



# Product Evaluation

RC473 | 0116

Engineering Services Program

*The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).*

*This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.*

*This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.*

*For more information, contact TDI Engineering Services Program at (800) 248-6032.*

**Evaluation ID:** RC-473

**Effective Date:** January 1, 2016

**Re-evaluation Date:** December 2019

**Product Name:** Johns Manville Modified Bitumen Roofing Systems

**Manufacturer:** Johns Manville Corporation  
P.O. Box 5108  
Denver, CO 80217  
(303)978-2478

## Product Description:

### Cap Sheets:

Products	Description
DynaGlas	A glass reinforced SBS modified bitumen membrane surfaced with granules
DynaGlas 30 FR	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules
DynaGlas FR	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules
DynaGlas FR CR	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating.
DynaGlas FR CR G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with reflective granules.
DynaGlas FR XT	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules.
DynaKap FR T1	A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with granules.

**Cap Sheets (cont.):**

<b>Products</b>	<b>Description</b>
DynaKap FR T1 CR G	A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with reflective granules.
DynaKap FR T1 HW CR G	A fire resistant composite reinforced SBS modified bitumen membrane surfaced with reflective granules with heat welding burn off film.
DynaKap T1	A composite reinforced SBS modified bitumen membrane surfaced with granules.
DynaLastic 180	A polyester reinforced SBS modified bitumen membrane surfaced with granules.
DynaLastic 180 FR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules.
DynaLastic 180 FR CR G	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with reflective granules.
DynaLastic 180 FR CR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating.
DynaLastic 250 FR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules
DynaLastic 250 FR CR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating.
DynaLastic 250 FR CR G	A fire resistant, polyester reinforced SBS modified Bitumen membrane surfaced with reflective granules.
DynaMax FR	A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with granules.
DynaWeld Cap 180 FR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaWeld Cap 180 FR CR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating for use in heat weld applications.
DynaWeld Cap 250	A polyester reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaWeld Cap 250 FR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaWeld Cap 250 FR CR	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating for use in heat weld applications.
DynaWeld Cap 250 FR CR G	A fire resistant, polyester reinforced SBS modified bitumen surfaced with reflective granules with heat welding burn off film.
DynaWeld Cap FR	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaWeld Cap FR CR	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating for use in heat weld applications.
DynaWeld Cap FR CR G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with reflective granules.
GlasKap	A mineral surfaced, asphalt coated, fiberglass cap sheet.
GlasKap CR	A white mineral surfaced white acrylic coated, fiberglass cap sheet.

**Ply and Base Sheets:**

<b>Products</b>	<b>Description</b>
DynaBase	A glass reinforced SBS modified bitumen base sheet.
DynaBase HW	A glass reinforced SBS modified bitumen base sheet for heat welded applications.
DynaBase PR	A polyester reinforced SBS modified bitumen base sheet.
DynaBase XT	A glass reinforced SBS modified bitumen base or inner ply sheet.
DynaFast 180 HW	A polyester reinforced SBS modified bitumen base or inner ply sheet for use in heat weld applications.
DynaFast 180S	A polyester reinforced SBS modified bitumen base or inner ply sheet.
DynaFast 250 HW	A polyester reinforced SBS modified base or inner ply sheet for use in heat weld applications.
DynaLastic 180S	A polyester reinforced SBS modified bitumen base or inner ply sheet.
DynaLastic 250S	A polyester reinforced SBS modified bitumen base sheet or inner ply sheet.
DynaMax S	A composite reinforced SBS modified bitumen base sheet or inner ply sheet.
DynaPly T1	A composite reinforced SBS modified bitumen base sheet or inner ply sheet.
DynaWeld 180 S	A polyester reinforced SBS modified base or inner ply sheet for use in heat weld applications.
DynaWeld 250S	A polyester reinforced SBS modified base or inner ply sheet for use in heat weld applications.
DynaWeld Base	A glass reinforced SBS modified base sheet for heat welded applications.
GlasBase Plus	Type II asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built up roofing.
GlasPly IV	Type IV asphalt impregnated glass felt for use in conventional and modified bitumen built-up roofing.
GlasPly Premier	Type VI asphalt impregnated glass felt for use in conventional and modified bitumen built-up roofing.
PermaPly 28	Type II Asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built-up roofing.
Ventsulation Felt	Heavy duty fiber glass base sheet impregnated and coated on both sides with asphalt with or without fine mineral stabilizer. Surfaced on the bottom side with coarse mineral granules embedded in asphaltic coating.

