



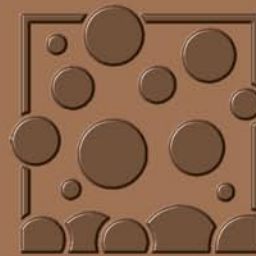
Defy the Elements



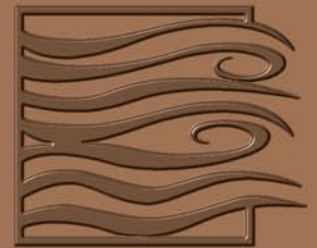
W A T E R



F I R E



H A I L



W I N D

Invinsa[®] Roof Board

Application Instructions and Code Approvals

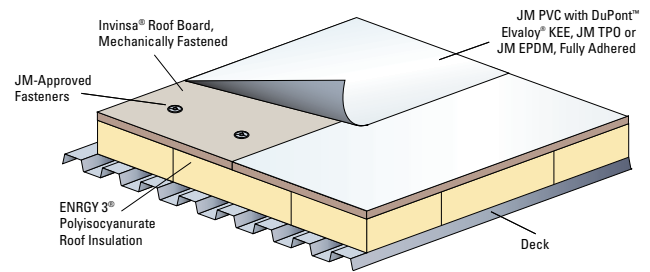
A Valuable Component to Your Roof System

The addition of Invinsa® Roof Board to a single ply or SBS roof system increases the roof's resistance to damage from various sources, including but not limited to hail, foot traffic, construction loads and normal roof maintenance. Invinsa is engineered as an integral part of the roof system, providing a protective layer for the insulation below and working with the membrane above to improve performance. Invinsa may be specified for new, re-roof and re-cover applications.

Product Advantages

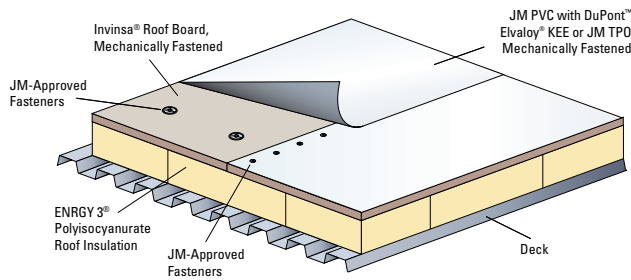
- High resistance to indentation, compression and crushing during installation of the roof system and during periodic maintenance, once the roof is completed
- Rigidity to support the roof membrane
- Increased resistance to moisture absorption
- Dimensional stability
- Compatibility with PVC, TPO, EPDM and SBS roofing systems
- UL®, FM Global® and other important building agency approvals

