

CSI Form 1.5C

**SUBSTITUTION  
REQUEST**  
(During the Bid Period)

Project: VAMC Outpatient mental Health Building Sioux Falls, SD Substitution Request Number: 1  
 To: Thomas Council From: Brandon Wolfe  
 Date: 6/11/2019  
 A/E Project Number: 438-450  
 Re: Roofing Substitution Contract For: Roofing Materials  
 Specification Title: Roof Deck and Insulation Description: Polyisocyanurate insulation  
 Section: 072200 Page: 5 Article/Paragraph: 2.4/13

Proposed Substitution: Johns Manville ENERGY 3 Polyisocyanurate insulation  
 Manufacturer: Johns Manville Address: 717 17th Street Denver, CO Phone: 303-978-2000  
 Trade Name: Roofing Model No.: N/A

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: Brandon Wolfe  
 Signed by: [Signature]  
 Firm: Johns Manville (Sales Agent)  
 Address: 2523 County Road 15  
Colon, NE 68018  
 Telephone: 402-679-0694

A/E's REVIEW AND ACTION

Product meets requirements of the project specifications and is acceptable as a substitution.

- Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: **Bill Beaupre, ANDERSON**

Date: **06/21/2019**

Supporting Data Attached:  Drawings  Product Data  Samples  Tests  Reports

CSI Form 1.5C

**SUBSTITUTION  
REQUEST**

(During the Bid Period)

Project: VAMC Outpatient Mental Health  
Building Sioux Falls, SD  
 To: Thomas Council  
 Re: Roofing Substitution  
 Substitution Request Number: 2  
 From: Brandon Wolfe  
 Date: 6/11/2019  
 A/E Project Number: 438-450  
 Contract For: Roofing Materials  
 Specification Title: Roof Deck and Insulation  
 Section: 072200 Page: 6  
 Description: Coverboard  
 Article/Paragraph: 2.5/E

Proposed Substitution: Johns Manville / National Gypsum 5/8" Dexcell FA  
 Manufacturer: Johns Manville Address: 717 17th Street Denver, CO Phone: 303-978-2000  
 Trade Name: Roofing Model No.: N/A

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Date: **06/21/2019**

Supporting Data Attached:  Drawings  Product Data  Samples  Tests  Reports  \_\_\_\_\_

CSI Form 1.5C

**SUBSTITUTION  
REQUEST**

(During the Bid Period)

Project: VAMC Outpatient Mental Health  
Building Sioux Falls, SD  
 To: Thomas Council  
 Re: Roofing Substitution  
 Specification Title: PVC Roofing  
 Section: 075419 Page: 6

Substitution Request Number: 3  
 From: Brandon Wolfe  
 Date: 6/11/2019  
 A/E Project Number: 438-450  
 Contract For: Roofing Materials  
 Description: PVC membrane  
 Article/Paragraph: 2.4/A

Proposed Substitution: Johns Manville 60 mil min Fleeceback PVC  
 Manufacturer: Johns Manville Address: 717 17th Street Denver, CO Phone: 303-978-2000  
 Trade Name: Roofing Model No.: N/A

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Supporting Data Attached:  Drawings  Product Data  Samples  Tests  Reports  \_\_\_\_\_

### Meets the requirements of ASTM C 1177

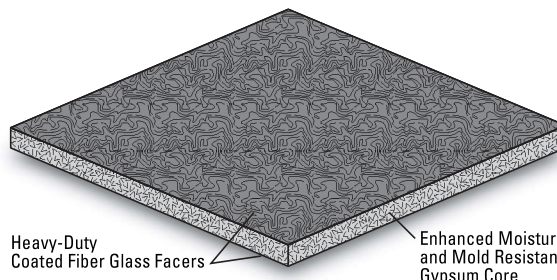
#### Features and Components

**Handleability:** Heavy duty coated fiberglass facer ideal for fully adhered systems improves handling and strength. Scores and snaps easily.

**Strength:** High compressive strength improves overall roof system performance. Ideal for systems where wind uplift and puncture resistance are a concern.

**Fire Performance:** FM Class 1 for fire barrier requirements and UL Class A unlimited slope with excellent surface burning characteristics. 5/8" thickness meets the requirements of Type X per ASTM C 1177.

**Moisture and Mold Resistance:** Enhanced mold resistant core and coated fiberglass facers provide mold and mildew resistance per ASTM-D 3273.



Component

**B**  
Cover Board

Multi-Ply  
Single Ply

Type

**GY**  
Gypsum

**LT**  
Low 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
<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

#### Peak Advantage® Guarantee Information

Systems	Guarantee Term*
When used in most multi-ply and single ply systems	10, 15, or 20 years

\* Contact JM Technical Services for specific systems or terms over 20 years.

#### Codes and Approvals



#### Installation/Application



Cold Applied



Urethane Adhesive



Mechanically Fastened

Refer to the Application Guides and Detail Drawings for instructions.

