

Department of Environmental Protection
Attn: Katie Parrish
3900 Commonwealth Blvd
MS520
Tallahassee, FL 32399

August 22, 2014

Re: San Marcos de Apalache Historic State Park, Museum and Roof Repairs – Tallahassee, FL

Ms. Parrish:

Attached is a Substitution Request for roofing materials tailored to the above referenced project. At Johns Manville, we realize your time is valuable and sincerely thank you for taking the time to review our submission.

Company History

Founded in 1858 by H.W. Johns, Johns Manville's (JM) history began with pioneering the concept of redundant bituminous roofing and remains strong today, more than 150 years later. We continue to invest and our product portfolio has grown to include:

- Roof Insulation
- Building Insulation
- Mechanical Insulation
- Aerospace Insulation
- Commercial Roofing
- Reinforcements: Fibers and nonwovens used in commercial, industrial, and residential applications

As a result, JM is a market leader in aerospace, automotive and transportation, air handling, appliance, HVAC, pipe and equipment, filtration, waterproofing, building, flooring, interiors, and wind energy markets.

In business since 1858, the Denver-based company has annual sales of approximately \$2 billion and employs approximately 6,500 people worldwide with 41 manufacturing facilities in North America, Europe and China.

No other manufacturer has a 150+ year history of commitment and technical expertise with asphalt roofing. JM has you covered.

Company Stability

In 2001, Johns Manville was acquired by Berkshire Hathaway, providing additional financial strength coupled with the highest level of integrity and leadership. This provides the financial stability to weather economic storms and allows JM to continue to be a leader in the roofing industry you can continue to count on.

Product Performance

The performance of the Johns Manville SBS modified bitumen products is unsurpassed as the comparison charts that follow will demonstrate. With over 200,000 UL and FM approvals for the bituminous line alone, Johns Manville has tested an array of systems to meet your specific requirements.

Research and Development Capability

At Johns Manville, we consider technical expertise critical to the products and services we provide. We have a dedicated research facility, housing over 100 R&D staff, including 30 PhD scientists focused on the support of existing products and the development of new technologies for building science. Our people make the difference. The research facility itself is nationally accredited and houses state-of-the-art analytic equipment. With investments in instruments such as a scanning electron microscope (SEM), JM is committed to our products on a molecular level.

Product Offering

Johns Manville is a single-source supplier that manufactures products in our quality controlled production facilities. The breadth and depth of the Johns Manville offering is unmatched. JM is vertically integrated, producing both the reinforcements and the finished waterproofing membrane. In addition to membrane, Johns Manville manufactures insulations, coverboards, and accessory products for our high quality SBS roofing systems. With our vast manufacturing resources and partner suppliers, JM provides top-tier SBS solutions for nearly every roofing challenge – from vapor barriers to edge metal and everything in-between.

- Johns Manville is proposing the following SBS roofing system that meets the criteria and intention of the specified roofing assembly.
- The roof assembly shall be composed of the following JM components:
 - Cap Sheet: JM DynaLastic 250 FR adhered in JM MBR Cold Application Adhesive (MBR-CA)
 - Base Sheet: JM DynaBase adhered in MBR-CA
 - Cover Board: JM Securock mechanically fastened to wood deck
 - Insulation: JM ENRGY 3
 - Temporary Roof:
 - JM DynaBase adhered in MBR-CA
 - JM PermaPly 28 mechanically fastened to wood deck
 - Flashings: JM DynaClad and PermaFlash

This assembly will be eligible for a **20 year NDL** Johns Manville Peak Advantage® guarantee once a Johns Manville Technical Representative inspects and approves the installed JM roofing system.

Specifier Preference

In 2007, Ducker Worldwide, LLC® conducted a survey of more than 100 design professionals who ranked roofing manufacturers by the brand they preferred, on a scale from 1 to 5, with 5 as best-in-class. The averaged scores were:

Johns Manville – 4.38
GAF® – 4.17
Soprema® – 4.09
Siplast® – 3.92
Firestone Building Products® – 3.64

Guarantees

Your roofing system is a valuable investment that must endure. Why trust your investment to any other company that cannot provide the same level of financial strength and friendly customer support that accompanies a Johns Manville Peak Advantage® Guarantee?

A Johns Manville Peak Advantage® Guarantee provides holders with one of the best, most comprehensive guarantees in the entire roofing industry. The peace of mind that comes from a Johns Manville Peak Advantage® Guarantee reflects the stability of a 150-year old Berkshire Hathaway owned company and starts with our high-quality roofing systems and approved installer base. Call us today and

discovery how the Johns Manville Peak Advantage® Guarantee can be customized to satisfy your unique roofing solution needs.

Sales and Field Support

Our response time is superior to other brands who have limited personnel to respond to your requests. Our support team consists of architects, engineers and other roofing specialists who have, for example, AIA, PE, LEED®, RRO, RRC, and CDT credentials. With over 100 highly trained, directly employed support personnel, no other manufacturer has more resources to offer personal assistance. We are there when you need us.

Contractor Quality

The Johns Manville contractor program is very selective. Contractors identified as Johns Manville Peak Advantage must complete an approval process. The previous work and reputation of any potential JM contractor is reviewed by a Johns Manville Field Technical representative and certification is granted only after review of historic performance and financial strength.

Addressing Reflective Coating

Johns Manville's reflective SBS cap sheets have a factory applied cool roof solution which uses an elastomeric coating. The factory coated solution is an aesthetically pleasing, energy efficient surfacing. The Johns Manville SBS CR solutions can be hot applied, cold applied, or heat-welded and can be maintained simply by adding another layer of coating, if required.

Where appropriate, Johns Manville offers to Specifiers, services such as peer reviews of template specifications and continuing accredited education for you and your firm. If you have any further questions please do not hesitate to contact me at 303-978-2105.

Again, I appreciate your time and look forward to your favorable review and approval of this substitution request and inclusion in the specification through addendum.

Best Regards,



Derek Nickum, EIT, CDT, RCI
Sr. Specifier Services Representative, Johns Manville

Cc: Brice Wilson, Sales Representative, Johns Manville

Att: Data Comparison Summary Chart
Data Sheets
Specimen Guarantee



DynaLastic® 250 FR

Fire-Retardant, Polyester-Reinforced SBS Mineral-Surfaced Cap or Flashing Sheet

Meets the requirements of ASTM D 6164, Type II, Grade G

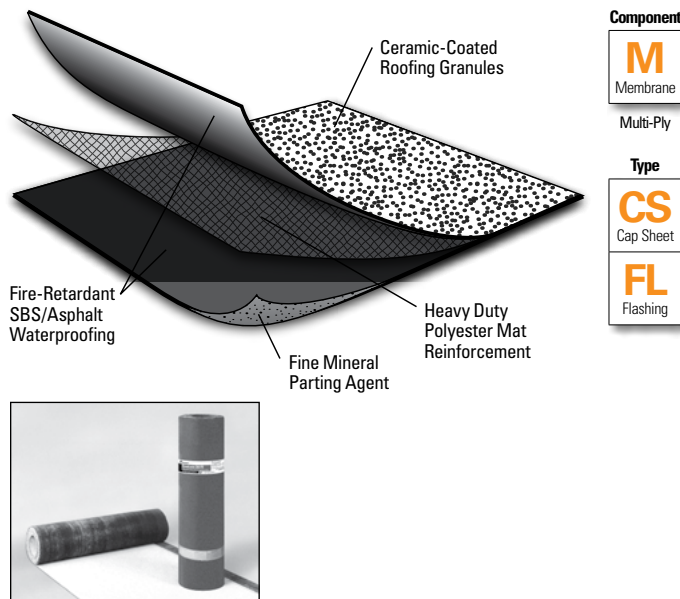
Features and Components

DynaLastic 250 FR is used as a premium polyester-reinforced cap or flashing sheet in a variety of multi-ply roofing systems.

Ceramic-Coated Roofing Granules: Specifically engineered for optimal embedment in the SBS-blend sheet. The ceramic coating promotes excellent long-term adhesion.

