



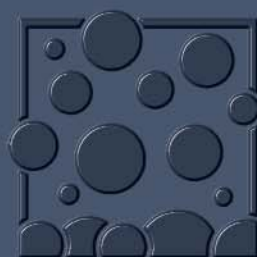
Defy the Elements



W A T E R



F I R E



H A I L



W I N D

# Commercial / Industrial Roofing

## Roofing Systems Catalog



***At Johns Manville, Scientific Advances  
are Producing Better System Performance,  
Easier Installations, Greater Energy Efficiency  
and More Environmentally Smart Applications.***

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To access data on JM Roofing Systems, visit our Web site at [www.jm.com](http://www.jm.com).

Johns Manville is leading the development of new technologies by ushering in a new era of roofing systems. The science behind our materials and products is extensive. Working in partnership with our customers, our research and new product development teams are challenged to invent new and innovative technologies that cost-effectively increase the performance of our customers' commercial/industrial roofing systems.

The Johns Manville Technical Center in Littleton, Colorado, is one of the best-equipped research facilities in the country, with extensive research capabilities in structural, chemical, mechanical and thermal analyses. Here, JM scientists and engineers test and develop products to find technology-based solutions for specific product needs.

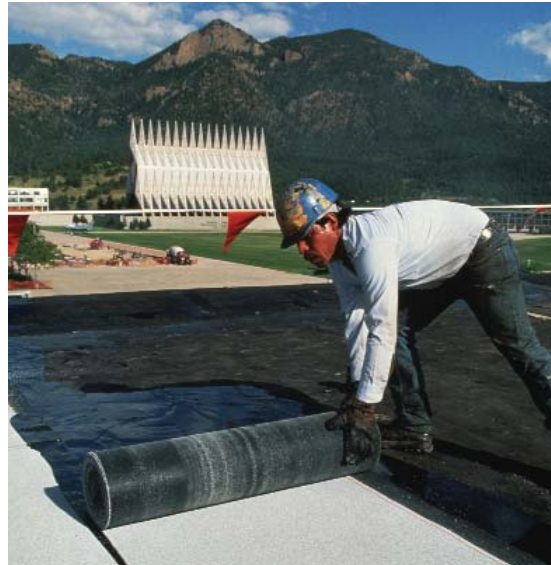
Johns Manville also strongly supports the development of "cool roof" technology. From manufacturing to installation and use, JM single ply membranes, for example, are environmentally sound and represent an excellent choice with high energy efficiency for owners. Other scientific advancements, particularly in the area of cold-application technology, are coming to fruition as well.



### ***Tested and Proven Total Solutions for Every Roofing Need.***

Many important questions must be answered before selecting the type of roofing system and the proper roofing materials for any given project. What are the climatic conditions? Is reflectivity an important consideration? Could wind uplift be a problem? To what type of roof decking will the system be applied? What is the roof's slope? What thermal efficiency is required? What fire rating is necessary? What is the desired life expectancy for the roofing system? What type of guarantee is needed? And, of course, how much can the owner afford to invest in the roofing system? Whatever the answers, you can count on Johns Manville to provide the most advanced and comprehensive solution.

As a part of the Berkshire Hathaway group of companies, Johns Manville has the resources to continually outpace our competitors in developing state-of-the-art roofing systems. While our customers are being



faced with higher energy expenses, more stringent environmental and building codes and greater demands to reduce costs, JM continues to develop technologies to address issues, solve problems and create total system solutions for every need.





## Bringing the Latest Technology to Modified Bitumen Systems.

### SBS Modified Bitumen Systems

Johns Manville has been producing quality SBS (styrene-butadiene-styrene) products since 1986. SBS products are comprised of a reinforcement of either fiber glass, polyester or a combination of both. SBS is a rubberized modifier that increases the overall performance of the sheet by providing superior elongation and recovery characteristics.

SBS modifiers extend the service range of the product so it can be handled in cooler temperatures without cracking or shattering, or in warmer temperatures without softening to the point where it begins to flow. In all instances, high performance prevails.

Reinforcements also play a key role in performance. Since the inception of modified bitumen products, several reinforcements have entered into the JM SBS line, each targeting specific performance needs.

Fiber glass reinforcements offer tensile strength and dimensional stability required for rooftops with heavy traffic areas.

Polyester mats deliver superior tear strength and puncture resistance, and can handle continual stress created by rooftop movement.

For ultimate tensile strength, dimensional stability and puncture resistance, JM offers a composite reinforcement that combines the strength of fiber glass with the flexibility of polyester. It provides durability and affords better natural resistance to other factors that affect roof performance.