**Insulation and Cover Boards:**

<b>Products</b>	<b>Description</b>
DensDeck	Fiberglass faced gypsum coverboard; Manufactured by G-P Gypsum, LLC
DensDeck Prime	Coated-fiberglass faced gypsum coverboard; Manufactured by G-P Gypsum, LLC
ENERGY 3 and tapered	Polyisocyanurate foam insulation board with fiberglass reinforced organic facer
JM ENRGY 3 AGF and tapered	Polyisocyanurate foam insulation board with fiberglass facer
JM ENRGY 3 CGF and tapered	Polyisocyanurate foam insulation board with coated-fiberglass facer
JM ENRGY 3 FR and tapered	Polyisocyanurate foam insulation board with fiberglass facer
JM Invinsa Roof Board	High-density polyisocyanurate foam cover board with coated-fiberglass facer
JM Invinsa FR Roof Board	High-density polyisocyanurate foam cover board with coated-fiberglass facer
JM DuraBoard	High-density perlite insulation board
JM Retro-Fit Board	High-density perlite insulation board
JM RetroPlus Roof Board	High-density perlite insulation board
JM SECUROCK Gypsum-Fiber Roof Board	Fiber-reinforced gypsum coverboard; Manufactured by US Gypsum
JM SECUROCK Glass-Mat Roof Board	Fiberglass faced gypsum coverboard; Manufactured by US Gypsum
JM DuraFoam	High-density perlite insulation laminated to polyisocyanurate foam insulation board
JM FescoFoam	Perlite insulation laminated to polyisocyanurate foam insulation board
JM Fesco Board	Perlite insulation board

**Membrane Adhesives:**

<b>Product</b>	<b>Description</b>
MBR Bonding Adhesive	Two component urethane cold application adhesive
MBR Cold Application Adhesive	One part, elastomeric cold application adhesive
JM Two-Part Urethane Insulation Adhesive	Two component urethane foam adhesive

**Fastening Components:**

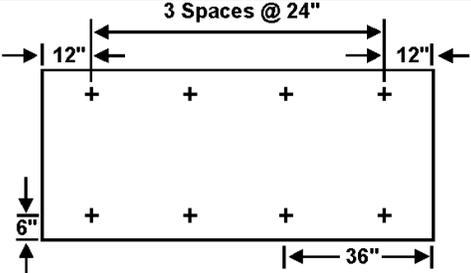
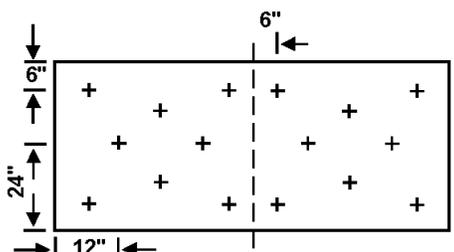
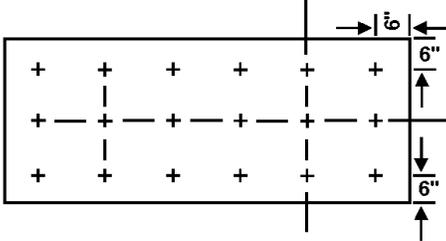
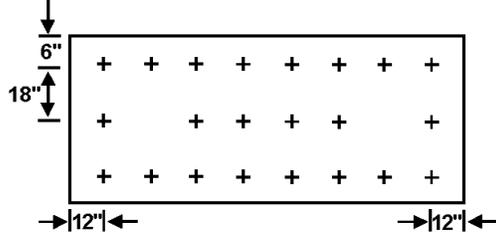
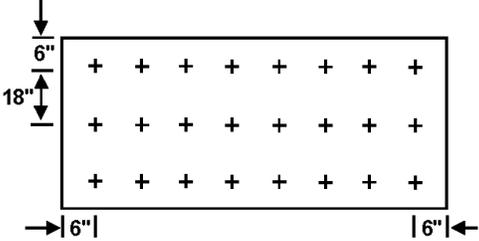
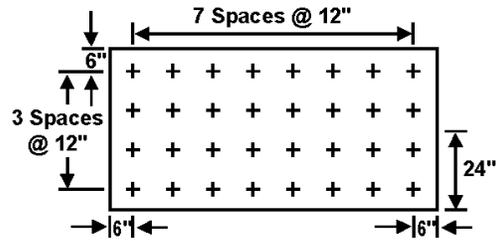
<b>Products</b>	<b>Description</b>
JM All Purpose Fastener	#14 fastener for wood, steel, and concrete decks
JM APB Plates	2" diameter galvalume steel plate with eyehooks
JM High Load Plates	2-3/8" diameter galvalume steel plate with eyehooks
JM High Load Fastener	#15 fastener for steel or wood decks
JM High Load LH Fastener	Large head #15 fastener for steel or wood decks
JM Lightweight Concrete (LWC) CR Base Fastener	Minimum 1.7" shank; Pre-Assembled with 2.7" galvalume coated steel plate
JM UltraFast Fastener	#12 fastener for steel or wood decks
JM UltraFast 3" Round Metal Plate	3" diameter round galvalume steel plate
JM UltraFast Square Recessed Metal Plate	3" square galvalume steel plate
JM UltraLok	1.8" shank with 2.7" diameter integrated plate