#### Packaging and Dimensions

Size	4' x 4' (1.22 m x 1.22 m)		
Thickness, nom	¼" (6.4 mm)	½" (12.7 mm)	⅝" (15.9 mm)
Weight/Board, nom	19 lbs (8.6 kg)	32 lbs (14.5 kg)	40 lbs (18.2 kg)
Coverage/Pallet	960 ft² (89 m²)	768 ft² (71 m²)	704 ft² (65 m²)
Boards/Pallet	60	48	44
Pallet Weight	1,200 lb (544 kg)	1,612 lb (731 kg)	1,964 (891 kg)
Pallets per Truck*	40	30	24
Size	4' x 8' (1.22 m x 2.44 m)		
Thickness, nom	¼" (6.4 mm)	½" (12.7 mm)	⅝" (15.9 mm)
Weight/Board, nom	38 lbs (17.2 kg)	64 lbs (29.0 kg)	80 lbs (36.3 kg)
Coverage/Pallet	1408 ft² (131 m²)	960 ft² (89 m²)	960 ft² (89 m²)
Boards/Pallet	44	30	30
Pallet Weight	1760 lbs (798 kg)	2016 lbs (914 kg)	2678 lbs (1215 kg)
Pallets per Truck*	27	24	18
Producing Location	Waukegan IL, Savannah, GA		

\* Assumes 48' flatbed truck.

DEXcell® is registered trademark of National Gypsum Company. DEXcell® is manufactured by National Gypsum Company and is marketed by Johns Manville as JM® DEXcell®.

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.

Refer to the Safe for Use instructions and product label prior to using this product. The Safe for Use instructions are available by calling (800) 922-5922 or on the Web at [www.jm.com/roofing](http://www.jm.com/roofing).



# JM DEXcell® FA Glass Mat Roof Board

Heavy-Duty Coated Glass Mat Faced Gypsum Cover Board

Meets the requirements of ASTM C 1177

## Typical Physical Properties

Test		ASTM	JM DEXcell FA Glass Mat Roof Board		
			¼" (6.35 mm)	½" (12.7 mm)	⅝" (15.9 mm)
Strength	Compressive Strength, psi (kPa), <i>nom</i>	C 473	900 (6,205)		
	Flexural Strength, lb, parallel, <i>min</i>	C 473	40	80	100
	Bending Radius, ft (m), <i>max</i>	NA	4 (1.2)	6 (1.8)	8 (2.4)
Moisture	Moisture Vapor Permeance, perms (ng/(Pa•s•m²), <i>max</i>	E 96	25 (1,429)	24 (1,371)	23 (1,314)
	Water Absorption, % by wt, <i>max</i>	C 1177	10		
	Mold Resistance	D 3273	10		
Installation	Flute Span, in (cm), <i>max</i>	E 661	2 ½ (6.7)	5 (12.7)	8 (20.3)
	Weight, lb/ft² (kg/m²), <i>nom</i>	NA	1.2 (5.9)	2.0 (10)	2.5 (12)

## Thermal Performance

Test	Thickness		Nominal R-Value (Resistance)	
	in.	mm	(hr•ft²•°F)/BTU	m²•°C/W
	¼	6.4	0.32	0.056
	½	12.7	0.45	0.079
	⅝	15.9	0.56	0.099
Test	ASTM	JM DEXcell FA Glass Mat Roof Board		
Flame Spread	E 84	0		
Smoke Developed	E 84	0		

Refer to the Safe for Use instructions and product label prior to using this product. The Safe for Use instructions are available by calling (800) 922-5922 or on the Web at [www.jm.com/roofing](http://www.jm.com/roofing).

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

- ENRGY 3

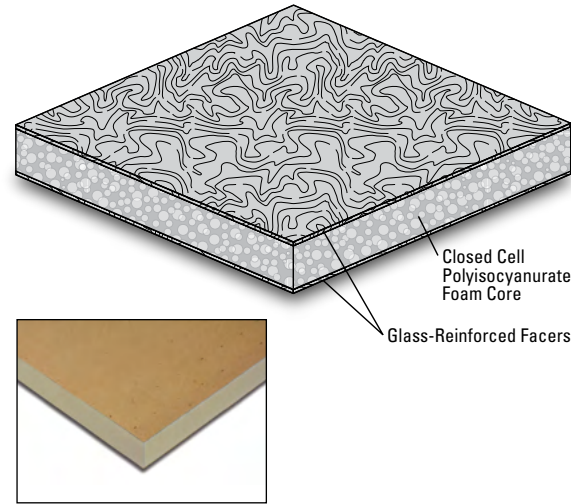
**Grade 3 (25 psi)**

- 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**

<b>I</b>
Insulation
Multi-Ply Single Ply
<b>Type</b>
<b>HT</b>
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 <sup>®</sup>	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<sup>®</sup> Guarantee Information

Systems
For use in approved JM Peak Advantage Roofing Guarantees

### Codes and Approvals



- FM<sup>®</sup> Standards 4450/4470 Approvals (refer to FM RoofNav<sup>SM</sup>)
- UL<sup>®</sup> 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<sup>™</sup> for Long-Term Thermal Resistance (LTTR) values

Refer to the Safety Data Sheet and product label prior to using this product. The Safety Data Sheet is available by calling (800) 922-5922 or on the Web at [www.jm.com/roofing](http://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 <sup>5</sup> / <sub>8</sub> " (6.67 cm)	Up to 3 <sup>3</sup> / <sub>8</sub> " (8.57 cm)	Up to 4 <sup>3</sup> / <sub>8</sub> " (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 <sup>1</sup>	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 <sup>2</sup>	Grand Prairie, 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.