#### SBS Products

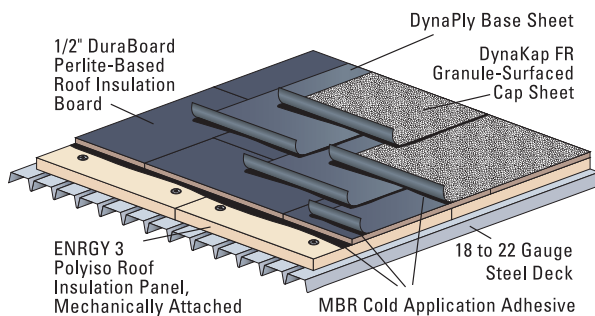
**DynaBase®** and **DynaWeld™ Base** are glass reinforced base sheets generally used as a base ply in multiple-ply SBS systems. Meets ASTM D 6163, Type I, Grade S.

**DynaGlas®, DynaGlas® FR, DynaGlas® 30 FR** and **DynaWeld™ Cap FR** are fiber glass reinforced, granule-surfaced modified cap sheets used in multiple-ply roofing systems. FR designates the added benefit of a fire-retardant formulation. Meets ASTM D 6163, Type I, Grade G.

**DynaKap™** and **DynaKap™ FR** are composite reinforced cap sheets used in multiple-ply roof systems where the benefits of both fiber glass and polyester reinforcement are desired. DynaKap FR contains a flame-retardant additive. Meets ASTM D 6162, Type II, Grade G.

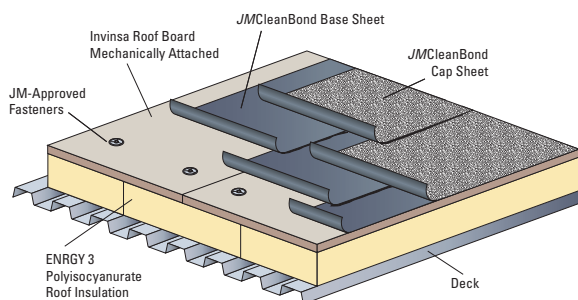
**DynaPly®** is a composite reinforced sheet generally used as a base or intermediate sheet in multiple-ply systems. Meets ASTM D 6162, Type II, Grade S.

**DynaLastic® 180** and **DynaLastic® 180 FR** are polyester reinforced, granule-surfaced cap sheets generally used as finish plies in multiple-ply roof systems. DynaLastic 180 FR has a flame-retardant formulation. Meets ASTM D 6164, Type I, Grade G.



**Two-ply, cold process, modified bitumen, mineral-surfaced roofing system. For use over JM insulation, approved decks, or other approved insulations on inclines up to 3 in. per foot (250 mm/m).**





**Two-ply, self-adhered, modified bitumen, roofing system. For use over JM insulation, approved decks or other approved insulations on inclines up to 3 in. per foot (250 mm/m).**

**DynaLastic® 180 S** is a polyester reinforced base sheet. It also can be used as a top sheet in a multiple-ply system, but additional surface treatment is required. Meets ASTM D 6164, Type I, Grade S.

**DynaLastic® 250** and **DynaLastic® 250 FR** also are polyester reinforced, granule-surfaced cap sheets, but with thicker reinforcement for added tensile strength and puncture resistance. Again, the FR denotes that a flame-retardant additive is present. Meets ASTM D 6164, Type II, Grade G.

**DynaFlex™** is a granule-surfaced, composite reinforced fiber glass and polyester sheet used as a premium flashing material for modified bitumen and BUR systems. Meets ASTM D 6221, Type I.

**DynaClad™** is a glass reinforced cap sheet with an embossed aluminum foil cover layer to replace granules. Offers great reflectivity and durability. Meets ASTM D 6298.

**DynaTred™** has a skid-resistant surface, making it a perfect walkway solution for high traffic areas on the rooftop.

**DynaGrip™** is a self-adhering SBS system with an easy-to-peel, removable release plastic film. This product line includes DynaGrip Cap, which is self-adhering on the bottom and protected on the top by a durable granule surface. Base sheets are available with self-adhering surfaces on both sides, or on one side or the other.

**JM-CleanBond® SBS Self-Adhering Fire Resistant System.** JM's installation system with asphalt-to-asphalt self-adhering technology consists of a mechanical and chemical bond. Its unique self-adhering bond makes installation cleaner, with minimal odor and heavy equipment, thereby reducing disruptions during normal building operations. The system includes a base sheet, cap sheet, base and cap flashing, and a utility sheet.

#### **Johns Manville Adhesive Line**

**MBR® Cold Application Adhesive** is compatible with all JM SBS membranes that do not have burn-off films. Excellent consistency for spray or squeegee application methods.

**MBR® Flashing Cement** is a unique, two-component adhesive for use with all SBS modified bitumen membrane products without burn-off films.

