



Johns Manville

Commercial/Industrial Roofing Insulations



Roof Insulations

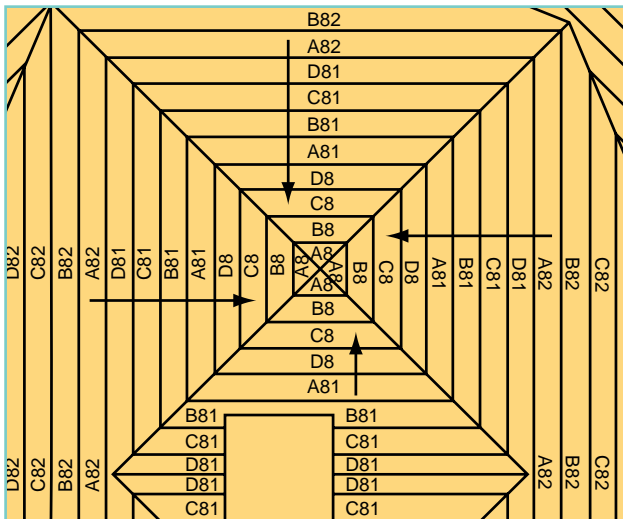
Johns Manville Roofing Systems markets a wide variety of insulations for built-up, modified bitumen and single ply roofing systems. They are available in a range of thicknesses and thermal values to allow the designer to specify the correct amount of insulation to minimize the total operating costs of a building.

Prior to product selection, it is recommended that the performance, design and installation concepts of the total roofing system be reviewed to ensure compatibility of all the components.



This Paper Recycling Symbol indicates that JM has joined other manufacturers of commercial and consumer goods throughout the United States in the utilization of recyclable materials.

Tapered Design Centers



The Johns Manville Roofing Systems Tapered Design Centers can prepare a complete, highly accurate and detailed design and layout pattern to achieve a precisely sloped, easily installed tapered insulation system for positive drainage.

These designs can be developed from architect or contractor supplied drawings which can be incorporated into bid documents for new and retrofit construction.

The services of the Tapered Design Centers, using JM tapered roof insulations, bring roof designers, specifiers and contractors the product reliability and resources of a roofing industry leader with over 140 years of experience in solving roofing problems.

High Thermal Products



E'NRG'Y 2™ and ISO 1™ are rigid roof insulation panels composed of closed-cell polyisocyanurate foam core, bonded to universal fiber glass reinforced facers. They are designed for direct application over metal, nailable and non-nailable deck types. E'NRG'Y 2 is recommended for BUR, modified bitumen and single ply roofing systems. **ISO 1 is required for use with JM Guaranteed single ply roofing systems and can also be used for other single ply, BUR and modified bitumen roofing systems.** E'NRG'Y 2 and ISO 1 are available in either 20 or 25 psi (138 or 172 kPa) compressive strength. Both meet the physical property requirements of ASTM C 1289 and Federal Specification HH-I-1972/Gen and HH-I-1972/2. E'NRG'Y 2 and ISO 1 are also available in tapered panels to provide positive slope to drain.

E'NRG'Y 2 and ISO 1 Thermal Values

Thickness (nom.)*	C-Value (Conductance)		R-Value (Resistance)		
	in	mm	BTU/(hr•ft ² •°F)	W/m ² •°C	(hr•ft ² •°F)/BTU
1.0	25	0.167	0.95	6.0	1.05
1.5	38	0.10	0.57	10.0	1.76
1.8	46	0.08	0.45	12.5	2.20
2.0	51	0.07	0.40	14.3	2.52
2.3	58	0.06	0.34	16.7	2.94
2.5	64	0.054	0.31	18.6	3.27
2.7	69	0.05	0.28	20.0	3.52
3.0	76	0.046	0.26	22.0	3.83
3.4	86	0.04	0.23	25.0	4.40
4.0	102	0.033	0.19	30.0	5.34

* Other thicknesses available.

Roof Insulations



Low Thermal Products

Fesco® Board is a high-density board, composed of expanded perlite, blended with selected binders and fibers. It is intended for use as a low thermal insulation board and general purpose cover board over closed-cell foam insulation boards in BUR, modified bitumen and some single-ply roofing systems. Because its special TopLoc® coating prevents excessive absorption of asphalt during installation, and its expanded perlite contains air cells which provide superior insulating efficiency, Fesco Board is the best board for low thermal applications. It meets the physical requirements of ASTM C 728. Fesco Board is also available in tapered panels.