**Typical Physical Properties**

Test		ASTM	Values
Strength	Tensile Strength	C 209	730 psf (35 kPa) (nom)
	Compressive Resistance 10% Consolidation	D 1621	Grade 2: 20 psi (138 kPa), Grade 3: 25 psi (172 kPa) (min)
	Dimensional Stability Change, (length & width)	D 2126	2% (linear) (max)
Moisture	Moisture Vapor Permeance	E 96	1.5 perm, 85.8 ng/(Pa*s*m²) (max)
	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	20 - 30
	Smoke Developed, (foam core)	E 84	55 - 250

**Product Data and Packaging**

Thickness		Long-Term Thermal Resistance (LTTR) Values <sup>1</sup>		Recycled Content <sup>2</sup> 20 PSI / 25 PSI			Boards per Pallet	Square Feet per Pallet		Pallets per Truck <sup>3</sup>	
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	5.3 / 5.2	31.8 / 29.9	37.1 / 35.1	48	768	1536	48	24
1.1	27.9	6.3	1.10	5.2 / 5.2	30.0 / 28.1	35.3 / 33.3	41	656	1312		
1.2	30.5	6.8	1.20	5.2 / 5.2	28.4 / 26.6	33.6 / 31.76	38	608	1216		
1.25	31.8	7.1	1.25	5.2 / 5.2	27.7 / 25.8	32.9 / 31.0	35	560	1120		
1.3	33.0	7.4	1.30	5.3 / 5.3	27.0 / 25.2	32.3 / 30.4	35	560	1120		
1.4	35.6	8.0	1.41	5.3 / 5.2	25.7 / 23.9	31.0 / 29.2	32	512	1024		
1.5	38.1	8.6	1.51	5.2 / 5.2	24.5 / 22.8	29.8 / 28.0	32	512	1024		
1.6	40.6	9.1	1.61	5.2 / 5.2	23.4 / 21.7	28.7 / 27.0	28	448	896		
1.7	43.2	9.7	1.71	5.2 / 5.2	22.4 / 20.8	27.7 / 26.0	27	432	864		
1.75	44.5	10.0	1.76	5.2 / 5.2	22.0 / 20.4	27.2 / 25.6	27	432	864		
1.8	45.7	10.3	1.81	5.2 / 5.2	21.5 / 19.9	26.7 / 25.1	25	400	800		
1.9	48.3	10.8	1.91	5.2 / 5.2	20.7 / 19.1	25.9 / 24.3	24	384	768		
2.0	50.8	11.4	2.01	5.2 / 5.2	19.9 / 18.4	25.1 / 23.6	24	384	768		
2.1	53.3	12.0	2.11	5.2 / 5.2	19.2 / 17.7	24.4 / 22.9	21	336	672		
2.2	55.9	12.6	2.22	5.2 / 5.2	18.5 / 17.1	23.7 / 22.3	20	320	640		
2.3	58.4	13.2	2.32	5.2 / 5.2	17.9 / 16.5	23.1 / 21.7	20	320	640		
2.4	61.0	13.8	2.43	5.2 / 5.2	17.3 / 16.0	22.5 / 21.1	19	304	608		
2.5	63.5	14.4	2.53	5.2 / 5.2	16.8 / 15.4	22.0 / 20.6	19	304	608		
2.6	66.0	15.0	2.64	5.2 / 5.1	16.3 / 15.0	21.4 / 20.1	18	288	576		
2.7	68.6	15.6	2.74	5.2 / 5.1	15.8 / 14.5	21.0 / 19.7	17	272	544		
2.8	71.1	16.2	2.85	5.2 / 5.1	15.3 / 14.1	20.5 / 19.2	16	256	512		
2.9	73.7	16.8	2.96	5.2 / 5.1	14.9 / 13.7	20.1 / 18.8	16	256	512		
3.0	76.2	17.4	3.06	5.2 / 5.1	14.5 / 13.3	19.7 / 18.4	16	256	512		
3.1	78.7	18.0	3.17	5.1 / 5.1	14.1 / 12.9	19.3 / 18.1	14	224	448		
3.2	81.3	18.6	3.28	5.1 / 5.1	13.8 / 12.6	18.9 / 17.7	14	224	448		
3.25	82.6	18.9	3.33	5.1 / 5.1	13.6 / 12.4	18.7 / 17.6	14	224	448		
3.3	83.8	19.2	3.39	5.1 / 5.1	13.4 / 12.3	18.6 / 17.4	14	224	448		
3.4	86.4	19.9	3.50	5.1 / 5.1	13.1 / 12.0	18.2 / 17.1	13	208	416		
3.5	88.9	20.5	3.61	5.1 / 5.1	12.8 / 11.7	17.9 / 16.8	13	208	416		
3.6	91.4	21.1	3.72	5.1 / 5.1	12.5 / 11.4	17.6 / 16.5	12	192	384		
3.7	94.0	21.7	3.82	5.1 / 5.1	12.2 / 11.1	17.3 / 16.3	12	192	384		
3.75	95.3	22.0	3.88	5.1 / 5.1	12.0 / 11.0	17.2 / 16.1	12	192	384		
3.8	96.5	22.3	3.94	5.1 / 5.1	11.9 / 10.9	17.0 / 16.0	12	192	384		
3.9	99.1	23.0	4.05	5.1 / 5.1	11.7 / 10.7	16.8 / 15.8	12	192	384		
4.0	101.6	23.6	4.16	5.1 / 5.1	11.4 / 10.4	16.5 / 15.5	12	192	384		
4.1	104.0	24.2	4.26	5.1 / 5.1	11.2 / 10.2	16.3 / 15.3	11	176	352		
4.2	107.0	24.8	4.36	5.1 / 5.1	10.9 / 10.0	16.0 / 15.1	11	176	352		
4.3	109.0	25.4	4.47	5.1 / 5.1	10.7 / 9.8	15.8 / 14.9	11	176	352		
4.4	112.0	26.0	4.57	5.1 / 5.1	10.5 / 9.6	15.6 / 14.7	10	160	320		
4.5	114.0	26.6	4.68	5.1 / 5.1	10.3 / 9.4	15.4 / 14.5	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 Safety Data Sheet and product label prior to using this product The Safety Data Sheet is available by calling (800) 922-5922 or on the Web at [www.jm.com/roofing](http://www.jm.com/roofing).