**MBR® Utility Cement** is a ready-to-use, trowel-grade elastomeric adhesive for SBS modified bitumen flashing products.

**MBR® Bonding Adhesive** is a pre-measured, easy-to-mix, two-part adhesive used for those specifications calling for adhesives containing no VOCs.

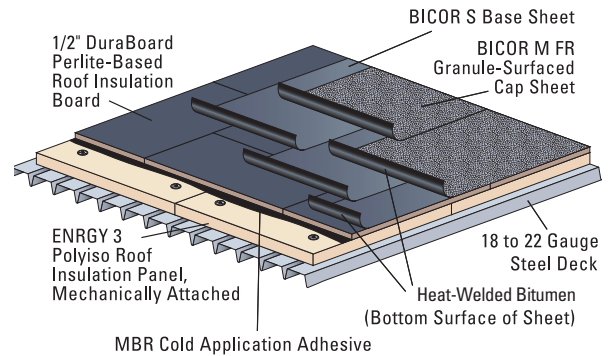
**JM Two-Part Urethane Insulation Adhesive (UIA)** is a two-component polyurethane adhesive used for attaching insulation boards to the roof deck or to other insulation boards.



## APP Modified Bitumen Systems

Like our SBS products, our APP modified bitumen products provide high-tensile strength while maintaining critical flexibility. However, through the scientifically advanced formulation, our APP membranes (coated with a proprietary blend of asphalt and atactic polypropylene) are more compatible with heat-welding application methods.

With APP, hot mopping is no longer necessary, because the bottom coating may be heated to a point where it acts as its own adhesive, bonding the sheet to a substrate and bonding the overlapping edges. While all our APP membranes are designed to be heat-welded, some may also be applied in cold adhesive. These products have a sand backing in lieu of the burn-off film often found on the heat-welded products.



**Two-ply, heat-welded, modified bitumen, mineral-surfaced roofing system. For use over JM insulation, approved decks or other approved insulations on inclines up to 6 in. per foot (500 mm/m).**

Many of the APP membranes have a factory-applied mineral surfacing (available in colors) and do not need further protection from harmful UV rays. However, for various purposes, JM also provides smooth-surfaced APP membranes. These membranes must subsequently be protected from UV rays by applying a compatible roof coating.

Several products are available for varying degrees of strength, elasticity and flexibility. The following complete system component list shows the ASTM standard that applies to each membrane. Membranes with brand names designated "FR" also contain flame-retardant additives.

Granule-Surfaced Cap Sheets	ASTM Standard*
BICOR M FR**	D 6223 Type II Grade G
APPeX 4.5M FR**	D 6222 Type I Grade G
APPeX 4.5M**	D 6222 Type I Grade G
Smooth-Surfaced Cap Sheets	
APPeX 4S	D 6222 Type I Grade S
Base Sheets	
APP Base	D 6509

\*Material tested in accordance with ASTM D 5147 "Standard Test Methods for Sampling and Testing Bituminous Sheet Material."

\*\*Due to weatherability, durability and handling characteristics, may also be used as flashing material.

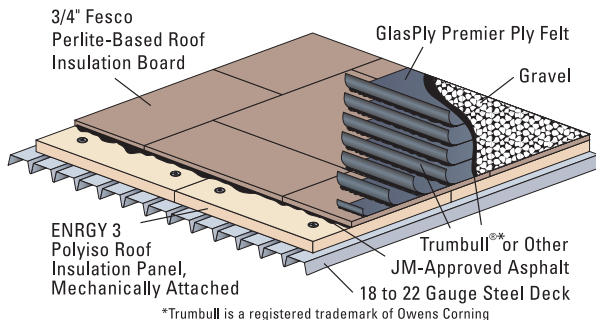
## JM Built-Up Roofing Systems, Still the Best of the Tried and True.

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### Built-Up Roofing Systems

Conventional bituminous built-up roofing (BUR) membranes have been used effectively for more than 100 years and are still popular today. With BUR roofing systems, the waterproof membrane is field fabricated with layers of bitumen alternating with plies of reinforcing felts. JM manufactures a complete line of fiber glass felts including base, ply and granule-surfaced cap sheets.

**Base Felts** are available in three major types. The most popular and versatile base sheet is PermaPly® 28. Another type of base sheet, which incorporates a coating of rubber-modified asphalt, is called GlasBase Plus™. Also available is Ventsulation® Felt, which is primarily used as a venting base sheet for applying a new built-up roof over an existing bituminous membrane that is no longer serviceable, or over lightweight insulating concrete substrates. Check the complete list of BUR system components to see which is best suited for your use.



**Four-ply, gravel-surfaced, fiber glass built-up roof.**  
For use over JM insulation, approved decks  
or other approved insulations, on inclines  
up to 3 in. per foot (250 mm/m).

