Smoke Developed Index		< 50
Combustion Characteristics	ASTM E136	Noncombustible
Water Vapor Sorption	ASTM C1104	≤ 0.2% by volume
Odor Emission	ASTM C1304	No objectionable odor ¹
Corrosiveness	ASTM C665	No corrosion greater than comparative item
Fungi Resistance	ASTM C1338	No growth greater than comparative item
Liner Fabric		
Surface Burning Characteristics (white side exposed)	UL 723 (ASTM E84)	
Flame Spread		0
Smoke Developed		28
Water Vapor Permeance	ASTM E96 Method A	0.02 perms
Fungi Resistance	ASTM C1336	No Growth (ATCC #'s 9642, 6205, 11797, 11730 and 9643)
Tensile Strength		
Light Reflectance		

1. No odor for a minimum of 3 of 5 panel members.

Description

The Liner Banded Liner System is a thermal insulation and moisture control system for metal building construction. It consists of three components:

1. A polyethylene vapor retarder liner fabric, available in white or black
2. Galvanized metal support straps (bands)
3. One or two layers of EcoTouch[®] Certified R Metal Building Insulation

Applications

- Metal building roof assemblies
- Metal building wall assemblies

Availability

EcoTouch [®] Certified R Metal Building Insulation ¹		
Pre-laminate R-Value	Laminated R-Value	Thickness (inches)
10.8	10	3.4
11.9	11	3.7
14.1	13	4.3
17.3	16	5.3
20.6	19	6.3
22.8	21	6.7
27.1	25	8.0
32.5	30	9.25

1. Manufactured in accordance with NAIMA standard 202-96 revision 2000. When installed as part of the Liner Banded Liner System, use "pre-laminated" R-value.

Features

- Thermal performance - full range of insulation R-values (see "Availability" table) to meet energy conservation code requirements in all climate zones
- Moisture control - polyethylene liner fabric provides code required vapor retarder (see water vapor permeance value on "Physical Properties" table)
- Noise control - improves the building interior environment by reducing noise transfer from both exterior and interior sources (see "Sound Absorption" and "Acoustic Data" tables)
- Durable, cleanable finish - the liner fabric is strong and highly reflective for better interior lighting efficiency (see data in "Physical Properties" table). It can also be easily cleaned with water and mild detergent

Sound Absorption

EcoTouch[®] Insulation for Metal Building Roof and Wall Configurations^{1,2}

Insulation Total R-Value	Absorption Coefficients at Octave Band Frequencies						
	125	250	500	1000	2000	4000	NRC
25	0.59	1.09	0.83	0.59	0.31	0.11	0.70
30	0.71	1.10	0.87	0.57	0.31	0.13	0.70
35	0.80	1.10	0.90	0.56	0.30	0.14	0.70
40	0.84	1.07	0.92	0.59	0.31	0.11	0.70
44	0.68	0.98	0.92	0.58	0.31	0.13	0.70
49	0.67	1.01	0.92	0.56	0.31	0.14	0.70

1. Sound absorption testing in accordance with ASTM C423.

2. All testing conducted with the facing towards the soundfield as in actual use condition.

Assembly U-factors¹

ASHRAE 90.1-2016: Table A2.3.3 Assembly U-Factors for Metal Building Walls		
Insulation System	Insulation R-value	Assembly U-factor
Single Layer in Cavity	R-25 ^a	0.059
	R-30 ^b	0.052
Double Layer	R-25 + R-10	0.047
	R-25 + R-16	0.042
	R-25 + R-10 ^c	0.039
	R-30 + R-16	0.039

(Multiple R-values are listed in order from inside to outside)

- A min. R-0.375 thermal spacer block or thermal break strip is required when installed without continuous insulation.
- A min. R-0.75 thermal spacer block or thermal break strip is required when installed without continuous insulation.
- A minimum R-3 thermal spacer block is required.