Single Ply Fully Adhered Systems



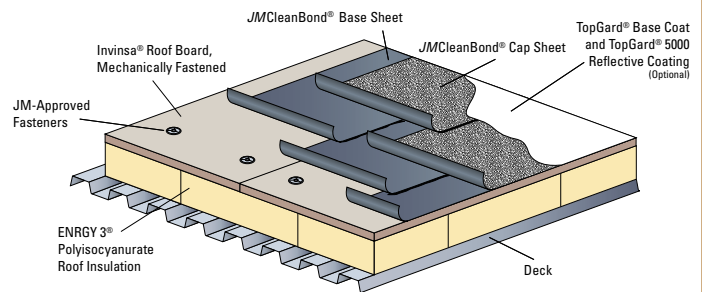
New Construction and Re-Roof

Single Ply Mechanically Fastened Systems



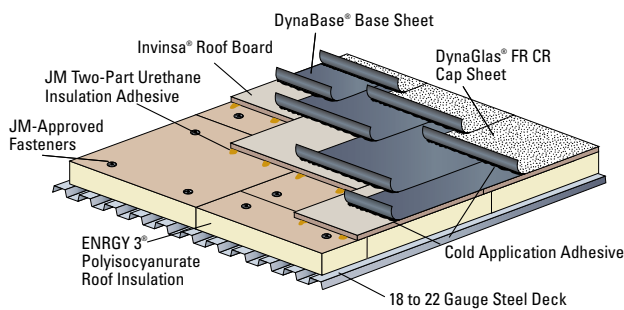
New Construction and Re-Roof

SBS Self-Adhering Base Ply Systems



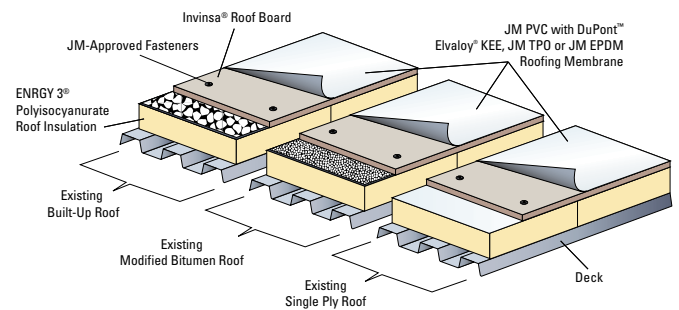
New Construction and Re-Roof

SBS Cold Adhesive Applied



New Construction and Re-Roof

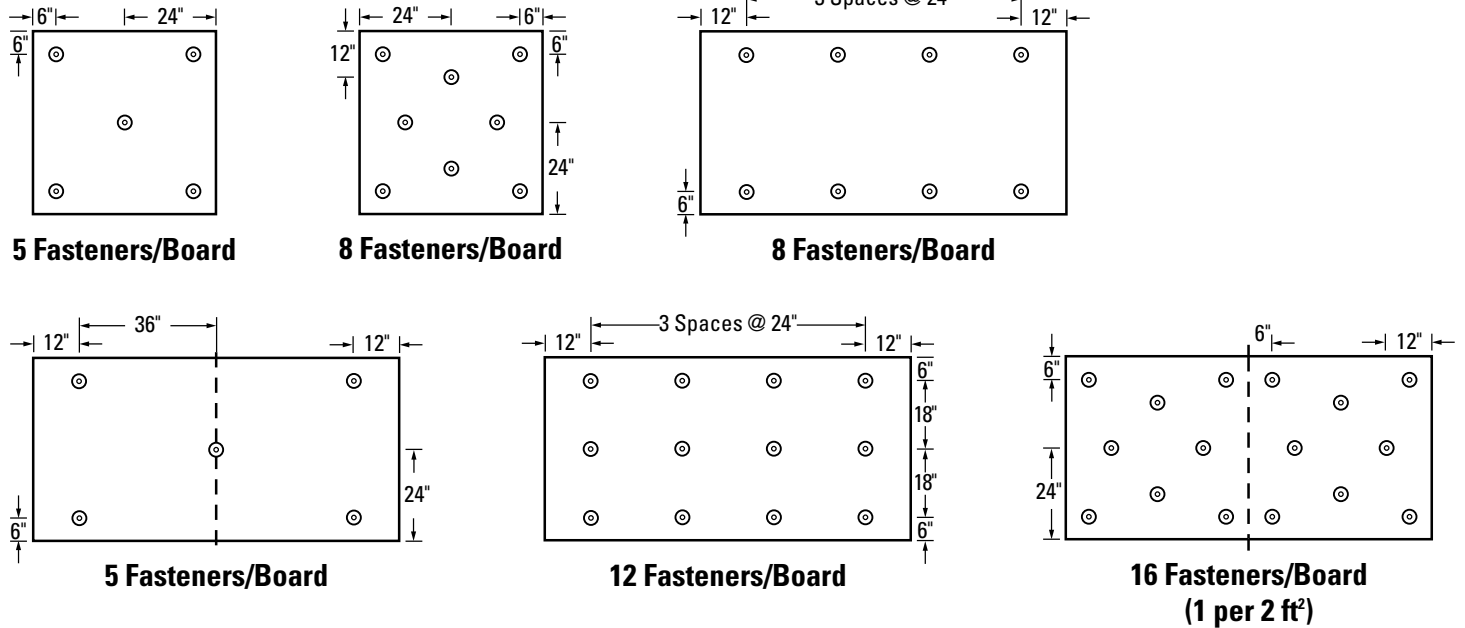
Various Roof Systems



Re-Cover

In fully adhered, mechanically fastened and self-adhering SBS systems, Invinsa Roof Board protects the insulation and works with the membrane to enhance the total system properties.