**Ply felts** are coated with high-grade, unfilled asphalt. Two types are available depending on the ASTM Standard that needs to be met: GlasPly® Premier, with stronger tensile strength and GlasPly® IV.

**Cap sheets** are fiber glass mats coated with filled asphalt and surfaced with mineral granules for applications where a granule-surfaced sheet is preferred rather than adding a coating or gravel. GlasKap® CR is a white mineral surfaced, white acrylic coated, fiber glass cap sheet for use in built-up roofing systems. The unique surfacing provides protection to the underlying asphalt and membrane, as well as the benefit of a reflective, emissive surface **that meets California Title 24**. GlasKap® and GlasKap® Plus are the other two products available.

Of course, various cements, coatings and surfacings are available for a complete, single-source system. JM-approved asphalt is required for hot-applied BUR systems.

Ply Felts	ASTM Standard
GlasPly Premier	D 2178 Type VI
GlasPly IV	D 2178 Type IV
Base Sheets	
GlasBase Plus	D 4601 Type II Region 3 Only
PermaPly 28	D 4601 Type II
Ventsulation	D 4897 Type II
Flashing and Cold Application Systems	
GlasTite Flexible	
Cap Sheets	
GlasKap CR	D 3909
GlasKap	D 3909
GlasKap Plus	D 3909 Region 3 Only
Roofing Cements	
Bestile Industrial Roof Cement	D 4586 Type II
Roof Coatings and Surfacing	
TopGard Type A	
TopGard Type B	D 1227 Type IV
Fibrated Aluminum	D 2824 Type III
Primer	
Concrete Primer	D 41





## ***JM Single Ply Systems Lead the Way in Energy Conservation.***

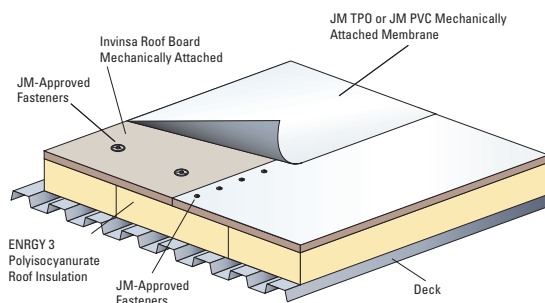
### ***JM TPO and JM PVC Single Ply Roofing Systems***

JM TPO and JM PVC roofing membranes have provided an effective, weatherproof roofing alternative for two decades.

The formulation of our white JM TPO and JM PVC membranes has enabled Johns Manville to be a partner in the Environmental Protection Agency's ENERGY STAR® program. These highly reflective surfaces help reduce electricity and natural gas consumption when specified with ENRGY 3® polyisocyanurate roofing insulation. The membranes can also help minimize the "heat island" effect in metropolitan areas. Testing on white membranes showed initial reflectivity values of 86 percent, far exceeding ENERGY STAR's guidelines.

**JM TPO** thermoplastic membrane systems are offered by JM for use in specific roofing applications. Contact your JM representative about your requirements.

**JM PVC** is a flexible, thermoplastic membrane manufactured using an ultraviolet-resistant polyvinyl chloride and an Elvaloy® KEE (ketone ethylene ester) formulation.



***Mechanically fastened, JM TPO or JM PVC single ply roofing system. For use over JM-approved decks or other approved insulation.***



JM PVC membranes are reinforced with a non-wicking polyester fabric and provide excellent weathering characteristics, high tensile strength and long-term flexibility. The membranes also have excellent resistance to harsh chemicals and industrial pollutants.

**JM PVC Fleece-Backed Membranes** have a polyester fleece embedded into the sheet through a molten film-extrusion process. They are available in 50 and 60 mil thicknesses.

These membranes are composed of UV- and fire-resistant PVC (polyvinyl chloride) and are aesthetically pleasing and light in weight. They have excellent durability and dimensional stability, and they are easy to install year-round – even in northern climates. Greater thicknesses add to the rigidity of the systems, increase resistance to wind uplift and add longevity. The membranes are available in a standard, energy-saving white color, as well as sandstone and grey.





## JM EPDM Single Ply Roofing Systems

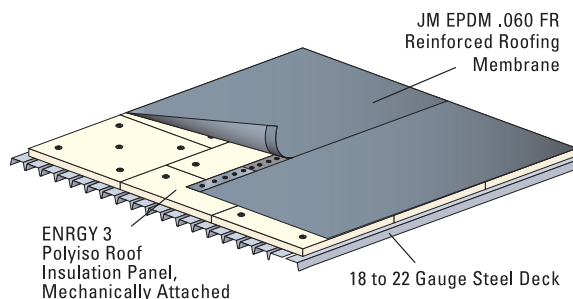
The JM thermoset single ply membrane is called JM EPDM (ethylene propylene diene monomer). JM EPDM has superior weatherability through a wide range of temperatures and conditions and it demonstrates superior ozone resistance.