**General Installation Requirements:**

- All IRC and IBC requirements must be satisfied and manufacturer's installation instructions followed, unless otherwise specified by this product evaluation.
- The roof must have a minimum slope of 1/4 : 12.

**Insulation and Cover Board Fastening:**

Insulation and cover boards shall be fastened using JM UltraFast Fasteners in steel or wood roof decks and JM All Purpose Fasteners in concrete roof decks with either the JM UltraFast 3" Round Metal Plate or the JM UltraFast Square Recessed Metal Plate.

Insulation/Cover Board Fastening Patterns	
 <p><i>8 per 4-ft x 8-ft board</i> (Max. 4.0-ft<sup>2</sup> contributory area per fastener)</p>	 <p><i>16 per 4-ft x 8-ft board</i> (Max. 2.0-ft<sup>2</sup> contributory area per fastener)</p>
 <p><i>18 per 4-ft x 8-ft board</i> (Max. 1.78-ft<sup>2</sup> contributory area per fastener)</p>	 <p><i>22 per 4-ft x 8-ft board</i> (Max. 1.45-ft<sup>2</sup> contributory area per fastener)</p>
 <p><i>24 per 4-ft x 8-ft board</i> (Max. 1.33-ft<sup>2</sup> contributory area per fastener)</p>	 <p><i>32 per 4-ft x 8-ft board</i> (Max. 1.0-ft<sup>2</sup> contributory area per fastener)</p>

**Insulation and Cover Board Attachment with Adhesives:**

JM Two-Part Urethane Adhesive shall be applied in 3/4" to 1" wide, continuous beads spaced 12" on center.

**Ply and Base Sheet Attachment:**

Hot asphalt must be applied at a rate of 25-30 gal/sf. MBR Bonding adhesive and MBR Cold Application Adhesive must be applied at a rate of 1.5-2.0 gal/sf.

Products	Mechanically Fastened	Hot Asphalt	MBR Bonding Adhesive	MBR Cold Application Adhesive	Torch Adhered
DynaBase	Y	Y	Y	Y	N
DynaBase HW	Y	N	N	N	Y
DynaBase PR	Y	Y	Y	Y	N
DynaBase XT	Y	Y	Y	Y	N
DynaFast 180 HW	Y	N	N	N	Y
DynaFast 180 S	Y	Y	Y	Y	N
DynaFast 250 HW	Y	N	N	N	Y
DynaLastic 180 S	Y	Y	Y	Y	N
DynaLastic 250S	Y	Y	Y	Y	N
DynaMax S	Y	Y	Y	Y	N
DynaWeld 180S	Y	N	N	N	Y
DynaWeld 250 S	Y	N	N	N	Y
DynaWeld Base	Y	N	N	N	Y
GlasBase Plus	Y	Y	Y	Y	N
GlasPly IV	N	Y	N	N	N
GlasPly Premier	N	Y	N	N	N
PermaPly 28	Y	Y	Y	Y	N
Ventsulation Felt	Y	Y	N	N	N

**Cap Sheet Attachment:**

Hot asphalt must be applied at a rate of 25-30 gal/sf. MBR Bonding adhesive and MBR Cold Application Adhesive must be applied at a rate of 1.5-2 gal/sf.