Fesco Board Thermal Values

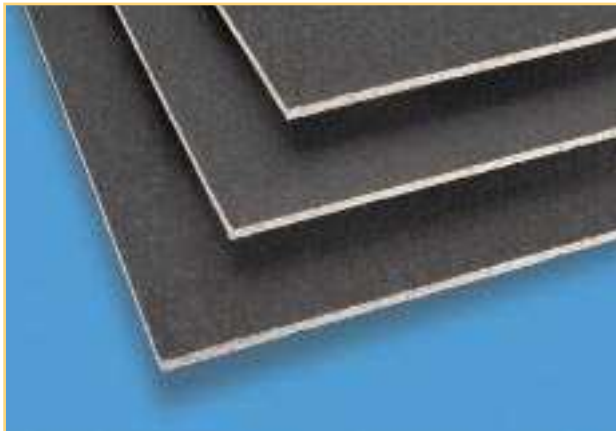
Thickness (nom.)		C-Value (Conductance)		R-Value (Resistance)	
in	mm	BTU/(hr•ft ² •°F)	W/m ² •°C	(hr•ft ² •°F)/BTU	m ² •°C/W
0.75	19	0.48	2.73	2.08	0.49
1.0	25	0.36	2.04	2.78	1.26
1.5	38	0.24	1.36	4.17	1.96
2.0	51	0.18	1.02	5.56	2.20



Nord Board™ is a rigid insulation board composed of expanded perlite and cellulosic fibers. The top surface is coated with a modified APP asphalt which allows for the direct application of heat-welded APP or PAO membrane products. It is intended for use as a low thermal roof insulation board and general purpose cover board over closed cell foam insulation boards in APP membrane roofing systems. Because heat welded membranes can be directly applied to Nord Board, base sheets can be eliminated, improving cost and labor efficiencies in installation time.

Nord Board Thermal Values

Thickness (nom.)		C-Value (Conductance)		R-Value (Resistance)	
in	mm	BTU/(hr•ft ² •°F)	W/m ² •°C	(hr•ft ² •°F)/BTU	m ² •°C/W
0.5	13	0.76	4.3	1.32	0.23
0.75	19	0.48	2.73	2.08	0.49
1.0	25	0.36	2.04	2.78	1.26



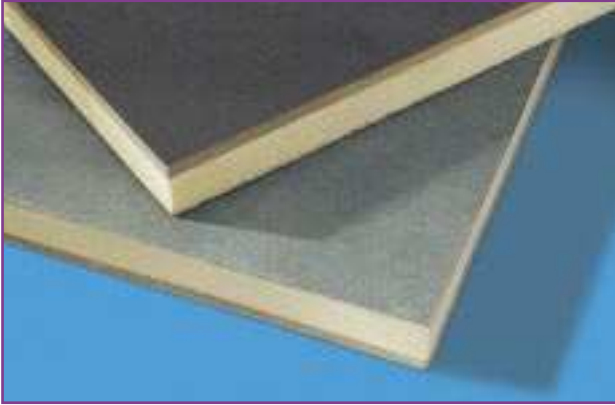
1/2" Retro-Fit® Board is a high-density board for both retro-fit and overlay applications, composed of expanded perlite blended with selected binders and fibers. The primary function is to provide an improved substrate for the roofing membrane. It is generally not considered for overall thermal insulation contribution. It meets the physical requirements of ASTM C 728. 1/2" Retro-Fit Board may be applied with hot asphalt, cold adhesive or mechanical fasteners. It is not recommended for use directly over steel decks.

1/2" Retro-Fit Board Thermal Values

Thickness (nom.)		C-Value (Conductance)		R-Value (Resistance)	
in	mm	BTU/(hr•ft ² •°F)	W/m ² •°C	(hr•ft ² •°F)/BTU	m ² •°C/W
0.5	13	0.76	4.3	1.32	0.23

Roof Insulations

Composite Products

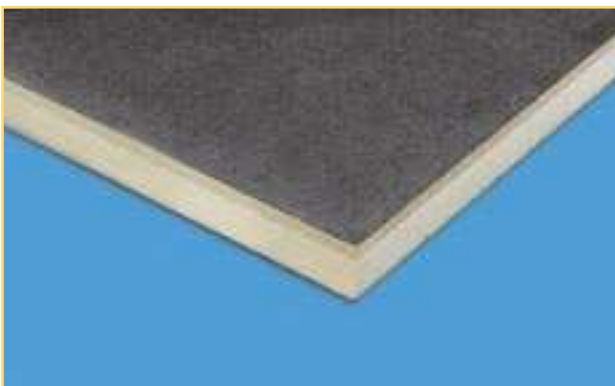


Fesco® Foam is a rigid, high thermal insulation board for use over metal, nailable and non-nailable decks in BUR, modified bitumen and certain single-ply roofing systems. It is composed of a closed-cell polyisocyanurate foam core, bonded to 1/2" Fesco Laminator Board on one side and a universal fiber glass reinforced facer on the other. It meets the physical property requirements of ASTM C 1289 and Federal Specification HH-I-1972/Gen and HH-I-1972/3. Fesco Foam is also available in tapered panels to provide positive slope to drain.