Patterns for Mechanical Fastening

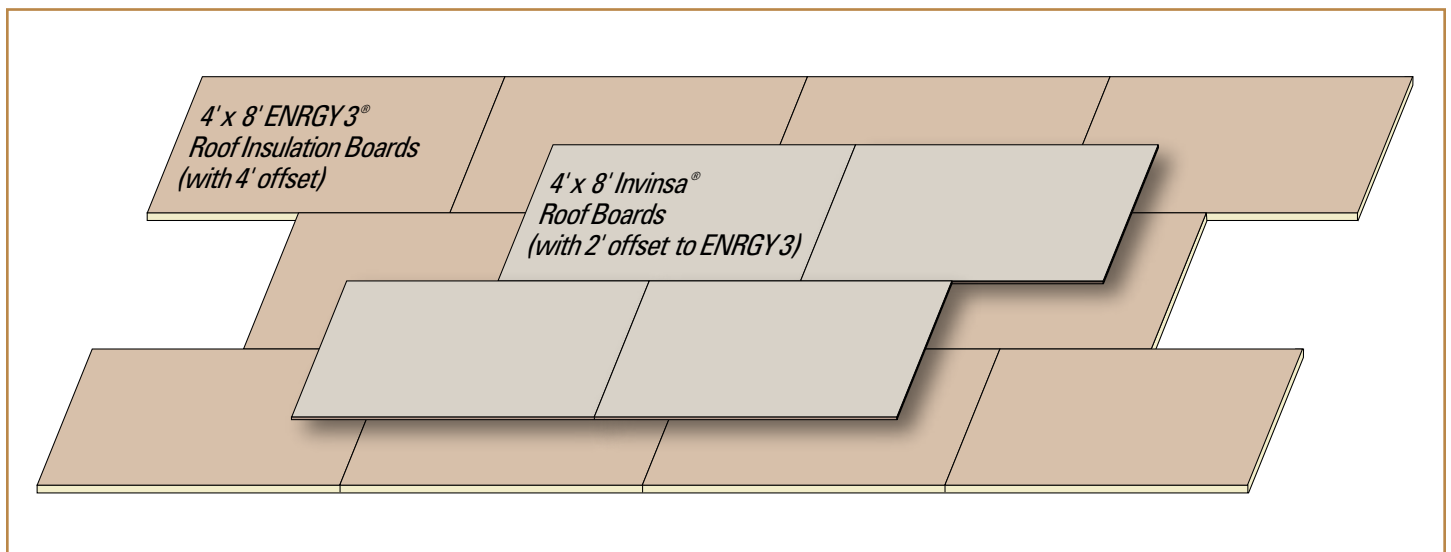


Adhesive Patterns for Fully Adhering Invinsa Roof Board

To adhere to ENRGY 3[®] using Urethane Insulation Adhesive, JM Two-Part Urethane Insulation Adhesive, JM Green Two-Part Urethane Insulation Adhesive and other adhesives.

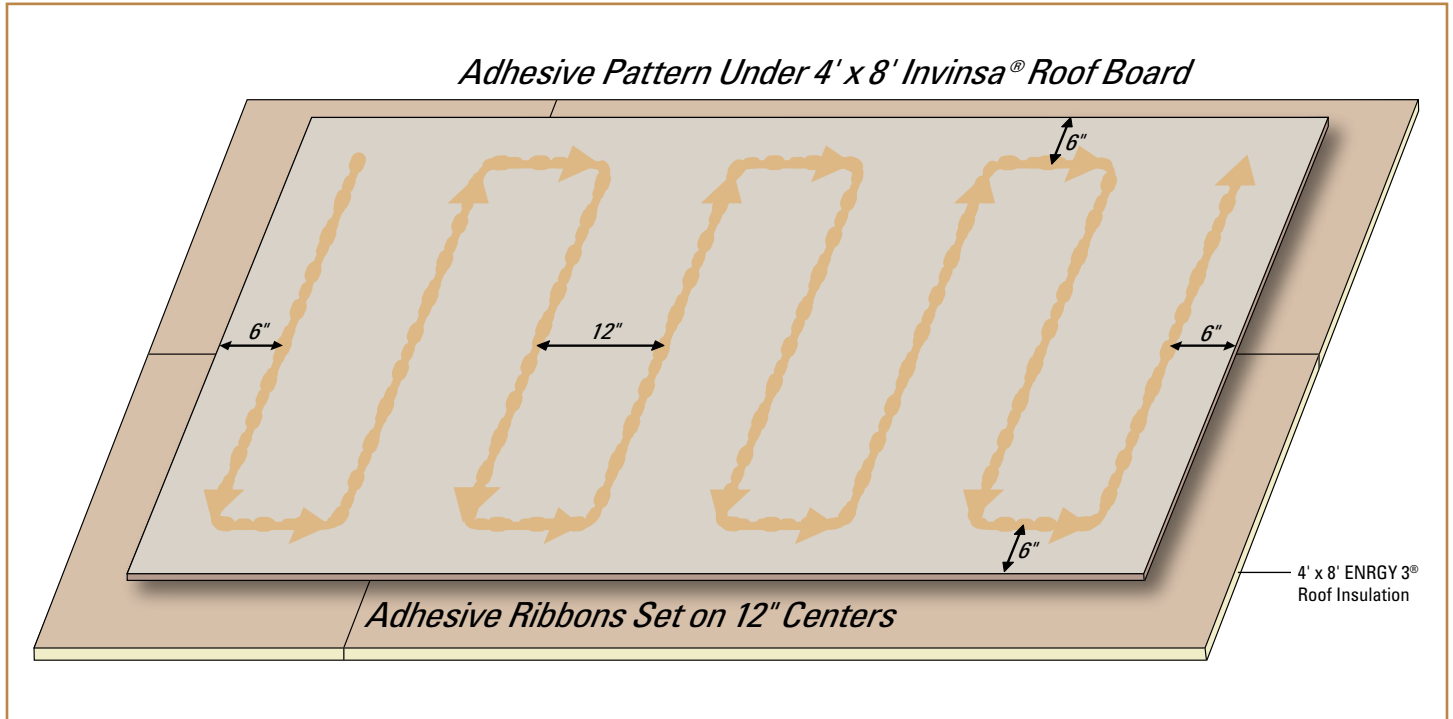
1. Apply adhesive to the ENRGY 3 layer and set Invinsa on top of adhesive pattern.
2. Follow instructions on respective adhesives with regard to application rates, open times, setting times and board weighting.
3. All ENRGY 3 boards run parallel to the 8' edge of a 4' x 8' Invinsa board with a 2' offset.