**Building Owner:**

Name  
Address  
City, State Zip

**Building Name:**

Name  
Address  
City, State Zip

**Guarantee Number:** *Sample - not issued*  
**Expiration Date:**

**Approved Roofing Contractor:**

Name  
Address  
City, State Zip

**Date of Completion:**

**Terms & Maximum Monetary Obligation to Maintain a Watertight Roofing System.**

**Years:** \$

**Coverage:**

The components of the Roofing System covered by this Guarantee are:

**Total Squares:**

Section	Sq.	Roof Type	Membrane Spec.	Insulation Type		
				Layer 1	Layer 2	Layer 3

Accessories:	Type	Product Name	Quantity
	Expand-O-Flash (1) Style:		lin. ft.
	Expand-O-Flash (2) Style:		lin. ft.
	Expand-O-Flash (3) Style:		lin. ft.
	Fascia Style:		lin. ft.
	Copings Style:		lin. ft.
	Gravel Stop Style:		lin. ft.
	Drains (1) Style:		ea.
	Drains (2) Style:		ea.
	Vents Style:		ea.

These Johns Manville Guaranteed components are referred to above as the "Roofing System" and ALL OTHER COMPONENTS OF THE OWNER'S BUILDING ARE EXCLUDED FROM THE TERMS OF THIS GUARANTEE, including any amendments thereto.

Johns Manville\* guarantees to the original Building Owner that during the Term commencing with the Date of Completion (as defined above), JM will pay for the materials and labor reasonably required in Johns Manville's sole and absolute discretion to repair the Roofing System to return it to a watertight condition if leaks occur due to: ordinary wear and tear, or deficiencies in any or all of the Johns Manville component materials of the Roofing System, or workmanship deficiencies only to the extent they arise solely out of the application of the Roofing System. Non-leaking blisters are specifically excluded from coverage. Should any investigation or inspection reveal the cause of a reported leak to be outside the scope of coverage under this Guarantee, then all such investigation and inspection costs shall be borne solely by the Building Owner.



#### WHAT TO DO IF YOUR ROOF LEAKS

If you should have a roof leak please refer to directions on the reverse side. Failure by the Building Owner to comply with any of the directions on the reverse side of this document will render the coverage provided under this Guarantee, including any applicable amendments and/or riders, null and void.