These membranes are available with or without a polyester scrim reinforcement. JM EPDM non-reinforced membranes are available in 45, 60 and 90 mil thicknesses. Membrane widths of up to 40 ft. (12.2 m) and lengths up to 100 ft. (30.5 m) are available. JM reinforced EPDM membranes are available in 45, 60 and 75 mil thicknesses. JM EPDM can be installed in ballasted, mechanically fastened or adhered applications. For those applications where added strength, durability and dimensional stability



are desired, the polyester reinforced products should be specified.

With the appropriate JM single ply system, you will be able to meet industry approvals such as: UL, FM, ENERGY STAR, CRRC and Dade County. Finally, as with all Johns Manville roofing systems, complete lines of accessory products are available including seam tapes, adhesives, caulk, termination bars and flashings.



**Mechanically attached, reinforced JM EPDM single ply roofing system. For use over Johns Manville insulation, approved decks, or other approved insulation on inclines up to 6 in. per foot (500 mm/m).**



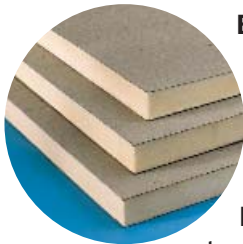


## There's a JM Roof Insulation Product to Fit Every Roofing System and Meet Every Thermal Requirement.

Whether your needs are high or low thermal, or if your project calls for a BUR, modified bitumen or single ply system, JM offers the most advanced insulation technology available. Before selecting a product, be sure to review the performance, design and installation requirements of the total roofing system to ensure compatibility of all components.

### Thermal Products

Johns Manville offers two high-thermal roof insulation products composed of closed-cell polyisocyanurate foam, bonded to universal fiber glass reinforced facers.



**ENRGY 3** is a rigid roof insulation panel designed for direct application over metal, nailable and non-nailable deck types. ENRGY 3 may be used with BUR or modified bitumen systems. It meets the physical property requirements of ASTM C 1289, Type II, Class 1, Grade 2. ENRGY 3 and ISO 3 also are available in a higher compressive strength of 25 psi (172 kPa), which meets ASTM C 1289, Type II, Class 1, Grade 3.

**ENRGY 3 is a state-of-the-art product manufactured with pentane. These polyiso foams have zero ozone depletion potential.**

ENRGY 3 LTTR Values				
Standard Thicknesses (nom.)*		LTTR R-Value**		Total Recycled Content
(in.)	(mm)	(hr•ft <sup>2</sup> •°F)/Btu	m <sup>2</sup> •°C/W	(%)
1.0	25	6.0	1.05	44.8
1.5	40	9.0	1.59	36.7
1.7	43	10.3	1.81	34.8
2.0	50	12.1	2.14	32.9
2.3	58	14.0	2.47	30.1
2.5	65	15.3	2.69	29.7
2.8	71	17.2	3.03	28.4
3.0	80	18.5	3.26	28.0
3.1	79	19.0	3.33	27.6
3.3	84	20.4	3.60	27.0
4.0	100	25.0	4.40	25.1

\*Other thicknesses available.

\*\* A 15-year, time-weighted average derived from a recently developed, scientifically supported methodology called Long Term Thermal Resistance.

### Roof Boards

⊕ **Fesco® Board** is composed of expanded perlite, blended with selected binders and fibers. It is used as a general purpose cover board over closed-cell foam insulation boards, and is a low thermal insulation board. It can be used in BUR, modified bitumen and some single ply roofing systems. Because its special TOPLOK® coating prevents excessive absorption of asphalt during installation, and its expanded perlite contains air cells that provide insulating efficiency, Fesco Board is the best board for low thermal applications.

Fesco Board Values				
Thickness (nom.)		Total Recycled Content (%)	R-Value (Resistance)	
in.	mm		(hr•ft <sup>2</sup> •°F)/BTU	m <sup>2</sup> •°C/W
0.75	19	32	2.08	0.37
1.0	25	32	2.78	0.49
1.5	38	27	4.17	0.73
2.0	51	27	5.56	0.98

⊕ 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.



⊗ **1/2" Retro-Fit™ Board** is used in both retro-fit and overlay applications. It is composed of expanded perlite, blended with selected binders and fibers. The primary function is to provide an improved substrate for the roofing membrane. It may be applied with cold adhesive, mechanical fasteners or hot asphalt. It is not for use directly over steel decks.