Note: For detailed information about perimeter and corner installation, please refer the fastening pattern UA-12 available on the JM Roofing Web site or in current JM Commercial/Industrial Roof Systems Manuals.



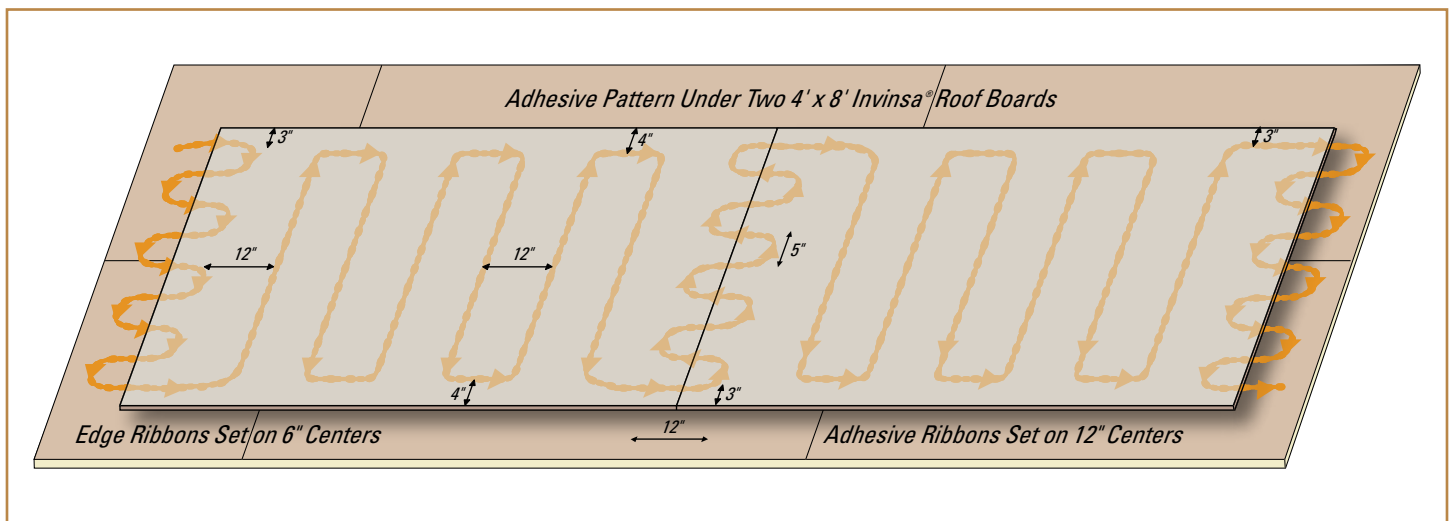
Standard Adhesive Pattern

For all adhered Invinsa systems.



Heavy-Duty Adhesive Pattern

For systems in which membrane wrinkling is a concern, including high deck non-uniformity and self-adhering membranes.