High-Quality SBS Rubber and Asphalt Blend: Lends elasticity and flexibility to the sheet. The elongation and recovery properties allow the product to easily accommodate the continual expansion and contraction experienced on all roofs. The FR blend contains additional fire-retardant additives.

Polyester-Reinforcement Mat: Provides excellent tensile strength, toughness, and puncture resistance and can accommodate stresses created by typical roof top expansion and contraction forces.



System Compatibility This product may be used as a component in the following systems. Please reference product application for specific installation methods and information.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW	HA	CA	HW	SA
Compatible with the selected Multi-Ply systems above								

Single Ply	TPO		PVC		EPDM	
	MF	FA	MF	FA	MF	BA
Do not use with Single Ply systems						

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

Energy and the Environment

Test	Initial	3-Year Aged
Reflectivity* (ASTM C 1549)	0.26	0.27
Emissivity* (ASTM C 1371)	0.87	0.84
Solar Reflectance Index* (SRI) - E 1980	25	25
Pre-Consumer Recycled Content	0%	
Post-Consumer Recycled Content	0%	

*Standard White Granule only

Peak Advantage® Guarantee Information

Systems	Guarantee Term
When used in most 2-5 ply JM SBS systems.*	Up to 30 years

*Contact JM Technical Services for specific system requirements or guarantee terms.

Codes and Approvals



Product Application



- May be installed in Type IV asphalt or in an approved JM adhesive
- Laps may be installed using heat-welding techniques
- Refer to JM SBS modified bitumen specifications and detail drawings for application and slope information

Packaging and Dimensions

Roll Coverage*	95.8 ft ² (8.9 m ²)
Roll Length	32' 10" (10.01 m)
Roll Width	39 3/8" (1 m)
Roll Weight	115 lb (52.2 kg)
Rolls per Pallet	20
Pallet Weight	2,430 lb (1,102 kg)
Pallets per Truck**	20

*Assumes a 4' side lap **Assumes 48' flatbed truck.

Refer to the Material Safety Data Sheet and product label prior to using this product. The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.



DynaLastic® 250 FR

Fire-Retardant, Polyester-Reinforced
SBS Mineral-Surfaced Cap or Flashing Sheet

Meets the requirements of ASTM D 6164, Type II, Grade G

Tested Physical Properties

Physical Properties		ASTM Test Method	Standard for ASTM D 6164, Type II, Grade G (Min.)	DynaLastic 250 FR	
				MD*	XMD**
Strength	Tensile Tear	D 5147	70 lbf (311 N)	181 lbf (805 N)	124 lbf (552 N)
	Peak Load at 0°F (-18°C)	D 5147	100 lbf/in (17.5 kN/m)	184 lbf/in (32.2 kN/m)	122 lbf/in (21.4 kN/m)
	Peak Load at 73.4°F (23°C)	D 5147	70 lbf/in (12k N/m)	106 lbf/in (18.6 kN/m)	84 lbf/in (14.7 kN/m)
Longevity	Low Temp. Flexibility	Unconditioned	D 5147	0°F (-18°C)	-20°F (-29°C)
		90-Day Heat Conditioned	D 5147	0°F (-18°C)	-20°F (-29°C)
	Compound Stability	D 5147	215°F (102°C)	250°F (121°C)	
	Granule Loss	D 4977	2 g (0.07 oz)	0.7 g (0.02 oz)	
	Thickness	D 5147	130 mil (3.3 mm)	165 mil (4.2 mm)	
	Selvage Edge Thickness	D 5147	N/A	134 mil (3.4 mm)	
	Elongation at Peak Load at 0°F (-18°C)	D 5147	20%	46%	54%
	Elongation at Peak Load at 73.4°F (23°C)	D 5147	50%	58%	71%
	Ultimate Elongation at 73.4°F (23°C)	D 5147	60%	61%	76%
Aged Performance	90-Day Heat-Conditioned Peak Load at 0°F (-18°C)	D 5147	100 lbf/in (17.5 kN/m)	178 lbf/in (31.2 kN/m)	119 lbf/in (20.8 kN/m)
	90-Day Heat-Conditioned Elongation at Peak Load at 0°F (-18°C)	D 5147	20%	49%	60%
	90-Day Heat-Conditioned Peak Load at 73.4°F (23°C)	D 5147	70 lbf/in (12 kN/m)	133 lbf/in (23.3 kN/m)	96 lbf/in (16.8 kN/m)
	90-Day Heat-Conditioned Elongation at Peak Load at 73.4°F (23°C)	D 5147	50%	58%	68%
	90-Day Heat-Conditioned Ultimate Elongation at 73.4°F (23°C)	D 5147	60%	60%	71%
Installation	Dimensional Stability	D 5147	1.0%	0.3%	0.1%
	Net Mass per Unit Area	D 146	90 lb/100 ft² (41 kg/9.29 m²)	110 lb/100 ft² (49.9 kg/9.29 m²)	
	Roll Weight	D 146	N/A	115 lb (52.2 kg)	

*MD = Machine Direction

**XMD = Cross-Machine Direction

Note: All data represents tested values.

Meets the requirements of ASTM D 6163, Type I, Grade S

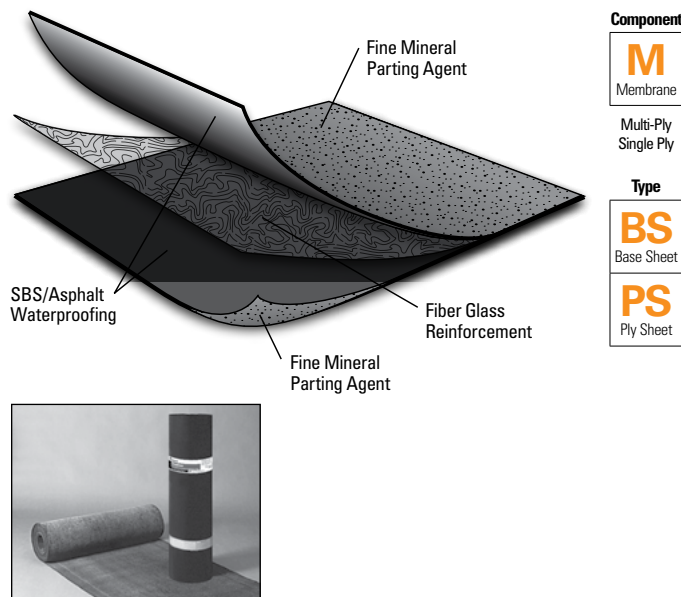
Features and Components

DynaBase is used as a fiber glass-reinforced base or ply sheet in a variety of multi-ply roofing systems.

High-Quality SBS Rubber and Asphalt Blend: Lends elasticity and flexibility to the sheet. The elongation and recovery properties allow the product to easily accommodate the continual expansion and contraction experienced on all roofs.

Fiber Glass Reinforcement Mat: Offers excellent dimensional stability and tensile strength and withstands differential movement. Because it has no thermal memory less time is needed to relax the sheet, allowing for ease of installation. The fiber glass mat also has good lay-flat characteristics, contributing to better aesthetics.

Surfacing: Fine mineral parting agent on both sides of the sheet.



System Compatibility This product may be used as a component in the following systems. Please reference product application for specific installation methods and information.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW	HA	CA	HW	SA
<i>Compatible with the selected Multi-Ply systems above</i>								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
<i>Compatible with the selected Single Ply systems above</i>							

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

Energy and the Environment

Pre-Consumer Recycled Content	0%
Post-Consumer Recycled Content	0%

Peak Advantage® Guarantee Information

Systems	Guarantee Term
When used in most 2-5 ply JM SBS systems.*	Up to 30 years

*Contact JM Technical Services for specific system requirements or guarantee terms.

Codes and Approvals



Product Application



Hot Asphalt



Cold Applied

- May be used as backer ply in two-ply flashing systems
- May be installed in Type IV asphalt, or in an approved JM adhesive
- Laps may also be installed using heat-welding techniques
- No in-lap fastening
- Refer to JM SBS modified bitumen specifications and detail drawings for application and slope information
- When used as a cap sheet, the use of an approved surfacing is required

Packaging and Dimensions

Roll Coverage*	148.2 ft ² (13.8 m ²)
Roll Length	49' 2" (14.99 m)
Roll Width	39 3/8" (1 m)
Rolls per Pallet	20
Pallet Weight	2,050 lb (930 kg)
Pallets per Truck**	22

*Assumes a 4' side lap **Assumes 48' flatbed truck.