Fesco Foam Thermal Values

Thickness* (nom.)		C-Value (Conductance)		R-Value (Resistance)	
in	mm	BTU/(hr•ft ² •°F)	W/m ² •°C	(hr•ft ² •°F)/BTU	m ² •°C/W
1.5	38	0.135	0.77	7.4	1.30
2.0	51	0.088	0.50	11.4	2.00
2.5	64	0.064	0.36	15.7	2.76
3.0	76	0.052	0.29	19.4	3.41
4.0	102	0.037	0.21	27.2	4.79

* Other thicknesses available.



E'NRG'Y 2 Plus is composed of polyisocyanurate foam core bonded to 1/2" (13mm) high-density wood fiberboard on one side and a fiber reinforced facer on the other. It is especially suited to systems which

require a separation board between the roof cover and insulation. E'NRG'Y 2 Plus is intended for use with built-up and modified bitumen roofing systems. E'NRG'Y 2 meets the physical property requirements of ASTM C 1289 and Federal Specification HH-I-1972/Gen and HH-I-1972/2. It is also available in tapered form to assure positive slope to drain.

E'NRG'Y 2 Plus Thermal Values

Thickness* (nom.)		C-Value (Conductance)		R-Value (Resistance)	
in	mm	BTU/(hr•ft ² •°F)	W/m ² •°C	(hr•ft ² •°F)/BTU	m ² •°C/W
1.5	38	0.137	0.78	7.3	1.28
1.8	46	0.104	0.59	9.6	1.69
2.5	64	0.064	0.37	15.5	2.72
3.0	76	0.051	0.29	19.5	3.43
4.0	102	0.037	0.21	27.0	4.75

* Other thicknesses available.



Nailboard™ is a rigid roof insulation board composed of a closed-cell polyisocyanurate foam core bonded to 7/16" (11 mm) oriented strand board (OSB) on one side and a universal fiber glass reinforced facer on the other. It is designed for use as an insulation/nailbase underlayment for a variety of roofing systems. It meets the property requirements of ASTM C 1289 and Federal Specification HH-I-1972/Gen and HH-I-1972/2. Nailboard is also available with 5/8" (16 mm) OSB board.

Nailboard Thermal Values

Thickness* (nom.)		C-Value (Conductance)		R-Value (Resistance)	
in	mm	BTU/(hr•ft ² •°F)	W/m ² •°C	(hr•ft ² •°F)/BTU	m ² •°C/W
1.5	38	0.137	0.78	7.3	1.28
2.0	51	0.088	0.50	11.4	2.00
3.0	76	0.050	0.28	20.0	3.52
4.0	102	0.037	0.21	27.3	4.80

* Other thicknesses available.

Tapered Pre-Cut Crickets and Miters

Johns Manville Tapered Systems Group

Johns Manville offers Tapered E'NRG'Y 2, Tapered ISO 1, Tapered Fesco Foam, and Tapered Fesco Panels to provide the roofing system designer, specifier or contractor with a means of creating positive slope in any building structure.

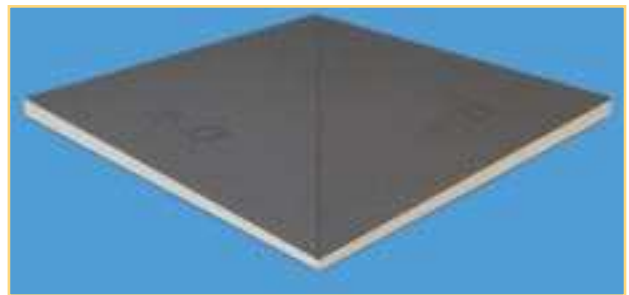
The Johns Manville Tapered Systems Group has a comprehensive program to provide custom designs and takeoffs tailored to the needs of each individual project utilizing the JM tapered insulation panels. For detailed information, call the JM Tapered Systems Group at 800-343-1283 if you are located in the Northeastern, Southeastern or Midwestern Regions, or 800-341-8032 if you are located in the Southwestern or Western regions.

Tapered Pre-Cut Crickets and Miters are comprised of two separate tapered panels factory-cut at a 45° angle to form a hip (outward slope) or valley (inward slope) that directs water to a low point on a tapered roof system. **Tapered Pre-Cut Crickets and Miters** are manufactured from Tapered E'NRG'Y 2 and Tapered ISO 1, a tapered polyisocyanurate foam core bonded to universal fiber glass reinforced facers. **Tapered Pre-Cut Fesco Foam Crickets and Miters** are manufactured from Tapered Fesco Foam, a tapered polyisocyanurate composite where the foam core is bonded to a universal fiber glass reinforced facer on the bottom and Fesco Laminator Board on the top. They are cut, packaged and delivered to the job ready for installation,

Tapered Pre-Cut Crickets




Tapered Pre-Cut Miters



offering the contractor labor savings and reduced waste disposal. All Tapered Pre-Cut Crickets and Miters are available in either 20 or 25 psi (138 or 172 kPa) compressive strength and meet the material requirements of ASTM C 1289 and Federal Specification HH-I-1972/ Gen, HH-I-1972/2 and HH-I-1972/3.