#### LIMITATIONS AND EXCLUSIONS

**This Guarantee is not a maintenance agreement or an insurance policy;** therefore, routine inspections and maintenance are the Building Owner's sole responsibility (see reverse side of this document). Failure to follow the Maintenance Program on the reverse side of this document will void the Guarantee in its entirety. This Guarantee does not obligate JM to repair or replace the Roofing System, or any part of the Roofing System, for leaks or appearance issues resulting, in whole or in part, from one or more of the following (a) natural disasters including but not limited to the direct or indirect effect of lightning, flood, hail storm, earthquake, tornados, hurricanes or other extraordinary natural occurrences and/or wind speeds in excess of 55 miles per hour; (b) misuse, abuse, neglect or negligence; (c) installation or material failures other than those involving the component materials expressly defined above as the Roofing System or exposure of the Roofing System components to damaging substances such as oil, fertilizers, or solvents or to damaging conditions such as vermin; (d) any and all (i) changes, alterations, repairs to the Roofing System, including, but not limited to, structures, penetrations, fixtures or utilities (including vegetative and solar overlays) based upon or through the Roofing System as well as any (ii) changes to the Building's usage that are not pre-approved in writing by JM; (e) failure of the Building substrate (mechanical, structural, or otherwise and whether resulting from Building movement, design defects or other causes) or improper drainage; (f) defects in or faulty/improper design, specification construction or engineering of the Building or any area over which the Roofing System is installed; (g) defects in or faulty/improper architectural, engineering or design flaws of the Roofing System or Building, including, but not limited to, design issues arising out of improper climate or building code compliance; or (h) in instances of a recover project, Johns Manville is not responsible for the performance of pre-existing materials that predated the recover. Instead, Johns Manville's sole responsibility in recover systems where JM materials are adhered to existing materials is limited to the installed recover JM Roofing materials up to the wind speed listed herein. Guarantee coverage is limited to replacing recover JM Roofing materials only (and not the pre-existing materials – which is the Owner's responsibility) as required to return the roofing system to a watertight condition due to a claim covered under the terms and conditions herein. Johns Manville is not responsible for leaks, injuries or damages resulting from any water entry from any portion of the Building structure not a part of the Roofing System, including, but not limited to, deterioration of the roofing substrate, walls, mortar joints, HVAC units and all other non-Johns Manville materials and metal components. Moreover, the Building Owner is solely and absolutely responsible for any removal and/or replacement of any overburdens, super-strata or overlays, in any form whatsoever, as reasonably necessary to expose the Roofing System for inspection and/or repair.

This Guarantee becomes effective when (1) it is delivered to Owner; and (2) all bills for installation, materials, and services have been paid in full to the Approved Roofing contractor and to JM. Until that time, this Guarantee is not in force, has no effect – and JM is under no obligation whatsoever to perform any services/work.

The Parties agree that any controversy or claims relating to this Guarantee shall be first submitted to mediation under the Construction Industry Arbitration and Mediation Rules of the American Arbitration Association (Regular Track Procedures) or to such other mediation arrangement as the parties mutually agree. No court or other tribunal shall have jurisdiction until the mediation is completed. In any action or proceeding brought against the Building Owner to enforce this Guarantee or to collect costs due hereunder, Johns Manville shall be entitled to recover its reasonable costs, expenses and fees (including expert witness' fees) incurred in any such action or proceeding, including, without limitation, attorneys' fees and expenses, and the Building Owner shall pay it.

TO THE FULLEST EXTENT PERMITTED BY LAW, JM DISCLAIMS ANY IMPLIED WARRANTY, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND LIMITS SUCH WARRANTY TO THE DURATION AND TO THE EXTENT OF THE EXPRESS WARRANTY CONTAINED IN THIS GUARANTEE.

THE EXCLUSIVE RESPONSIBILITY AND LIABILITY OF JM UNDER THIS GUARANTEE IS TO MAKE REPAIRS NECESSARY TO MAINTAIN THE ROOFING SYSTEM IN A WATERTIGHT CONDITION IN ACCORDANCE WITH THE OBLIGATIONS OF JM UNDER THIS GUARANTEE. JM AND ITS AFFILIATES WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES TO THE BUILDING STRUCTURE (UPON WHICH THE ROOFING SYSTEM IS AFFIXED) OR ITS CONTENTS AND OR OCCUPANTS, LOSS OF TIME OR PROFITS OR ANY INCONVENIENCE, INJURY. JM SHALL NOT BE LIABLE FOR ANY CLAIM MADE AGAINST THE BUILDING OWNER BY ANY THIRD PARTY AND THE BUILDING OWNER SHALL INDEMNIFY AND DEFEND JM AGAINST ANY CLAIM BROUGHT BY ANY THIRD PARTY AGAINST JM RELATING TO OR ARISING OUT OF THE ROOFING SYSTEM OR JM'S OBLIGATIONS UNDER THIS GUARANTEE. JM AND ITS AFFILIATES SHALL NOT BE LIABLE FOR ANY DAMAGES WHICH ARE BASED UPON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY OTHER THAN THE EXCLUSIVE LIABILITY SET FORTH IN THIS GUARANTEE. THIS GUARANTEE DOES NOT COVER, AND EXPLICITLY EXCLUDES, ANY AND ALL INJURIES, CLAIMS AND/OR DAMAGES RESULTING, IN WHOLE OR IN PART, FROM ANY WATER ENTRY FROM ANY PORTION OF THE BUILDING STRUCTURE INCLUDING, BUT NOT LIMITED TO, THE ROOFING SYSTEM.

No one is authorized to change, alter, or modify the provision of this Guarantee other than the Manager, Guarantee Services or authorized delegate. JM's delay or failure in enforcing the terms and conditions contained in this Guarantee shall not operate as a waiver of such terms and conditions. This Guarantee is solely for the benefit of the Building Owner identified above and Building Owner's rights hereunder are not assignable. Upon sale or other transfer of the Building, Building Owner may request transfer of this Guarantee to the new owner, and JM may transfer this Guarantee, in its sole and absolute discretion only after receiving satisfactory information and payment of a transfer fee, which must be paid no later than 30 days after the date of Building ownership transfer.