Refer to the Material Safety Data Sheet and product label prior to using this product. The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Meets the requirements of ASTM D 6163, Type I, Grade S

Tested Physical Properties

Physical Properties		ASTM Test Method	Standard for ASTM D 6163, Type 1, Grade S (Min.)	DynaBase	
				MD*	XMD**
Strength	Tensile Tear	D 5147	35 lbf (156 N)	100 lbf (445 N)	80 lbf (356 N)
	Peak Load at 0°F (-18°C)	D 5147	70 lbf/in (12.3 kN/m)	105 lbf/in (18.4 kN/m)	95 lbf/in (16.6 kN/m)
	Peak Load at 73.4°F (23°C)	D 5147	30 lbf/in (5.3 kN/m)	65 lbf/in (11.4 kN/m)	50 lbf/in (8.8 kN/m)
Longevity	Low Temp. Flexibility	Unconditioned	0°F (-18°C)	-30°F (-34°C)	
		90-Day Heat Conditioned	0°F (-18°C)	-30°F (-34°C)	
	Compound Stability	D 5147	215°F (102°C)	250°F (121°C)	
	Thickness	D 5147	80 mil (2.0 mm)	91 mil (2.3 mm)	
	Elongation at Peak Load at 0°F (-18°C)	D 5147	1%	5%	5%
	Elongation at Peak Load at 73.4°F (23°C)	D 5147	2%	4%	4%
	Ultimate Elongation at 73.4°F (23°C)	D 5147	3%	30%	35%
Aged Performance	90-Day Heat-Conditioned Peak Load at 0°F (-18°C)	D 5147	70 lbf/in (12.3 kN/m)	120 lbf/in (21.0 kN/m)	105 lbf/in (18.4 kN/m)
	90-Day Heat-Conditioned Elongation at Peak Load at 0°F (-18°C)	D 5147	1%	4%	4%
	90-Day Heat-Conditioned Peak Load at 73.4°F (23°C)	D 5147	30 lbf/in (5.3 kN/m)	90 lbf/in (15.8 kN/m)	80 lbf/in (14.0 kN/m)
	90-Day Heat-Conditioned Elongation at Peak Load at 73.4°F (23°C)	D 5147	2%	3%	3%
	90-Day Heat-Conditioned Ultimate Elongation at 73.4°F (23°C)	D 5147	3%	4%	4%
Installation	Dimensional Stability	D 5147	0.5%	0.1%	0.1%
	Net Mass per Unit Area	D 146	45 lb/100 ft ² (20 kg/9.29 m ²)	51 lb/100 ft ² (23 kg/9.29 m ²)	
	Roll Weight	D 146	N/A	83 lb (38 kg)	

*MD = Machine Direction

**XMD = Cross-Machine Direction

Note: All data represents tested values.

Supplemental Testing

Physical Properties		ASTM Test Method	Standard for ASTM D 6163, Type 1, Grade S (Min.)	DynaBase Result
Cyclic Joint Displacement	Initial	D 5849	N/A	Pass at 500 cycles*
	After 90-Day Heat Conditioning per ASTM D 5147	D 5849	N/A	Pass at 200 cycles*
	After 180-Day Heat Conditioning per ASTM D 5147	D 5849	N/A	Pass at 200 cycles*

*When adhered to DynaGlas FR or DynaGlas FR CR in hot asphalt.

Meets or exceeds the criteria for ASTM D 6298

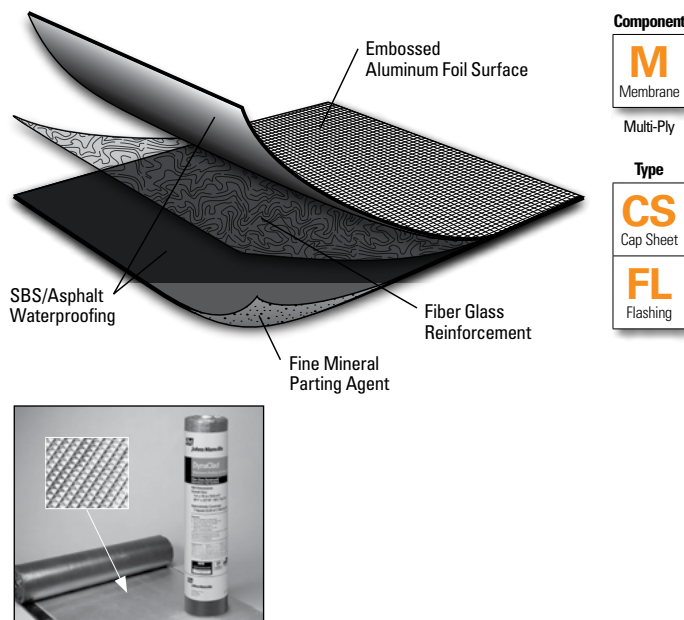
Features and Components

DynaClad is used as a fiber glass-reinforced cap or flashing sheet in a variety of multi-ply roofing systems.

Aluminum Foil Surface: Provides high reflectivity, reducing heat load on the roof membrane and potentially lowering air conditioning energy costs.

High-Quality SBS Rubber and Asphalt Blend: Lends elasticity and flexibility to the sheet. The elongation and recovery properties allow the product to easily accommodate the continual expansion and contraction experienced on all roofs.

Fiber Glass Reinforcement Mat: Offers excellent dimensional stability and tensile strength and withstands differential movement. Because it has no thermal memory less time is needed to relax the sheet, allowing for ease of installation. The fiber glass mat also has good lay-flat characteristics.



System Compatibility This product may be used as a component in the following systems. Please reference product application for specific installation methods and information.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW	HA	CA	HW	SA
Compatible with the selected Multi-Ply systems above								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
Do not use with Single Ply systems							

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

Energy and the Environment

Test	Initial	3-Year Aged
Reflectivity (ASTM C 1549)	0.86	—
Emissivity (ASTM C 1371)	0.06	—
Solar Reflectance Index (SRI) - E 1980	91	—
Pre-Consumer Recycled Content	0%	
Post-Consumer Recycled Content	0%	

Peak Advantage® Guarantee Information

Systems	Guarantee Term
When used in most 2-5 ply JM SBS systems.*	Up to 30 years

*Contact JM Technical Services for specific system requirements or guarantee terms.

Codes and Approvals



Product Application



- May be installed in Type IV asphalt, in an approved JM adhesive or using heat welding techniques
- Laps may be installed using heat-welding techniques
- If installed as a cap sheet, membrane must be cut into 11 foot sheets prior to application
- Refer to JM SBS modified bitumen specifications and detail drawings for application and slope information

Packaging and Dimensions

Roll Coverage*	95.8 ft ² (8.9 m ²)
Roll Length	32' 10" (10.01 m)
Roll Width	39 3/8" (1 m)
Roll Weight	100 lb (45.4 kg)
Rolls per Pallet	20
Pallet Weight	2,130 lb (966 kg)
Pallets per Truck*	22

*Assumes a 4" side lap **Assumes 48' flatbed truck.



DynaClad®
Fiber Glass-Reinforced,
SBS Aluminum Foil-Surfaced, Cap or Flashing Sheet

Meets or exceeds the criteria for ASTM D 6298

Tested Physical Properties

Physical Properties		ASTM Test Method	Standard for ASTM D 6298 (Min.)	DynaClad	
				MD*	XMD**
Strength	Tensile Tear	D 5147	120 lbf (534 N)	185 lbf (823 N)	185 lbf (823 N)
	Peak Load at 0°F (-18°C)	D 5147	160 lbf/in (28 kN/m)	185 lbf/in (32.4 kN/m)	175 lbf/in (30.6 kN/m)
	Peak Load at 73.4°F (23°C)	D 5147	85 lbf/in (14.9 kN/m)	100 lbf/in (17.5 kN/m)	90 lbf/in (15.8 kN/m)
Longevity	Low Temp. Flexibility	D 5147	0°F (-18°C)	0°F (-18°C)	
	Thickness	D 5147	134 mil (3.4 mm)	145 mil (3.7 mm)	
	Elongation at Peak Load at 0°F (-18°C)	D 5147	3%	4%	4%
Installation	Dimensional Stability	D 5147	0.2%	0.2%	0.2%
	Net Mass per Unit Area	D 146	80 lb/100 ft ² (36 kg/9.29 m ²)	108 lb/100 ft ² (49.0 kg/9.29 m ²)	
	Roll Weight	D 146	N/A	100 lb (45.4 kg)	

*MD = Machine Direction

**XMD = Cross-Machine Direction

Note: All data represents tested values.