ASHRAE 90.1-2016: Table A2.3.3 Assembly U-Factors for Metal Building Roofs		
Insulation System	Insulation R-value	Assembly U-factor
Standing Seam Roofs with Thermal Spacer Blocks ^{a,b}		
Liner System	R-19 + R-11	0.037
	R-25 + R-8	0.037
	R-25 + R-11	0.031
	R-30 + R-11	0.029
	R-25 + R-11 + R-11	0.026
Standing Seam Roofs without Thermal Spacer Blocks		
Liner System	R-19 + R-11	0.040
Through-Fastened Roofs without Thermal Spacer Blocks		
Liner System	R-19 + R-11	0.044

- A standing seam roof clip that provides a minimum 1.5 in. distance between the top of the purlins and the underside of the metal roof panels is required.
- A minimum R-3 thermal spacer block is required.

1. All values are from ANSI/ASHRAE/IES Standard 90.1-2016. Wall and Roof assembly U-factors are calculated using pre-laminated R-values of insulation meeting NAIMA standard 202-1996 revision 2000.

Acoustic Data

Sound Transmission Loss^{1,2}

					Transmission Loss - dB at Octave Band Frequencies							
Roofs	Construction Type	Clip Standoff (inches)	Top Layer Insulation R-Value	Bottom Layer Insulation R-Value	125	250	500	1000	2000	4000	STC	OITC
					Through Fastened	NA	10	19	14	26	35	40
Through Fastened	NA	19	30	18	32	42	50	57	57	42	41	
Standing Seam	0.25	10	19	14	26	34	44	52	53	36	36	
Standing Seam	1.25	19	30	19	32	42	56	63	58	42	41	
Standing Seam	1.75	19	30	20	32	42	56	62	58	42	42	

					Transmission Loss - dB at Octave Band Frequencies							
Walls	Construction Type	Foam Tape Thickness (inches)	Single Layer Insulation R-Value	125	250	500	1000	2000	4000	STC	OITC	
				Through Fastened	0.125	25	15	26	35	41	50	53
Through Fastened	0.375	30	17	29	38	45	54	54	39	38		

- Sound Transmission Loss Tested in accordance with ASTM E90.
- Values are given for design approximations only. Production and test variabilities will alter the results.

Certifications and Sustainable Features*

- Certified by SCS Global Services to contain a minimum of 65% recycled glass content, 18% pre-consumer and 47% post-consumer
- GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit ul.com/gg
- Environmental Product Declaration (EPD) has been certified by UL Environment
- Material Health Certificate from Cradle to Cradle Products Innovation Institute

*All certifications noted are for the EcoTouch[®] Certified R insulation only and do not apply to the liner fabric.



Standards, Codes Compliance

- EcoTouch[®] Certified R Metal Building insulation is manufactured in accordance with ASTM C991, Fibrous Glass Insulation for Metal Buildings, Type I.
- Liner fabric meets ASTM C1136, Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation Type I - VI.

Installation Recommendations

When installed in strict compliance with the following Bi-Directional Banding instructions and by a "Competent Person" as defined in OSHA Standard 29 CFR 1926.751, ProLiner meets the requirements of OSHA Standard 29 CFR 1926.502 (c)(4)(i) and OSHA Standard 29 CFR 1926.760 (a)(1) for leading edge fall protection and OSHA Standard 29 CFR 1926.754 (e)(3)(i) covers for roof and floor openings. Any deviation from these installation instructions or substitution of any original components will nullify compliance with these OSHA standards. Other means of fall protection, such as perimeter safety or guide lines, must be used at all times during the installation of the support banding and prior to the completed placement of the liner support fabric. The use of ProLiner is only one part of the overall site-specific safety place for the construction site.

Environmental and Sustainability

Therm-All is a worldwide leader in building material systems, insulation and composite solutions, delivering a broad range of high-quality products and services. Therm-All is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. More information can be found at www.therm-all.com.

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