Products	Hot Asphalt	MBR Bonding Adhesive	MBR Cold Application Adhesive	Torch Adhered
DynaGlas	Y	Y	Y	N
DynaGlas 30 PR	Y	Y	Y	N
DynaGlas FR	Y	Y	Y	N
DybaGlas FR CR	Y	Y	Y	N
DynaGlas FR CR G	Y	Y	Y	N
DynaGlas FR XT	Y	Y	Y	N
DynaGlas FR CR T1	Y	Y	Y	N
DynaKap FR T1	Y	Y	Y	N
DynaKap FR T1 CR G	Y	Y	Y	N
DynaKap FR T1 HW CR G	N	N	N	Y
DynaKap T1	Y	Y	Y	N
DynaLastic 180	Y	Y	Y	N
DynaLastic 180 FR	Y	Y	Y	N
DynaLastic 180 FR CR	Y	Y	Y	N

**Cap Sheet Attachment (cont.):**

Hot asphalt must be applied at a rate of 25-30 gal/sf. MBR Bonding adhesive and MBR Cold Application Adhesive must be applied at a rate of 1.5-2 gal/sf.

Products	Hot Asphalt	MBR Bonding Adhesive	MBR Cold Application Adhesive	Torch Adhered
DynaLastic 180 FR CR G	Y	Y	Y	N
DynaLastic 250 FR	Y	Y	Y	N
DynaLastic 250 FR CR	Y	Y	Y	N
DynaLastic 250 FR CR G	Y	Y	Y	N
DynaMax FR	Y	Y	Y	N
DynaPly T1	Y	Y	Y	N
DynaWeld Cap 180 FR	N	N	N	Y
DynaWeld Cap 180 FR CR	N	N	N	Y
DynaWeld Cap 250	N	N	N	Y
DynaWeld Cap 250 FR	N	N	N	Y
DynaWeld Cap 250 FR CR	N	N	N	Y
DynaWeld Cap 250 FR CR G	N	N	N	Y
DynaWeld Cap FR	N	N	N	Y
DynaWeld Cap FR CR G	N	N	N	Y
DynaWeld Cap FR CR	N	N	N	Y
GlasKap	Y	Y	Y	N
GlasKap CR	Y	N	N	N

**Roof Deck:**

Concrete: Minimum  $f'_c = 2,500$  psi at 28 days

Steel: Minimum 22 gauge, Grade 33, Type B steel deck. The flutes must be 0.5% vented when used with cellular lightweight concrete.

Wood: Minimum 15/32" thick APA rated plywood deck, or wood plank.

**Limitations and Installation:**

<b>Table 1: WIND UPLIFT RESISTANCE</b>									
<b>Adhered Membranes over Fastened Insulation</b>									
<b>System No.</b>	<b>Deck</b>	<b>Base Insulation</b>	<b>Base Insulation Attachment</b>	<b>Top Insulation</b>	<b>Top Insulation Attachment</b>	<b>Base Ply</b>	<b>Ply Sheet</b>	<b>Cap Sheet</b>	<b>Design Pressure (psf)</b>
1-A	Steel or Concrete	Minimum 1-1/2" ENRGY 3	8 per 4' x 8' board or 1 fastener per 4 sf.	Retro-Fit or RetroPlus	Adhered in hot asphalt applied at a rate of 25-30 gal/100 sf	Hot asphalt or MBR Bonding Adhesive ply	Optional Hot asphalt or MBR Bonding Adhesive ply	Hot asphalt or MBR Bonding Adhesive cap	-45
1-B	Steel or concrete	Minimum 1-1/2" ENRGY 3	18 per 4' x 8' board or 1 fastener per 1.78 sf.	Retro-Fit or RetroPlus	Adhered in hot asphalt applied at a rate of 25-30 gals/100 sf	Hot asphalt or MBR Bonding Adhesive ply	Optional Hot asphalt or MBR Bonding Adhesive ply	Hot asphalt or MBR Bonding Adhesive cap	-60
1-C	Steel or concrete	Minimum 2" ENRGY 3	22 per 4' x 8' board or 1 fastener per 1.45 sf.	Retro-Fit or RetroPlus	Adhered in hot asphalt applied at a rate of 25-30 gals/100 sf	Hot asphalt or MBR Bonding Adhesive ply	Optional Hot asphalt or MBR Bonding Adhesive ply	Hot asphalt or MBR Bonding Adhesive cap	-75
1-D	Steel or concrete	Minimum 1-1/2" ENRGY 3	Loose laid	SECUROCK Gypsum-Fiber	22 per 4' x 8' board or 1 fastener per 1.45 sf.	MBR Cold Application Adhesive	Optional MBR Cold Application Adhesive	MBR Cold Application Adhesive	-82.5
1-E	Steel or concrete	Minimum 1-1/2" ENRGY 3	32 per 4' x 8' board or 1 fastener per 1 sf.	SECUROCK Gypsum-Fiber	Adhered in two component Urethane Insulation adhesive spaced 4'-0" o.c.	MBR Cold Application Adhesive	Optional MBR Cold Application Adhesive	MBR Cold Application Adhesive	-90