Meets the requirements of ASTM C 1289, Type II, Class 1, Grade 2 (20 psi)

- DiamondBack Pre-Cut Crickets

Grade 3 (25 psi)

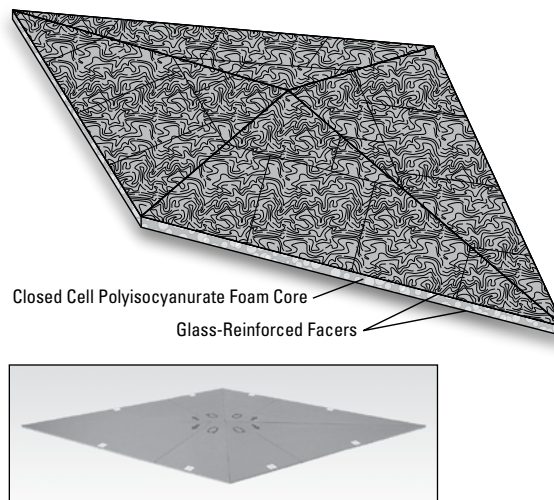
- DiamondBack Pre-Cut Crickets 25 PSI

Features and Components

Glass-Reinforced Facers: Provide rigidity and protection to the foam core and are compatible with BUR, modified bitumen and single ply membrane systems.

Closed Cell Polyisocyanurate Foam Core: Utilizes an environmentally compliant blowing agent that provides high thermal insulation performance.

Precise Factory Cuts: Custom designed to provide reduced job-site waste disposal, increased labor efficiency and smooth field transitions.



Component
I Insulation
Multi-Ply Single Ply
Type
CK Cricket
HT High Thermal
TP Tapered

System Compatibility Please refer to the specific JM Specification sheets for details.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW	HA	CA	HW	SA
Compatible with the selected Multi-Ply systems above								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
Compatible with all Single Ply systems							

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

Energy and the Environment

LEED®	Recycled Content	Varies with thickness, see Thermal Performance chart on back page.
Complies with EPA, CEPA and Montreal Protocol requirements		

Peak Advantage® Guarantee Information

Systems
For use in approved JM Peak Advantage Roofing Guarantees

Codes and Approvals



- FM® Standards 4450/4470 Approvals (refer to FM RoofNav™)
- UL® Standard 790, 263 and 1256 (refer to UL Roofing Materials system directory)
- Meets the requirements of CAN/ULC S704, Type 2, Class 3
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1341
- Third-party certification with the PIMA Quality Mark™ for Long-Term Thermal Resistance (LTR) values
- Meets Clean Air Act Amendments of 1990

Installation/Application



- May be installed over metal, nailable and non-nailable roof decks in built-up, modified bitumen and single ply membrane roofing systems.
- With computerized accuracy, DiamondBack Pre-Cut Crickets are designed, cut and packaged with the required number of cricket pieces and delivered to the job ready for installation. The customized bundle and individual panel labeling allows for easy onsite identification.
- Refer to the application instructions guidelines for proper utilization of this product.

Packaging and Dimensions

Sizes	Customized per job, see back side for cricket types
Slopes	See back side for standard slopes
Producing Locations	Hazleton, PA

Refer to the Material Safety Data Sheet and product label prior to using this product. The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Note: Technical information on this data sheet is intended to be used as a general guideline only and is subject to change without notice. Contact your JM Sales Representative for further details.

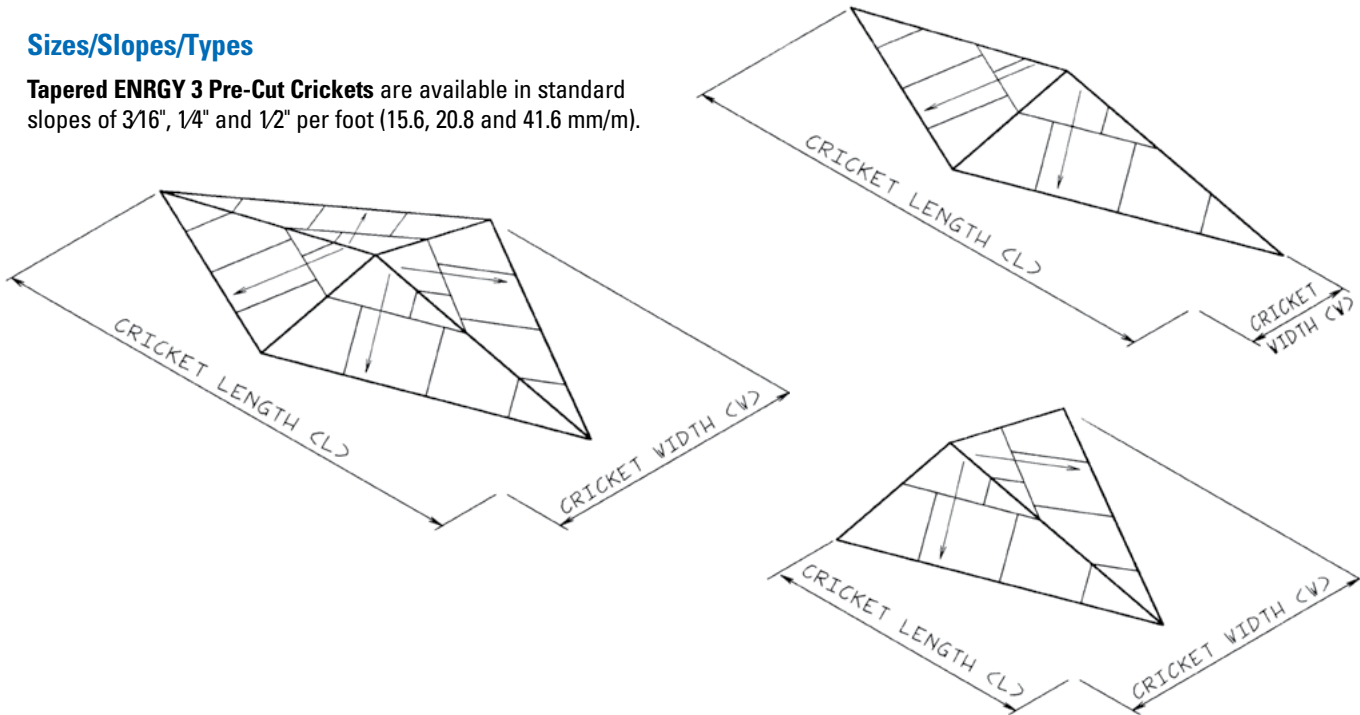
Typical Physical Properties*

Test		ASTM	Values
Strength	Tensile Strength	D 1623	730 psf (35 kPa) (<i>nom</i>)
	Compressive Resistance 10% Consolidation	C 1621	Grade 2: 20 psi (138 kPa), Grade 3: 25 psi (172 kPa)
	Dimensional Stability Change	D 2126	<2%
Moisture	Moisture Vapor Permeance, (<i>foam core</i>)	E 96	<1 perm, 57.5 ng/(Pa•s•m ²)
	Water Absorption, % (2 hr)	C 209	<1.0% (<i>max</i>)
Insulation	Service Temperature	D 1623	-100°F – 250°F (-73°C – 121°C)
	Flame Spread, (<i>foam core</i>)	E 84	23-30
	Smoke Developed, (<i>foam core</i>)	E 84	55-250

*As measured on ENRGY 3® and Fesco Foam roof insulation.