In the event JM pays for repairs which are required due to the acts or omissions of others, JM shall be subrogated to all rights of recovery of the Building Owner to the extent of the amount of the repairs.

Because JM does not practice Engineering or Architecture, neither the issuance of this Guarantee nor any review of the Building's construction or inspection of roof plans (or the Building's roof deck) by JM representatives shall constitute any warranty by JM of such plans, specifications, and construction or in any way constitute an extension of the terms and conditions of this Guarantee. Any roof inspections are solely for the benefit of JM.

JM does not supervise nor is it responsible for a roofing contractor's work except to the extent stated herein, and roofing contractors are not agents of JM.

\*JOHNS MANVILLE ("JM") is a Delaware corporation with its principal mailing address at P.O. Box 5108, Denver, Colorado 80217-5108.

By: Robert Wamboldt  
Title: Vice President & General Manager  
Roofing Systems Group

Attorney-in-Fact

**Addendum(s)**

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**Riders Here**

SAMPLE

## Maintenance Program

**In order to continue the coverage of this Guarantee, the following Maintenance Program must be implemented and followed:**

1. Building Owner must notify JM Guarantee Services Unit (see below) immediately upon discovery of the leak and in no event later than ten (10) days after initial discovery of the leak, time being of the essence. Failure of the Building Owner to provide timely notice to JM Guarantee Services of any leak is a material ground for termination of the Guarantee.
2. In response to timely notice, JM will arrange to inspect the Roofing System, and
  - (i) If, in JM's sole and absolute opinion, the leak(s) is/are the responsibility of JM under this Guarantee (see Limitations and Exclusions), then JM will take prompt appropriate action to return the Roofing system to a watertight condition, or
  - (ii) If, in JM's sole and absolute opinion, the leak(s) is/are not the responsibility of JM under this Guarantee, then JM will advise the Building Owner within a reasonable time of the minimum repairs that JM believes are required to return the Roofing System to a watertight condition. If the Building Owner, at his expense, promptly and timely makes such repairs to the Roofing System (time being of the essence) then this Guarantee will remain in effect for the unexpired portion of its Term. Failure to make any of these repairs in a timely and reasonable fashion will void any further obligation of JM under this Guarantee as to the damaged portion of the Roofing System as well as any other areas of the Roofing System impacted by such failure.
3. In the event an emergency condition exists which requires immediate repair to avoid damage to the Building, its contents or occupants, then Building Owner may make reasonable, essential temporary repairs. JM will reimburse Building Owner for those reasonable repair expenses only to the extent such expenses would have been the responsibility of JM under the Guarantee.

There are a number of items not covered by this Guarantee that are the sole, exclusive responsibility of the Building Owner. In order to ensure that your new roof will continue to perform its function and to continue JM's obligations under the Guarantee, you must examine and maintain these items on a regular basis:

- Maintain a file for your records on this Roofing System, including, but not limited to, this Guarantee, invoices, and subsequent logs of all inspections performed and repairs that are made to the Roofing System.
- Inspect your Roofing System at least semi-annually. This is best done in the spring, after the Roofing System has been exposed to the harsh winter conditions, and, in the Fall after a long hot summer. It is also a good idea to examine the Roofing System for damage after severe weather conditions such as hailstorms, heavy rains, high winds, etc.
- Since these types of Roofing Systems typically have a low slope, they are easily examined. However, care must be taken to prevent falling and other accidents. JM expressly disclaims and assumes no liability for any inspections performed on the Roofing System.

### **When checking the Roofing System:**

- Remove any debris such as leaves, small branches, dirt, rocks, etc. that have accumulated.
- Clean gutters, down spouts, drains and the surrounding areas. Make certain they allow water to flow off the Roofing System. Positive drainage is essential.
- Examine all metal flashings and valleys for rust and damage that may have been caused by wind or traffic on the Roofing System, and make certain they are well attached and sealed. Any damaged, loose, or poorly sealed materials must be repaired by a JM Approved Roofing Contractor only.
- Examine the areas that abut the Roofing System. Damaged masonry, poorly mounted counter flashing, loose caulking, bad mortar joints, and any loose stone or tile coping can appear to be a membrane leak. Have these items repaired by a JM Approved Roofing Contractor if found to be defective.
- Examine the edges of the Roofing System. Wind damage often occurs in these areas. Materials that have been lifted by the wind need to be corrected by a JM Approved Roofing Contractor.
- Examine any roof top equipment such as air conditioners, evaporative coolers, antennas, etc. Make certain they do not move excessively or cause a roof problem by leaking materials onto the Roofing System.
- Check the building exterior for settlement or movement. Structural movement can cause cracks and other problems which in turn may lead to leaks in your Roofing System.
- Examine protective coatings; any cracked, flaking, or blistered areas must be recoated.