 **FesCant Plus Cant Strips** are an excellent way to transition from the deck to the wall of the roof. They offer far greater fire resistance than conventional wood fiber materials, which is important to all roofs, but especially applicable to torch-applied or heat weldable modified bitumen systems and flashing details.

 **Tapered Fesco Edge Strips** are available in standard sizes to meet special needs and are good for transitioning from membrane to nailer or transitioning from a Tapered insulation panel to the roof level.

Regional Offices and Warranty

Technical information is available from the Regional Technical Services Managers located at the Johns Manville Regional Office nearest you.

Regional Offices

Northeastern

437 Atlantic Avenue
Berlin, NJ 08009-9700
609 768 7003
FAX: 609 768 7034

Midwestern

2151 W. Channahon Road
Rockdale, IL 60436-8559
(815) 744-1545
FAX: (815) 741-6131

Western

3rd & Harbor Streets
Pittsburg, CA 94565
(925) 432-6426
FAX: (925) 427-2409

Canada Customer Service

Write to:
3330 Marleau Street
Cornwall, Ontario K6H 6B5
1-800-343-1285
FAX: 1-800-343-1331

For bilingual and international assistance, please call:

Yolanda Griepentrog
(303) 978-4655 or
FAX: (303) 978-3904

Product Information Center

800 654 3103
303 978 2318 (FAX)

Additional Information:

FAX Express® 888 329 3977
www.jm.com

Southeastern

3901 Roswell Road
Suite 215
Marietta, GA 30062
770 578 3190
FAX: 770 578 3195

Southwestern

P.O. Box 9069
Ft. Worth, TX 76147-2069
(817) 339-1500
FAX: (817) 339-1540

For Guarantee Information

Guarantee Services Unit
P.O. Box 625001
Littleton, CO 80162-5001
10100 W. Ute Ave.
Littleton, CO 80127
(303) 978-2191
FAX: (303) 978-2808

LIMITED WARRANTY/ SPECIFICATIONS

All products sold are subject to the following limited warranty: Seller warrants that for a period of one year from the date of shipment the product will be free from defects in material and workmanship and is manufactured in all material respects to Seller's product specifications. Note: Seller's products may vary in details of design and construction from descriptions in any literature or from any sample, display or other model inspected by Purchaser.

SELLER DISCLAIMS ALL OTHER REPRESENTATIONS AND WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, IN FACT OR IN LAW, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. Every claim under this limited warranty shall be deemed waived unless in writing and received by Seller within 10 days of delivery if visibly damaged or defective, and, otherwise, within 30 days after the defect to which each claim relates is discovered, or should have been discovered, but in no event longer than 1 year after product shipment.

LIMITATION OF REMEDY

PURCHASER'S EXCLUSIVE REMEDY AND THE LIMIT OF SELLER'S LIABILITY FOR BREACH OF THE LIMITED WARRANTY SET FORTH IN THE ABOVE LIMITED WARRANTY/ SPECIFICATIONS, WHETHER BASED ON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY, OR ANY OTHER THEORY, SHALL BE, AT SELLER'S OPTION, REPAIR, REPLACEMENT WITH A LIKE QUANTITY OF NONDEFECTIVE PRODUCT OR REFUND OF THE PURCHASE PRICE, PLUS REASONABLE COMMERCIAL CHARGES INCURRED FOR APPROVED RETURNS.

NO RECOVERY OF CONSEQUENTIAL OR SPECIAL DAMAGES

SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR SPECIAL DAMAGES BASED ON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY, OR ANY OTHER THEORY, FOR FAILURE TO PERFORM ITS OBLIGATIONS UNDER THIS AGREEMENT. ADDITIONALLY, CONSEQUENTIAL AND SPECIAL DAMAGES SHALL NOT BE RECOVERABLE EVEN IF THE REPAIR, REPLACEMENT OR REFUND REMEDY FOR SELLER'S BREACH OF ITS LIMITED WARRANTY FAILS OF ITS ESSENTIAL PURPOSE OR FOR ANY OTHER REASON.

Health and Safety

Johns Manville maintains Material Safety Data Sheets (MSDS) for all of its products. These MSDS contain health and safety information for development of appropriate product handling procedures to protect your employees and customers. These MSDS are available and should be read and understood by all personnel using and handling these materials.

The physical and chemical properties of the products described herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Consult a Johns Manville Regional Office to assure current information.



Johns Manville

Roofing Systems Group

717 17th Street
Denver, CO 80202