Sizes/Slopes/Types

Tapered ENRGY 3 Pre-Cut Crickets are available in standard slopes of 3/16", 1/4" and 1/2" per foot (15.6, 20.8 and 41.6 mm/m).



Meets the requirements of ASTM C 1289, Type II, Class 1, Grade 2 (20 psi)

- DiamondBack Pre-Cut Miters

Grade 3 (25 psi)

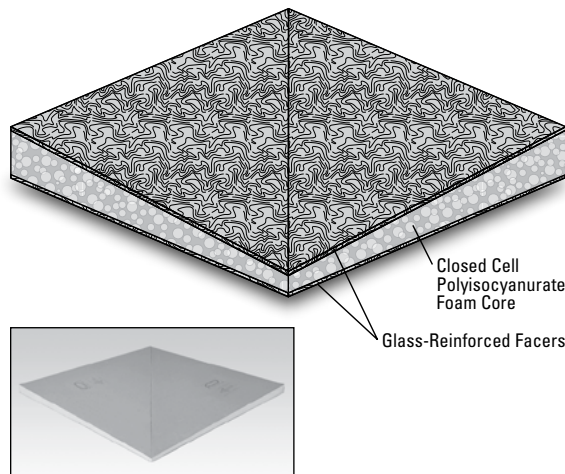
- DiamondBack Pre-Cut Miters 25 PSI

Features and Components

Glass-Reinforced Facers: Provide rigidity and protection to the foam core and are compatible with BUR, modified bitumen and single ply membrane systems.

Closed Cell Polyisocyanurate Foam Core: Utilizes an environmentally compliant blowing agent that provides high thermal insulation performance.

Precise Factory Cuts: Custom designed to provide reduced job-site waste disposal, increased labor efficiency and smooth field transitions.



Component
I Insulation
Multi-Ply Single Ply
Type
MI Miter
HT High Thermal
TP Tapered

System Compatibility Please refer to the specific JM Specification sheets for details.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW	HA	CA	HW	SA
Compatible with the selected Multi-Ply systems above								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
Compatible with all Single Ply systems							

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

Energy and the Environment

LEED®	Recycled Content	Varies with thickness, see Thermal Performance chart on back page.
Complies with EPA, CEPA and Montreal Protocol requirements		

Peak Advantage® Guarantee Information

Systems
For use in approved JM Peak Advantage Roofing Guarantees

Codes and Approvals

- UL[®] Standard 790, 263 and 1256 (refer to UL Roofing Materials system directory)
- FM[®] Standards 4450/4470 Approvals (refer to FM RoofNavSM)
- PIMA QualityMark[™] for Long-Term Thermal Resistance (LTTR) values
- Meets the requirements of CAN/ULC S704, Type 2, Class 3
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1341
- Meets Clean Air Act Amendments of 1990

Installation/Application



- May be installed over metal, nailable and non-nailable roof decks in built-up, modified bitumen and single ply membrane roofing systems.
- Tapered ENRGY 3 Pre-Cut Miters are composed 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. With computerized accuracy, the Tapered Pre-Cut Miters are cut, packaged and delivered to the job ready for installation.
- Refer to the application instructions guidelines for proper utilization of this product.

Packaging and Dimensions

Sizes	Customized per job, see back side for miter types
Slopes	See back side for standard slopes
Producing Locations	Hazleton, PA

Refer to the Material Safety Data Sheet and product label prior to using this product. The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Note: Technical information on this data sheet is intended to be used as a general guideline only and is subject to change without notice. Contact your JM Sales Representative for further details.

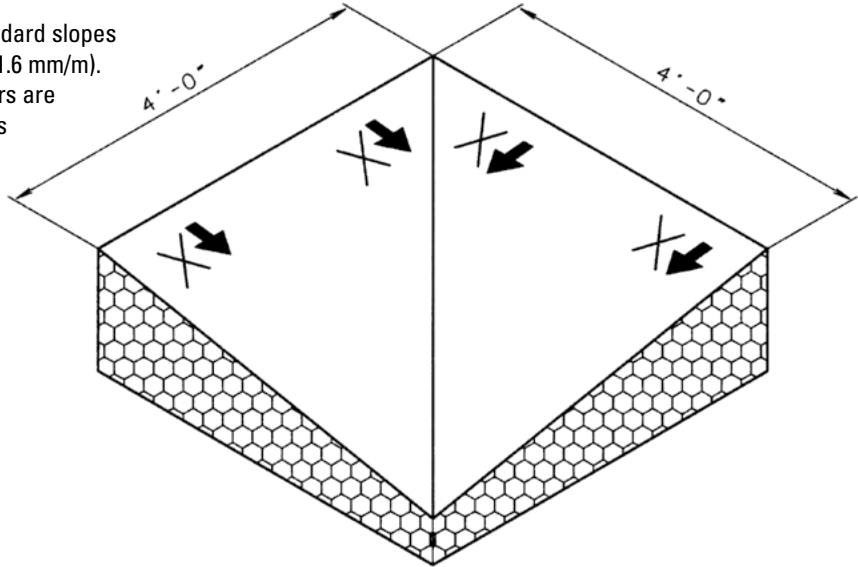
Typical Physical Properties*

Test		ASTM	Values
Strength	Tensile Strength	D 1623	730 psf (35 kPa) (<i>nom</i>)
	Compressive Resistance 10% Consolidation	C 1621	20 psi (138 kPa)
	Dimensional Stability Change – 7 days @158°F (70°C), 90-100% RH	D 2126	<2% Lengthwise & Crosswise
Moisture	Moisture Vapor Permeance, (<i>foam core</i>)	E 96	<1 perm, 57.5 ng/(Pa•s•m ²)
	Water Absorption, % (2 hr)	C 209	<1.0% (<i>max</i>)
Insulation	Service Temperature	D 1623	-100°F – 250°F (-73°C – 121°C)
	Flame Spread, (<i>foam core</i>)	E 84	23-30
	Smoke Developed, (<i>foam core</i>)	E 84	55-250

*As measured on ENRGY 3® and Fesco Foam roof insulation.

Slopes/Types

Tapered ENRGY 3 Pre-Cut Miters are available in standard slopes of 1/8", 3/16", 1/4" and 1/2" per foot (10.4, 15.6, 20.8 and 41.6 mm/m). Custom cut multislope Tapered ENRGY 3 Pre-Cut Miters are available upon special request. Contact your JM Sales Representative for more information.



Meets the requirements of ASTM C 1289, Type II, Class 1, Grade 2 (20 psi)

- ENRGY 3

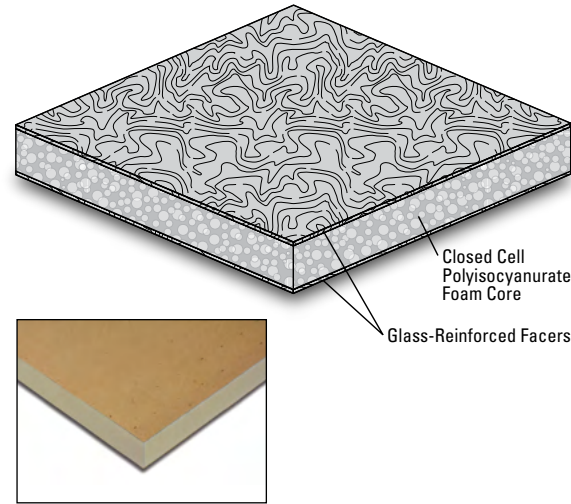
Grade 3 (25 psi)

- ENRGY 3 25 PSI

Features and Components

Glass-Reinforced Facers: Provides rigidity and resistance to indentation and crushing, and are compatible with BUR, modified bitumen and single ply membrane systems.

Closed Cell Polyisocyanurate Foam Core: Provides high R-value per inch in built-up, modified bitumen, metal roof and single ply roof systems, and utilizes an environmentally compliant blowing agent that provides high thermal insulation performance.