**Limitations and Installation (cont.):**

<b>Table 2: WIND UPLIFT RESISTANCE</b> <b>Mechanically Fastened Membranes over Insulation</b>								
System No.	Deck	Base Insulation	Top Insulation	Base Sheet	Base Sheet Attachment	Ply Sheet	Cap Sheet	Design Pressure (psf)
2-A	Steel or concrete	Celcore MF Lightweight Insulating Concrete	None	DynaBase PR	Fastened into the lightweight concrete with UltraLok fastener spaced 6" o.c. within the 3" wide, heat welded side laps	Optional Torch applied ply	Torch adhered cap	-45
2-B	Steel or concrete	Celcore MF Lightweight Insulating Concrete	None	Dynaweld Base	Fastened into the lightweight concrete with LWC CR Base Sheet Fasteners 7" o.c. in two equally spaced staggered rows	Optional Torch applied ply	Torch adhered cap	-45
2-C	Steel or concrete	Cellular Lightweight Insulating concrete	None	PermaPly 28	Fastened into the lightweight concrete with LWC CR Base Sheet Fasteners spaced 9" o.c. at the 4" wide side laps and 9" o.c. in three equally spaced staggered rows	Hot asphalt, MBR Cold Application Adhesive, MBR Bonding adhesive, or Torch adhered ply	Hot asphalt, MBR Cold Application Adhesive, MBR Bonding adhesive, or Torch adhered cap	-60

**Limitations and Installation (cont.):**

<b>Table 2: WIND UPLIFT RESISTANCE</b> <b>Mechanically Fastened Membranes over Insulation</b>								
System No.	Deck	Base Insulation	Top Insulation	Base Sheet	Base Sheet Attachment	Ply Sheet	Cap Sheet	Design Pressure (psf)
2-D	Wood	Min. 1-1/2" ENRGY 3	Optional	DynaFast 180 HW	Fastened 9" o.c. within the 4" wide, heat welded side laps with APB Plates and High Load Fasteners	Optional Torch applied ply	Torch adhered cap	-60
2-E	Steel or concrete	Min. 1-1/2" ENRGY 3	Optional	DynaLastic 180 S	Fastened 12" o.c. within the 4" wide, heat welded side laps with APB Plates and High Load Fasteners (steel) or All Purpose Fasteners (concrete)	Optional Torch applied ply	Torch adhered cap	-67.5
2-F	Steel or concrete	Min. 1-1/2" ENRGY 3	Optional	DynaLastic 180 S	Fastened 6" o.c. within the 4" wide, heat welded side laps with High Load Plates and High Load Fasteners (steel) or All Purpose Fasteners (concrete)	Optional Torch applied ply	Torch adhered cap	-112.5

**Limitations and Installation (cont.):**

Table 3: WIND UPLIFT RESISTANCE Adhered Systems									
System No.	Deck	Base Insulation	Base Insulation Attachment	Top Insulation	Top Insulation Attachment	Base Ply	Ply Sheet	Cap Sheet	Design Pressure (psf)
3-A	Concrete <sup>1</sup>	Min. 1-1/2" ENRGY 3	Adhered in hot asphalt applied at rate of 25-30 gal/100 sf	RetroPlus	Adhered in hot asphalt applied at rate of 25-30 gal/100 sf	Hot asphalt, MBR Cold Application Adhesive, or MBR Bonding Adhesive ply	Optional Hot asphalt, MBR Cold Application Adhesive, or MBR Bonding adhesive ply	Hot Asphalt, MBR Cold Application Adhesive, or MBR Bonding adhesive cap	-75
3-B	Concrete <sup>1</sup>	Min. 1-1/2" ENRGY 3	Adhered in hot asphalt applied at rate of 25-30 gal/100 sf	Retro-Fit	Adhered in hot asphalt applied at rate of 25-30 gal/100 sf	Hot asphalt or MBR Bonding adhesive ply	Optional Hot asphalt or MBR Bonding adhesive ply	Hot asphalt or MBR bonding adhesive cap	-150

Notes: 1) Prime deck with JM concrete primer at a rate of 1 gal/100 sf.

**Note:** Keep the manufacturer’s installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.