### **Protecting your investment:**

- Avoid unnecessary roof top traffic.
- If you allow equipment servicemen to go onto the Roofing System, advise them to be careful. Dropped tools, heavy equipment, etc. can damage the membrane. Log all such trips to the Roofing System.
- Do not allow service personnel to make penetrations into the Roofing System; these are to be made only by a JM Approved Roofing Contractor.

All the terms and conditions of this Guarantee shall be construed under the internal law of the state of Colorado without regard to its conflicts of law principles. Invalidity or unenforceability of any provisions herein shall not affect the validity or enforceability of any other provision which shall remain in full force and effect to the extent the main intent of the document is preserved.

This form is not to be copied or reproduced in any manner. This Guarantee is valid only in the United States of America.

**Guarantee Services**  
(800) 922-5922  
E-mail: [gsu@jm.com](mailto:gsu@jm.com)  
[www.jm.com/roofing](http://www.jm.com/roofing)

**Mailing Address:**  
Johns Manville  
Guarantee Services  
P.O. Box 625001  
Littleton, CO 80162-5001

**Shipping Address:**  
Johns Manville  
Guarantee Services  
10100 West Ute Avenue  
Littleton, CO 80127

### Meets the requirements of ASTM D 4434, Type III

#### Features and Components

**Advanced Solid Phase Polymer Formulation:** Using the optimal amount of DuPont™ Elvaloy® KEE (Ketone Ethylene Ester) polymer to: ensure plasticizer retention, extend roof life (*exceeded 40,000 hours of accelerated weathering testing - ASTM G 154 requires 5,000 hours*), and to reduce maintenance costs.

**Patented Aramid-Reinforced Edge:** Aramid fiber is woven into the fastening side of PVC membrane.

**Spunbond 3.8 oz. Polyester Fleece Back Mat:** Interlocking, multiple-layer, uniformly arranged continuous filament strands are needle punched with thousands of barbed needles, creating an extremely durable, strong yet light and flexible protection layer.

**Non-wicking Reinforced Polyester Scrim:** Our fully integrated manufacturing process adds tensile strength and toughness. Due to the non-wicking edge sealant is not required.

**Excellent Chemical Resistance:** JM PVC is inherently resistant to oils, air conditioning coolants, fuels and grease.

**Energy Savings:** The White, Grey ES and Sandstone ES provide exceptional reflectivity and emissivity for energy savings.



Component

**M**  
Membrane

Single Ply

Type

**FB**  
Fleece Back

#### Colors\*

Grey	Grey ES	Sandstone	Sandstone ES
White	Charcoal		

\*All colors and MIN membranes not available as standard stocked items in all size configurations. Please call for minimums and lead times.

#### 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	HW	HA	CA	HW	SA	MF	

Compatible with the selected Multi-Ply systems above

Single Ply	TPO				PVC			EPDM		
	MF	AD	SA	IW	MF	AD	IW	MF	AD	BA

Compatible with the selected Single Ply systems above

Key: HA = Hot Applied CA = Cold Applied HW = Heat Weldable SA = Self Adhered MF = Mechanically Fastened IW = Induction Weld BA = Ballasted AD = Adhered

\*Can be used as a cap sheet in BUR and SBS systems when adhered using hot asphalt.

#### Energy and the Environment

Standard		Reflectivity	Emissivity
CRRCC®	White	Initial	0.86
		3 Yr. Aged	0.70
	Sandstone ES	Initial	0.73
		3 Yr. Aged	0.58
	Grey ES	Initial	0.67
		3 Yr. Aged	0.54
CA Title 24	White	Pass	0.86
ENERGY STAR®	White	Initial	0.86
		3 Yr. Aged	0.70
	Sandstone ES	Initial	0.73
		3 Yr. Aged	0.58
	Grey ES	Initial	0.67
		3 Yr. Aged	0.54
LEED® (SRI)	White	Initial	108
		3 Yr. Aged	84
	Sandstone ES	Initial	89
		3 Yr. Aged	67
	Grey ES	Initial	80
		3 Yr. Aged	61
Recycled Content	Post-consumer	0%	
	Post-industrial	0% - 10%	

The LEED® Solar Reflectance Index (SRI) is calculated per ASTM E1980.

#### Peak Advantage® Guarantee Information

Product	Terms
When used in most JM PVC Systems*	Up to 25 years

\*Contact JM Technical Services for specific systems.

#### Codes and Approvals



#### Installation/Application



Refer to JM PVC application guides and detail drawings for instructions.

Hot asphalt application with 12' FB requires two hot installers to ensure the asphalt stays warm enough to receive the fleece.

#### Packaging and Dimensions

Sizes	Coverage	
6.33' x 90' (1.93 m x 27.43 m)	569.7 ft² (52.93 m²)	
12' x 90' (3.66 m x 27.43 m)	1080 ft² (100.34 m²)	
Widths	6.33'	12'
Rolls per Pallet	10	7
Pallet Weight - lb (kg)		
60 mil	2400 (1088.6)	3178 (1441.5)
60 mil min	2620 (1188.4)	3178 (1441.5)
Pallets per Truck*	14	6
Producing Locations	Pawtucket, RI and Lancaster, SC	

\*Assumes 48' flatbed truck and does not reflect pallets of accessories or impact of mixed sizes.