Component

I
Insulation

Multi-Ply
Single Ply

Type
HT
High Thermal

System Compatibility This product may be used as a component in the following systems. Please reference product application for specific installation methods and information.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW	HA	CA	HW	SA
Compatible with the selected Multi-Ply systems above								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
Compatible with all Single Ply systems							

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

Energy and the Environment

LEED®	Recycled Content	Varies with thickness, see <i>Product Data and Packaging</i> table on back page.
Produced with environmentally compliant pentane blowing agent with zero ozone depletion (conforms to the Montreal Protocol of 1987).		

Peak Advantage® Guarantee Information

Systems
For use in approved JM Peak Advantage Roofing Guarantees

Codes and Approvals



- FM® Standards 4450/4470 Approvals (refer to FM RoofNavSM)
- UL® Standard 790, 263 and 1256 (refer to UL Roofing Materials system directory)
- Meets the requirements of CAN/ULC S704
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1341
- Third-party certification with the PIMA Quality Mark™ for Long-Term Thermal Resistance (LTTR) values

Refer to the Material Safety Data Sheet and product label prior to using this product. The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Installation/Application



Refer to the application instructions guidelines for proper utilization of this product.

Flute Span:	Up to 2 ⁵ / ₈ " (6.67 cm)	Up to 3 ³ / ₈ " (8.57 cm)	Up to 4 ³ / ₈ " (11.11 cm)
Width of Rib Opening:			
Insulation Thickness (min):	1.0" (2.54 cm)	1.2" (3.05 cm)	1.3" (3.30 cm)

Packaging and Dimensions

Sizes ¹	4' x 4' (1.22 m x 1.22 m)	4' x 8' (1.22 m x 2.44 m)
Producing Locations	Bremen, IN Hazleton, PA	Cornwall, ONT Jacksonville, FL
Stocking Locations ²	Grand Prairie, TX	Southgate, CA Tracy, CA

1. For available thicknesses, see *Product Data and Packaging* table on back side of this data sheet. Other sizes available by special request, some sizes are not stocked and special order with minimum order quantities. Contact your JM Sales Representative for details.
2. Not all sizes, thicknesses, and products are stocked at all locations, please call Customer Service at 1-877-766-3295.

Note: Technical information on this data sheet is intended to be used as a general guideline only and is subject to change without notice. Contact your JM Sales Representative for further details.

Typical Physical Properties

Test		ASTM	Values
Strength	Tensile Strength	D 1623	730 psf (35 kPa) (<i>nom</i>)
	Compressive Resistance 10% Consolidation	C 1621	Grade 2: 20 psi (138 kPa), Grade 3: 25 psi (172 kPa)
	Dimensional Stability Change, (<i>length & width</i>)	D 2126	<2% (<i>linear</i>)
Moisture	Moisture Vapor Permeance	E 96	<1 perm, 57.5 ng/(Pa•s•m ²)
	Water Absorption	C 209	<1.0% (<i>max</i>)
Insulation	Service Temperature	D 1623	-100°F – 250°F (-73°C – 121°C)
	Flame Spread, (<i>foam core</i>)	E 84	20 - 30
	Smoke Developed, (<i>foam core</i>)	E 84	55 - 250

Product Data and Packaging

Thickness		Long-Term Thermal Resistance (LTTR) Values ¹		Recycled Content ² 20 PSI / 25 PSI			Boards per Pallet	Square Feet per Pallet		Pallets per Truck ³	
in.	mm	(hr•ft ² •°F)/BTU	m ² •°C/W	% Pre-Consumer	% Post-Consumer	% Total	4x4 and 4x8	4x4	4x8	4x4	4x8
1.0	25.4	5.7	1.00	13.7 / 13.5	26.2 / 25.6	40.1 / 39.0	48	768	1536	48	24
1.1	27.9	6.3	1.10	13.1 / 12.9	24.1 / 23.4	37.2 / 36.2	41	656	1312		
1.2	30.5	6.8	1.20	12.6 / 12.4	22.5 / 21.8	35.1 / 34.2	38	608	1216		
1.25	31.8	7.1	1.25	12.5 / 12.3	21.9 / 21.3	34.4 / 33.6	35	560	1120		
1.3	33.0	7.4	1.30	12.4 / 12.2	21.3 / 20.7	33.7 / 32.8	35	560	1120		
1.4	35.6	8.0	1.41	12.2 / 12.1	20.8 / 20.2	33.1 / 32.3	32	512	1024		
1.5	38.1	8.6	1.51	11.8 / 11.6	19.1 / 18.5	30.9 / 30.1	32	512	1024		
1.6	40.6	9.1	1.61	11.5 / 11.3	18.1 / 17.6	29.6 / 28.9	28	448	896		
1.7	43.2	9.7	1.71	11.6 / 11.2	17.4 / 16.9	28.8 / 28.1	27	432	864		
1.75	44.5	10.0	1.76	11.4 / 11.2	17.2 / 16.7	28.6 / 27.9	27	432	864		
1.8	45.7	10.3	1.81	11.2 / 11.1	17.1 / 16.6	28.4 / 27.7	25	400	800		
1.9	48.3	10.8	1.91	11.0 / 10.9	16.3 / 15.8	27.4 / 26.7	24	384	768		
2.0	50.8	11.4	2.01	10.9 / 10.7	15.8 / 15.3	26.7 / 26.0	24	384	768		
2.1	53.3	12.0	2.11	10.6 / 10.5	14.9 / 14.4	25.5 / 24.9	21	336	672		
2.2	55.9	12.6	2.22	10.4 / 10.3	14.1 / 13.6	24.5 / 23.9	20	320	640		
2.3	58.4	13.2	2.32	10.2 / 10.1	13.3 / 12.9	23.6 / 23.0	20	320	640		
2.4	61.0	13.8	2.43	10.2 / 10.1	13.2 / 12.8	23.5 / 22.9	19	304	608		
2.5	63.5	14.4	2.53	10.1 / 10.0	12.9 / 12.5	23.1 / 22.6	19	304	608		
2.6	66.0	15.0	2.64	10.0 / 9.9	12.6 / 12.2	22.6 / 22.1	18	288	576		
2.7	68.6	15.6	2.74	9.9 / 9.8	12.2 / 11.8	22.1 / 21.6	17	272	544		
2.8	71.1	16.2	2.85	9.8 / 9.7	11.9 / 11.5	21.7 / 21.6	16	256	512		
2.9	73.7	16.8	2.96	9.8 / 9.7	11.6 / 11.2	21.3 / 20.9	16	256	512		
3.0	76.2	17.4	3.06	9.7 / 9.7	11.3 / 11.0	21.1 / 20.6	16	256	512		
3.1	78.7	18.0	3.17	9.7 / 9.6	11.0 / 10.6	20.6 / 20.2	14	224	448		
3.2	81.3	18.6	3.28	9.6 / 9.5	10.7 / 10.4	20.3 / 19.9	14	224	448		
3.25	82.6	18.9	3.33	9.6 / 9.5	10.6 / 10.3	20.2 / 19.8	14	224	448		
3.3	83.8	19.2	3.39	9.5 / 9.5	10.5 / 10.2	20.0 / 19.6	14	224	448		
3.4	86.4	19.9	3.50	9.4 / 9.3	10.1 / 9.8	19.5 / 19.1	13	208	416		
3.5	88.9	20.5	3.61	9.4 / 9.3	10.0 / 9.7	19.3 / 18.9	13	208	416		
3.6	91.4	21.1	3.72	9.3 / 9.2	9.7 / 9.4	19.0 / 18.6	12	192	384		
3.7	94.0	21.7	3.82	9.2 / 9.2	9.5 / 9.2	18.7 / 18.3	12	192	384		
3.75	95.3	22.0	3.88	9.2 / 9.2	9.4 / 9.0	18.6 / 18.2	12	192	384		
3.8	96.5	22.3	3.94	9.2 / 9.2	9.2 / 9.0	18.5 / 18.1	12	192	384		
3.9	99.1	23.0	4.05	9.2 / 9.1	9.0 / 8.7	18.1 / 17.8	12	192	384		
4.0	101.6	23.6	4.16	9.1 / 9.0	8.7 / 8.4	17.8 / 17.4	12	192	384		
4.1	104.0	24.2	4.26	9.0 / 8.9	8.7 / 8.4	17.5 / 17.2	11	176	352		
4.2	107.0	24.8	4.36	8.9 / 8.8	8.6 / 8.3	17.3 / 17.0	11	176	352		
4.3	109.0	25.4	4.47	8.8 / 8.7	8.5 / 8.2	17.1 / 16.7	11	176	352		
4.4	112.0	26.0	4.57	8.7 / 8.7	8.3 / 8.0	16.8 / 16.5	10	160	320		
4.5	114.0	26.6	4.68	8.7 / 8.6	8.2 / 7.9	16.6 / 16.3	10	160	320		

1. The Long-Term Thermal Resistance (LTTR) values were determined in accordance with CAN/ULC S770 at 75°F (24°C). The ultimate R-Value of these products will depend on individual installation circumstances. 2. Value represents average results (Grade 2/Grade 3). 3. Assumes 48' flatbed truck.