#### 1/2" Retro-Fit Board Values

Thickness (nom.)		Total Recycled Content (%)	R-Value (Resistance)	
in.	mm		(hr•ft <sup>2</sup> •°F)/BTU	m <sup>2</sup> •°C/W
0.5	13	30	1.32	0.23

⊗ **DuraBoard®** is a high-density rigid insulation board, composed primarily of expanded perlite with reinforcing cellulosic fibers and selected binders. The top surface of the board is sealed with a special polymerized asphalt emulsion coating that enhances adhesion of the covering membrane. DuraBoard is used in new and re-cover applications, or over closed-cell foam insulations. It is designed specifically for direct application of heat-weldable SBS or APP modified bitumen membrane systems. Since a base sheet is not required in heat-weldable applications using DuraBoard, fastener quantity and labor time are both reduced.

#### DuraBoard Values

Thickness (nom.)		Total Recycled Content (%)	R-Value (Resistance)	
in.	mm		(hr•ft <sup>2</sup> •°F)/BTU	m <sup>2</sup> •°C/W
0.5	13	28	1.2	0.21
0.75	19	25	1.8	0.32
1.0	25	25	2.3	0.41

⊗ **Fesco® Board HD** (High Density) is a 1 in. (25 mm) thick, homogeneous rigid insulation board, composed of expanded perlite, blended with selected binders and cellulosic fibers. The top surface is sealed with a special TOPLOK coating to prevent excessive absorption of asphalt during the installation process. Fesco Board HD is a special, made-to-order product for use directly over a wide flute or metal deck application. It can span spaces up to 2 1/2 in. (64 mm) and can be used under BUR, modified bitumen and some single ply roofing systems. It works with cold adhesives, mechanical fasteners or hot asphalt.

#### Fesco Board HD Values

Thickness (nom.)		Total Recycled Content (%)	R-Value (Resistance)	
in.	mm		(hr•ft <sup>2</sup> •°F)/BTU	m <sup>2</sup> •°C/W
1.0	25	30	2.78	0.49*

⊗ **Invinsa™ Roof Board** is a resilient, light-weight roof board designed as an integral component of the roof system. It provides a protective layer for the insulation, while working with the membrane above to ensure maximum performance and longevity. This patent-pending, high-density polyisocyanurate technology is bonded in-line to mineral-surfaced, fiber glass reinforced facers. In PVC, TPO, EPDM and JMCleanBond roof systems, Invinsa enhances fire, water and hail resistance, and it will not support mold growth.

#### Invinsa Values

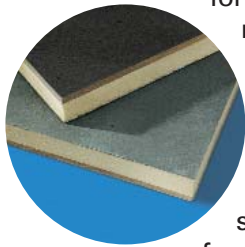
Thickness (nom.)		Weight*		Compressive Strength	
in.	mm	lbs.	kgs.	psi/psf	kPa/Pa
0.25	6.4	123	123	150 / 21,600	1034 / 1,034,200

\*per 4' x 8' (1.22 m x 2.44 m) board



## Composite Products

⊗ **Fesco® Foam** is a rigid 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 polyisocyanurate foam core, bonded to a 1/2-in. (13 mm) 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, Type III.



**Fesco Foam Thermal Values**

Thickness (nom.) in. mm	Total Recycled Content (%)	R-Value (Resistance)** (hr·ft²·°F)/BTU m²·°C/W
1.5 38	38	7.4 1.30
2.0 51	35	10.4 1.83
2.5 64	34	13.5 2.38
3.0 76	32	16.7 2.94
4.0 102	30	23.1 4.07

\*Other thicknesses available.

\*\* A 15-year, time-weighted average derived from a recently developed, scientifically supported methodology called Long Term Thermal Resistance.

⊗ **DuraFoam™** is a high-thermal rigid roof insulation board composed of polyisocyanurate foam core bonded in the foaming process to DuraBoard, an expanded perlite mineral aggregate board. The top surface of DuraFoam is sealed with a special polymerized asphalt emulsion coating to allow for the direct application of SBS or APP membranes using heat-weld application techniques.

**DuraFoam Values**

Thickness (nom.) in. mm	Total Recycled Content (%)	R-Value (Resistance)** (hr·ft²·°F)/BTU m²·°C/W
1.5 38	38.6	7.2 1.27
2.0 51	36.4	10.2 1.80
2.5 64	34.9	13.3 2.34
3.0 76	33.3	16.5 2.90
3.5 89	32.3	19.7 3.47
4.0 102	31.2	22.9 4.03



**Nailboard™** is a rigid roof insulation board composed of a closed-cell polyisocyanurate foam core bonded to 7/16-in. (11 mm) oriented strand board (OSB) on one side and a universal fiber glass reinforced facer on the other. It is used as an insulation/nailbase underlayment for a variety of roofing systems. It meets the physical requirements of ASTM C 1289, Type V. Nailboard also is available with 5/8-in. (16 mm) OSB.