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



# JM PVC FB - 60 mil / 60 mil MIN

Fleece Backed Thermoplastic Polyvinyl Chloride Membrane

Meets the requirements of ASTM D 4434, Type III

## Tested Physical Properties

Physical Properties		ASTM Test Method	ASTM Requirements	JM PVC FB – 60 mil
Strength	Breaking Strength, min, lb/in. (N)	D 751	200 (890)	457 (2,033)
	Elongation at Break, min %	D 751	15	33
	Tearing Strength, min, lbf/in. (N)	D 751	45 (200)	86.3 (384)
	Seam Strength, min, % of breaking strength	D 751	75	90
	Static Puncture Resistance, lbf (kg)	D 5602	Pass @ 33 (15)	Pass
	Dynamic Puncture Resistance, J	D 5635	Pass @ 20	Pass
Longevity	Thickness, min, in.	D 751	+/- 10% from Nominal	0.060 (Nominal)
	Thickness Over Scrim, min, in.	D 7635	0.016	0.030
	Water Absorption, max, %	D 570 modified	3.0	0.41
	Low Temperature Bend, °F	D 2136	No Cracks @ -40°F	Pass
Heat Aged Performance	Properties after Heat Aging, min	D 3045	56 days @ 176°F	
	Breaking Strength, % (after aging)	D 751	90	90
	Elongation, % (after aging)	D 751	90	92
	Linear Dimensional Change, max, % (after 6 hrs @ 176°F)	D 1204	0.5	0.1
Weather Performance	Accelerated Weathering, min	G 151 & G 154	5,000 hrs	
	Cracking (@ 7x magnification)	G 154	No Cracks	Pass @ >40,000 hrs
	Discoloration (by observation)	G 154	Negligible	Negligible
	Crazing (@ 7x magnification)	G 154	No Crazing	Pass @ >40,000 hrs
	Moisture Vapor Transmission	ASTM E 96, Proc B, Method A		0.02 g/m <sup>2</sup> per 24 hrs

Note: 60 mil MIN products offer a tighter thickness tolerance and will be manufactured no less than 60 mil.

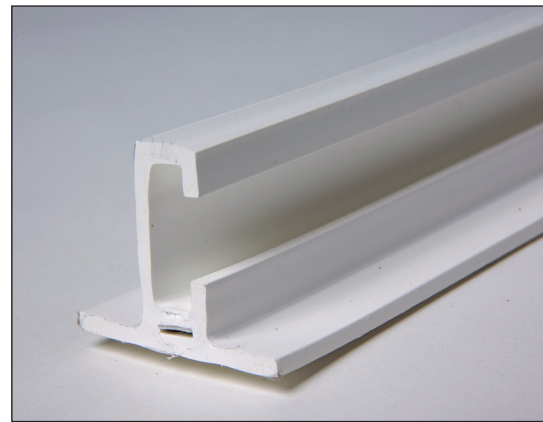
## Features and Components

**Use:** Used as a decorative rib to simulate the aesthetics of a standing seam metal roof. This accessory is for use on fully adhered JM PVC and JM PVC SD Plus roofing systems with 60 mil or greater membranes.

**Materials:** UV-resistant PVC (polyvinyl chloride) and an Elvaloy®\* KEE (ketone ethylene ester). Preformed, non-reinforced, extruded, and heat-weldable.

**Colors:** White; Sandstone; and Grey

\* Elvaloy is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.



**Component**

**A**  
Accessory

Single Ply

**Type**

**MS**  
Membrane Seaming

**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	MF
<b>Do not use in Multi-Ply systems</b>									

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

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

## Peak Advantage® Guarantee Information

Systems
Approved for use in any JM Peak Advantage Guarantee System

## Installation/Application



Hot Air Weld

- Do not install in direct contact with asphalt or coal tar pitch.
- Refer to the JM PVC applicator guides or detail drawings for instructions.

## Packaging and Dimensions

Profile Size	1½" w x 1¼" h x 10' (38 mm x 32 mm x 3.05 m)
Profile Weight	2.94 lb (1.33 kg) per rib
Spine Size	¼" w x 1⅜" h x 7' (6.35 mm x 21 mm x 2.13 m) perforated every 6" (15.24 cm)
Items per Box	24 – 10' (3.05 m) Profiles and one (1) piece of 7' (2.13 m) connector perforated every 6" (15.24 cm) Profile Spine (connector) – 14 per box
Coverage per Box	240 lin ft (73.2 lin m)
Weight per Box	80 lb (36.3 kg)

## Spine Only Box

Spine Size	¼" w x 1⅜" h x 6' l (6.35 mm x 21 mm x 2.13 m)
Spine Weight	0.04 lb (0.02 kg)
Items per Box	24 - 6" Spines
Weight per Box	2.5 lb (1.13 kg)

## Storage

Storage Conditions	Keep dry and clean prior to installation. Store flat, not on end, protected from warping, bending or contamination.
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