Refer to the Material Safety Data Sheet and product label prior to using this product The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Meets the requirements of ASTM C 1289, Type II, Class 1, Grade 2 (20 psi)

- ENRGY 3

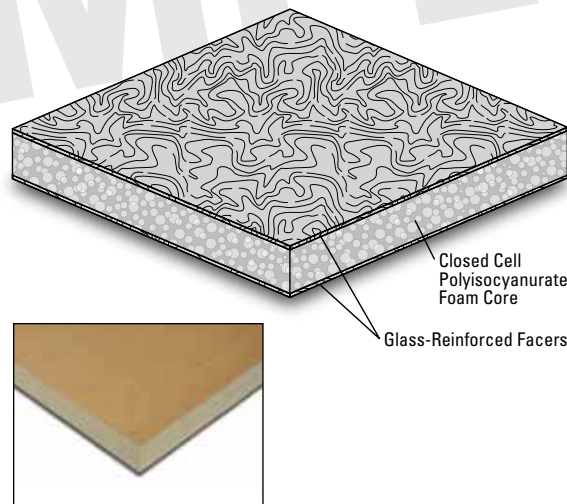
Grade 3 (25 psi)

- ENRGY 3 25 PSI

Features and Components

Glass-Reinforced Facers: Provides rigidity and resistance to indentation and crushing, and are compatible with BUR, modified bitumen and single ply membrane systems.

Closed Cell Polyisocyanurate Foam Core: Provides high R-value per inch in built-up, modified bitumen, metal roof and single ply roof systems, and utilizes an environmentally compliant blowing agent that provides high thermal insulation performance.



Component
I Insulation
Multi-Ply Single Ply
Type
HT High Thermal

System Compatibility Please refer to the specific JM Specification sheets for details.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW	HA	CA	HW	SA
Compatible with the selected Multi-Ply systems above								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
Compatible with all Single Ply systems							

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

Energy and the Environment

LEED®	Recycled Content	Varies with thickness, see <i>Product Data and Packaging</i> table on back page.
Produced with environmentally compliant pentane blowing agent with zero ozone depletion (conforms to the Montreal Protocol of 1987).		

Peak Advantage® Guarantee Information

Systems
For use in approved JM Peak Advantage Roofing Guarantees

Codes and Approvals



- FM® Standards 4450/4470 Approvals (refer to FM RoofNavSM)
- UL® Standard 790, 263 and 1256 (refer to UL Roofing Materials system directory)
- Meets the requirements of CAN/ULC S704
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1341
- Third-party certification with the PIMA Quality Mark™ for Long-Term Thermal Resistance (LTRR) values

Refer to the Material Safety Data Sheet and product label prior to using this product. The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Installation/Application



Refer to the application instructions guidelines for proper utilization of this product.

Flute Span:			
Width of Rib Opening:	Up to 2 ⁵ / ₈ " (6.67 cm)	Up to 3 ³ / ₈ " (8.57 cm)	Up to 4 ³ / ₈ " (11.11 cm)
Insulation Thickness (min):	1.0" (2.54 cm)	1.2" (3.05 cm)	1.3" (3.30 cm)

Packaging and Dimensions

Sizes ¹	4' x 4' (1.22 m x 1.22 m)	4' x 8' (1.22 m x 2.44 m)	
Producing Locations	Bremen, IN Hazleton, PA	Cornwall, ONT Jacksonville, FL	Fernley, NV
Stocking Locations ²	Dallas, TX	Southgate, CA	Tracy, CA

- For available thicknesses, see *Product Data and Packaging* table on back side of this data sheet. Other sizes available by special request, some sizes are not stocked and special order with minimum order quantities. Contact your JM Sales Representative for details.
- Not all sizes, thicknesses, and products are stocked at all locations, please call Customer Service at 1-877-766-3295.

Note: Technical information on this data sheet is intended to be used as a general guideline only and is subject to change without notice. Contact your JM Sales Representative for further details.



ENERGY 3®

Polyisocyanurate Roof Insulation

Effective January 1, 2014 with the LTTR change

Typical Physical Properties

Test		ASTM	Values
Strength	Tensile Strength	D 1623	730 psf (35 kPa) (nom)
	Compressive Resistance 10% Consolidation	C 1621	Grade 2: 20 psi (138 kPa), Grade 3: 25 psi (172 kPa)
	Dimensional Stability Change, (length & width)	D 2126	<2% (linear)
Moisture	Moisture Vapor Permeance	E 96	<1 perm, 57.5 ng/(Pa•s•m²)
	Water Absorption	C 209	<1.0% (max)
Insulation	Service Temperature	D 1623	-100°F – 250°F (-73°C – 121°C)
	Flame Spread, (foam core)	E 84	23 - 30
	Smoke Developed, (foam core)	E 84	55 - 250

Product Data and Packaging

Thickness		Long-Term Thermal Resistance (LTTR) Values ¹		Recycled Content ² 20 PSI / 25 PSI			Boards per Pallet	Square Feet per Pallet		Pallets per Truck ³	
in.	mm	(hr•ft²•°F)/BTU	m²•°C/W	% Pre-Consumer	% Post-Consumer	% Total	4x4 and 4x8	4x4	4x8	4x4	4x8
1.0	25.4	5.7	1.00	13.7 / 13.5	26.2 / 25.6	40.1 / 39.0	48	768	1536	48	24
1.1	27.9	6.3	1.10	13.1 / 12.9	24.1 / 23.4	37.2 / 36.2	41	656	1312		
1.2	30.5	6.8	1.20	12.6 / 12.4	22.5 / 21.8	35.1 / 34.2	38	608	1216		
1.25	31.8	7.1	1.25	12.5 / 12.3	21.9 / 21.3	34.4 / 33.6	35	560	1120		
1.3	33.0	7.4	1.30	12.4 / 12.2	21.3 / 20.7	33.7 / 32.8	35	560	1120		
1.4	35.6	8.0	1.41	12.2 / 12.1	20.8 / 20.2	33.1 / 32.3	32	512	1024		
1.5	38.1	8.6	1.51	11.8 / 11.6	19.1 / 18.5	30.9 / 30.1	32	512	1024		
1.6	40.6	9.1	1.61	11.5 / 11.3	18.1 / 17.6	29.6 / 28.9	28	448	896		
1.7	43.2	9.7	1.71	11.6 / 11.2	17.4 / 16.9	28.8 / 28.1	27	432	864		
1.75	44.5	10.0	1.76	11.4 / 11.2	17.2 / 16.7	28.6 / 27.9	27	432	864		
1.8	45.7	10.3	1.81	11.2 / 11.1	17.1 / 16.6	28.4 / 27.7	25	400	800		
1.9	48.3	10.8	1.91	11.0 / 10.9	16.3 / 15.8	27.4 / 26.7	24	384	768		
2.0	50.8	11.4	2.01	10.9 / 10.7	15.8 / 15.3	26.7 / 26.0	24	384	768		
2.1	53.3	12.0	2.11	10.6 / 10.5	14.9 / 14.4	25.5 / 24.9	21	336	672		
2.2	55.9	12.6	2.22	10.4 / 10.3	14.1 / 13.6	24.5 / 23.9	20	320	640		
2.3	58.4	13.2	2.32	10.2 / 10.1	13.3 / 12.9	23.6 / 23.0	20	320	640		
2.4	61.0	13.8	2.43	10.2 / 10.1	13.2 / 12.8	23.5 / 22.9	19	304	608		
2.5	63.5	14.4	2.53	10.1 / 10.0	12.9 / 12.5	23.1 / 22.6	19	304	608		
2.6	66.0	15.0	2.64	10.0 / 9.9	12.6 / 12.2	22.6 / 22.1	18	288	576		
2.7	68.6	15.6	2.74	9.9 / 9.8	12.2 / 11.8	22.1 / 21.6	17	272	544		
2.8	71.1	16.2	2.85	9.8 / 9.7	11.9 / 11.5	21.7 / 21.6	16	256	512		
2.9	73.7	16.8	2.96	9.8 / 9.7	11.6 / 11.2	21.3 / 20.9	16	256	512		
3.0	76.2	17.4	3.06	9.7 / 9.7	11.3 / 11.0	21.1 / 20.6	16	256	512		
3.1	78.7	18.0	3.17	9.7 / 9.6	11.0 / 10.6	20.6 / 20.2	14	224	448		
3.2	81.3	18.6	3.28	9.6 / 9.5	10.7 / 10.4	20.3 / 19.9	14	224	448		
3.25	82.6	18.9	3.33	9.6 / 9.5	10.6 / 10.3	20.2 / 19.8	14	224	448		
3.3	83.8	19.2	3.39	9.5 / 9.5	10.5 / 10.2	20.0 / 19.6	14	224	448		
3.4	86.4	19.9	3.50	9.4 / 9.3	10.1 / 9.8	19.5 / 19.1	13	208	416		
3.5	88.9	20.5	3.61	9.4 / 9.3	10.0 / 9.7	19.3 / 18.9	13	208	416		
3.6	91.4	21.1	3.72	9.3 / 9.2	9.7 / 9.4	19.0 / 18.6	12	192	384		
3.7	94.0	21.7	3.82	9.2 / 9.2	9.5 / 9.2	18.7 / 18.3	12	192	384		
3.75	95.3	22.0	3.88	9.2 / 9.2	9.4 / 9.0	18.6 / 18.2	12	192	384		
3.8	96.5	22.3	3.94	9.2 / 9.2	9.2 / 9.0	18.5 / 18.1	12	192	384		
3.9	99.1	23.0	4.05	9.2 / 9.1	9.0 / 8.7	18.1 / 17.8	12	192	384		
4.0	101.6	23.6	4.16	9.1 / 9.0	8.7 / 8.4	17.8 / 17.4	12	192	384		