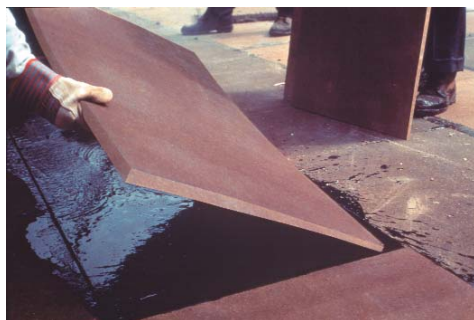
**Nailboard LTTR Thermal Values**

(Includes 7/16" [11 mm] OSB)		* Long Term Thermal Resistance (LTTR)	
Thickness (nom.) in. mm	R-Value (Resistance) (hr·ft²·°F)/BTU	m²·°C/W	Weight lbs./sq.ft. kg/m²
1.5 38	6.8	1.20	1.75 8.54
2.0 51	9.9	1.74	1.80 8.78
2.5 64	13.0	2.29	1.85 9.03
3.0 76	16.2	2.85	1.90 9.27
3.5 89	19.4	3.42	1.95 9.51
4.0 102	22.6	3.98	2.00 9.76
4.5 114	25.9	4.56	2.05 10.01

(Includes 5/8" [16 mm] OSB)		* Long Term Thermal Resistance (LTTR)	
Thickness (nom.) in. mm	R-Value (Resistance) (hr·ft²·°F)/BTU	m²·°C/W	Weight lbs./sq.ft. kg/m²
1.5 38	6.1	1.07	2.25 10.97
2.0 51	9.2	1.62	2.30 11.22
2.5 64	12.3	2.17	2.35 11.47
3.0 76	15.4	2.71	2.40 11.72
3.5 89	18.6	3.28	2.45 11.97
4.0 102	21.9	3.86	2.50 12.22
4.5 114	25.1	4.42	2.55 12.45

\* The Long Term Thermal Resistance (LTTR) values were determined in accordance with CAN/ULC S 770.





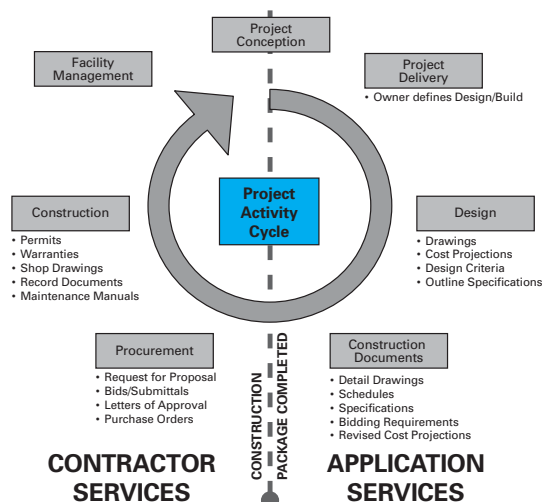
## Helping to Specify the Complete Roofing System

Specifying and designing today's roofing systems can become very complicated due to the vast amount of products, codes, qualifications, trades, and considerations required of both the design professional and installation entity on projects throughout the industry.

Design Engineering is a group of professionals brought together to emphasize the roof as a system. This diverse group offers a variety of expertise in all facets of roofing and building design including: building science, specifications, design assist, codes assistance, tapered layouts, wind design, sheet layouts, details, and assembly logistics.

When specifying a JM system, this resource now provides the building professional with a key tool for ensuring a roofing system that complements the building envelope and works as a system to complete a quality building package.

### Design Engineering Group 800-341-8032



## Tapered Insulation Group

With JM's dedicated Tapered Insulation Group, complex designs with limitations in slope, edge conditions, maximum thickness, or minimum thermal resistance value are easily and effectively achieved. Through years of experience with tight design requirements, this group can maximize the tapered layout to address all thermal and drainage concerns.

## Tapered Products

Tapered products are rigid roof insulation boards designed for direct application to steel and other roof decks to promote positive drainage in both new construction and reroofing where ponding water or positive slope are a concern.

Tapered products offered by JM include Tapered ENRGY 3® and Tapered ENRGY 3® Plus, sloped polyisocyanurate foam core roof insulation boards. Tapered ENERGY 3 Plus is bonded in the foaming process to a 1/2-in. (13 mm) asphalt-coated, high-density wood fiber board on one side and fiber reinforced facer on the other.

JM also offers Tapered Fesco Foam, a closed cell polyisocyanurate foam core bonded in the foaming process to a specially formulated UL Class A 1/2-in. (13 mm) Fesco laminator board on one side and a universal fiber glass reinforced facer on the other.

Other tapered system insulation products include FesCant™ Plus Cant Strips which assist with deck-to-wall transitions and Tapered Fesco® Edge Strips, which are designed for transitioning from membrane to nailer or from a tapered insulation panel to the roof level.



## ***JM Specialty Roofing Products are Designed for Total Integration of Systems.***

JM Specialty Roofing Products provide designers and specifiers with a single source of supply, assuring the compatibility of components and, ultimately, the integrity of

the finished roofing system. All of JM's Specialty Roofing Products can be included in a JM Peak Advantage Guarantee.



**Expand-O-Flash®** A patented, watertight roof expansion joint cover for a wide variety of applications.



**Expand-O-Flash® EJ/WC** Attachment flanges are concealed with rubber cover of sufficient width to cover bellows and flanges. Also available in rigid PVC-concealed flanges with a PVC cover that can be heat-welded to the PVC membrane.



**Expand-O-Flash® INS** A patented, factory-prefabricated, insulated expansion joint cover. It is formed using any Expand-O-Flash cover and JM Microlite® "L" fiber glass insulation.



**Factory-Fabricated Intersections** Designed for maximum flexibility and produced using special fabrication techniques to ensure watertight, clean seam lines.



**Expand-O-Gard®** Vertical wall flexible closures for a wide variety of applications.



**Presto Lock™ Fascia System** FM 1-90 fascia for BUR, modified bitumen and single ply membrane systems.



**Presto Lock™ Coping System** FM 1-90 coping for BUR, modified bitumen and single ply membrane systems.



**Presto-Tite™ Fascia Systems** For maximum wind uplift protection. Available for BUR, MBR and single ply applications.



**Flex-I-Drain®** Flexible bellows drains to accommodate movement between drain and plumbing.



**RetroDrain®\*** Spun aluminum, copper or co-polymer retrofit drains with cast aluminum or co-polymer domes.

### ***"If You Can Draw It, We Can Make It."***

Johns Manville has established a reputation based on our ability to custom design and fabricate special systems to solve building movement and closure problems. No matter how unusual your roofing challenge, we can turn your rough sketches into a custom manufactured Expand-O-Flash, Expand-O-Gard, Presto Lock Fascia or Coping System or PrestoTite Fascia. Call your JM Specialty Roofing Products Technical Service Representative at 800-445-1500.

This brief section cannot include information, data or pictures on every specialty roofing product JM offers. For complete details, please call your Technical Service Representative or refer to the JM Specialty Roofing Products brochure (RS-6002).

\*RetroDrain is a registered trademark of Olympic Manufacturing Group, Inc.

## ***Guarantees and Guarantee Services with the Strongest Backing in the Industry.***

Throughout our 150-year history, the Johns Manville brand name has come to represent strength, stability, quality and consistency. Based in Denver, JM has annual sales in excess of \$2.5 billion and holds leadership positions in all of the key markets it serves. JM employs approximately 8,500 people and operates 43 manufacturing facilities in North America, Europe and China.

### ***Assuring Better Roof Performance through Education and Contractor Incentives.***

To help you design and specify the most effective roofing system and deliver the absolute best value to owners, JM has created a definitive and objective training school for architects, engineers, consultants, specification writers and roofing contractors. It's called the JM Roofing Institute. The Better Understanding of Roofing Systems Institute (BURSI®) is a part of the JM Roofing Institute™.

BURSI offers a comprehensive, 1½-day program of intensive instruction covering all aspects of the roofing system as they apply to design, specification, installation, performance and maintenance. The institute is staffed by experts in low-slope roofing technology.

To ensure quality workmanship and top-notch installation, JM offers its Peak Advantage™ Contractor Program.

Contractors selected to participate are proven to be best of class, having lived up to the highest performance standards. These contractors have access to JM's strongest guarantees. To be assured of the best possible results on the roofing system you specify, make sure it's installed by a JM Peak Advantage contractor.



## PRODUCT WARRANTIES

Johns Manville designs roofing products that work together to provide a one source comprehensive roofing system solution. Total roofing system guarantees are available under the JM Peak Advantage® Guarantee program. To learn more about our standard guarantee terms and conditions, visit our Web site at [www.jm.com](http://www.jm.com) or talk to your local JM sales representative.

JM Peak Advantage Guarantees are available only on qualified JM roofing systems containing JM roofing products. JM standard product terms and conditions will apply to include a one-year limited product warranty. Limited product warranty information is available at [www.jm.com/About Us/US Terms and Conditions](http://www.jm.com/About Us/US Terms and Conditions).

### For additional technical or guarantee information:

#### Contractor Services

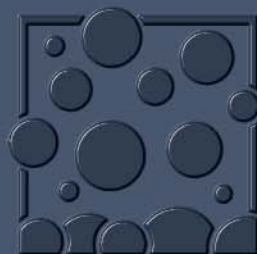
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