1. The Long-Term Thermal Resistance (LTTR) values were determined in accordance with CAN/ULC S770 at 75°F (24°C). The ultimate R-Value of these products will depend on individual installation circumstances. 2. Value represents average results (Grade 2/Grade 3). 3. Assumes 48' flatbed truck.

Refer to the Material Safety Data Sheet and product label prior to using this product. The Material Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Meets the requirements of ASTM D 3019, Type III, Grade 2.

Features and Components

Use: For adhering roofing plies, modified bitumen membranes and for aggregate surfacings. It can be used as a direct substitute for asphalt in all JM modified bitumen roof membrane specifications.

Type: One-part, elastomeric cold application membrane adhesive.

Color: Black

Features: Cures to form a durable, elastomeric and watertight film. Cold process – does not have to be heated. Ready for use as shipped.



System Compatibility This product may be used as a component in the following systems. Please reference product application for specific installation methods and information.

Multi-Ply	BUR		APP		SBS			
	HA	CA	CA	HW*	HA	CA	HW*	SA
<i>Used to adhere Membranes in the selected systems above</i>								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
<i>Not recommended for use in Single Ply systems</i>							

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened FA = Fully Adhered BA = Ballasted

* Compatible with all modified bitumen and built-up roofing membrane sheets that do not incorporate a polyolefin burn-off film.

Energy and the Environment

Maximum VOC	178 g/l (EPA Method 24)
-------------	-------------------------

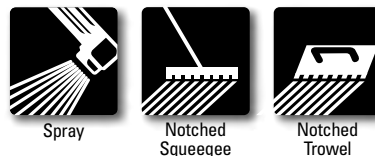
Physical Properties

Property	MBR Cold Application Adhesive
Weight	9.8 lb/gal (1.17 kg/l)
Consistency @ 77°F (25°C)	Spray Grade

Codes and Approvals



Installation/Application



- Apply between 40° and 100° F (4° and 38° C)
- Please refer to detailed installation instructions on next page

Packaging and Coverage

Container Sizes, gal (l)	5 (18.9) pail	55 (208.2) drum	350 (1,324.8) tote
Shipping Weight (approx.)	10 lb/gal (1.2 kg/l)		
Containers per Pallet	42	4	NA
Pallet Weight, lb (kg)	2,016 (914.4)	2,300 (1,043.3)	4,000 (1,814.4)
Coverage Rate*	50 to 70 ft ² /gal (1.23 to 1.72 m ² /l)		

* Coverage, open and dry time rates can vary dramatically depending on the particular substrate and environmental conditions. Coverage rates stated herein are approximate only. If FM Global® or UL® approval is required, consult specific RoofNavSM or the UL Certifications Directory for specific application rates.

Storage

Shelf Life	12 months from manufacture date
Storage Conditions	Clean, dry, indoor environment in an unopened container
Temperature Range	60°F to 80°F (16°C to 27°C) - Protect from freezing



MBR® Cold Application Adhesive

Installation/Application Instructions

Apply between 40° and 100° F (4° and 38° C)

When the temperature is below 50°F (10°C), the adhesive must be stored in a warm area, approximately 70°F (21°C). The product may become difficult to work with if not kept warm.

For best results, apply to surfaces that are clean, dry and free of loose materials. Prime masonry surfaces with JM Asphalt Primer. Allow the primer to dry thoroughly before applying the adhesive.

MBR Cold Application Adhesive can be installed with a notched, 1/4" (6 mm) serrated squeegee or trowel, as well as spray equipment. Average coverage* per ply is 50 to 70 ft²/gal (1.23 to 1.72 m²/l).

It can be used as a direct substitute for asphalt in all JM modified bitumen roof membrane specifications. However, we recommend that only fully coated, nonporous felts, such as JM GlasBase™ Plus, DynaBase®, DynaPly®, TRICOR™ S, BICOR™ S and JM APP Base Sheet be used as ply and base sheets in cold process systems. Ventsulation® Felt is also acceptable as a base felt. DO NOT USE GlasPly® IV, GlasPly® Premier or any APP product with a burn-off film in these systems.

* Coverage, open and dry time rates can vary dramatically depending on the particular substrate and environmental conditions. Coverage rates stated herein are approximate only. If FM Global® or UL® approval is required, consult specific RoofNavSM or the UL Certifications Directory for specific application rates.

Preferred Spray Equipment Specifications

Pressure	4,000 psi (27.6 MPa)
Gallons per Minute (gpm)	5 (18.9 liters/minute)
Spray Tip Size	0.051" - 0.061" (1.3 - 1.5 mm) <i>0.055" (1.4 mm) Most Common</i>
Material Temperature	95°F - 105°F (35°C - 41°C)
Max Heat Temperature	120°F (49°C)*
Length of Hose	400' (121.9 m)
Size of Hose	3/4" (19 mm) Inside Diameter
Last 15'- 20' (4.6 - 6.1 m) of Hose	1/2" (13 mm) Inside Diameter

*Do not expose material to flame or spark.

These specifications are based on 400' (121.9 m) of hose and may change if the material has to be pumped longer or shorter distances than 400' (121.9 m). These specifications are also based on usage of Premium Cold Application Adhesive and BUR Adhesive.

Clean-Up and Disposal

Tools and equipment can be cleaned with mineral spirits.

Precautions

Johns Manville MBR Cold Application Adhesive is a combustible material and should be shipped and stored away from open flames, heat or sources of ignition. Keep all pails tightly sealed while in storage. It should be used only in well-ventilated areas. It may cause eye, skin and respiratory irritation, and is harmful or fatal if swallowed. Avoid contact with skin. Use impervious clothing and rubber gloves to avoid prolonged or repeated contact with skin. Read the container label and follow all safety instructions.