Note: For detailed information about perimeter and corner installation, please refer the fastening pattern UA-12 available on the JM Roofing Web site or in current JM Commercial/Industrial Roof Systems Manuals.

FM Global Approvals – JM TPO Systems – Mechanically Fastened

Deck	FM Rating	Application	Max. Slope in./ft (mm/m)	ENRGY 3 Insulation		Invinsa Roof Board		Membrane		RoofNav Number		
				Thickness, min.	Attachment	Attachment	Rate	Attachment	Rate			
Steel	1A-90	New Roof	1.5 (125)	1.5" (38 mm)	LL	UF/UF	5/board	XHL/XHL	7.5' (2.29 m) - 12" (31 cm) o.c.	222809-0-0		
						HL/RR	6/board - 1 per 5.33 ft ² (0.5 m ²)	—	—	247612-0-0		
		Re-Cover		UF/UF		5/board	HL/RR	10' (3.05 m) - 6" (15 cm) o.c.	248576-0-0			
				HL/RR		6/board - 1 per 5.33 ft ² (0.5 m ²)	XHL/XHL	7.5' (2.29 m) - 12" (31 cm) o.c.	222924-0-0			
	1A-105	New Roof		1.5" (38 mm)		UF/UF	5/board	HL/RR	10' (3.05 m) - 6" (15 cm) o.c.	248586-0-0		
		Re-Cover		0.5" (13 mm)					5' (1.52 m) - 12" (31 cm) o.c.	249537-0-0		
	1A-120	New Roof		1.5" (38 mm)				HL/HL	7.5' (2.29 m) - 6" (15 cm) o.c.	222814-0-0		
		Re-Cover		0.5" (13 mm)					222928-0-0			
	1A-135	New Roof		1.5" (38 mm)				HL/RR	8/board - 1 per 4 ft ² (0.37 m ²)	—	—	247628-0-0
		Re-Cover		0.5" (13 mm)						247636-0-0		
	1A-210	New Roof		1.5" (38 mm)		UF/UF	5/board	HL/RR	5' (1.52 m) - 6" (15 cm) o.c.	249582-0-0		
				0.5" (13 mm)					249624-0-0			
	Standing Seam	1A-90		Re-Cover		1.5" (38 mm)	UF/UF	5/board	PF/RR	5' (1.52 m) - 18" (46 cm) o.c.	250834-0-0	
									10' (3.05 m) - 6" (15 cm) o.c.	250596-0-0		
PF/XHL			5' (1.52 m) - 12" (31 cm) o.c.		250455-0-0							
PF/RR			5' (1.52 m) - 12" (31 cm) o.c.		250830-0-0							
PF/HL			5' (1.52 m) - 6" (15 cm) o.c.		249755-0-0							
Concrete	NC A-135	New Roof	1.5" (38 mm)	UF/UF	5/board	HL/RR	8/board - 1 per 4 ft ² (0.37 m ²)	—	—	247629-0-0		
		Re-Cover								247630-0-0		
	NC A-210	New Roof								249584-0-0		
		Re-Cover								249586-0-0		

FM Global Approvals – JM TPO Systems – Fully Adhered

Deck	FM Rating	Application	Max. Slope in./ft (mm/m)	ENRGY 3 Insulation		Invinsa Roof Board		Membrane		RoofNav Number					
				Thickness, min.	Attachment	Rate	Attachment	Rate	Attachment		Rate				
Steel	1A-60	New Roof	0.25 (21)	1.5" (38 mm)	LL	—	UF/UF	16/board - 1 per 2 ft ² (0.19 m ²)	SB	1.67 gal/100 ft ² (6.76 l/m ²)	219600-0-0				
			0.5 (42)						WB	0.84 gal/100 ft ² (3.37 l/m ²)	219601-0-0				
	1A-75		0.25 (21)						UF/UF	8/board - 1 per 4 ft ² (0.37 m ²)	2P UIA	¾" (19 mm) @ 12" (31 cm) o.c.	SB	1.67 gal/100 ft ² (6.76 l/m ²)	234926-0-0
			0.5 (42)										WB	0.84 gal/100 ft ² (3.37 l/m ²)	234927-0-0
Concrete	NC A-210	New Roof	0.25 (21)	2P UIA	¾" (19 mm) @ 12" (31 cm) o.c.	2P UIA	¾" (19 mm) @ 12" (31 cm) o.c.	2P UIA	¾" (19 mm) @ 12" (31 cm) o.c.	SB	1.67 gal/100 ft ² (6.76 l/m ²)	219534-0-0			
			0.5 (42)							WB	0.84 gal/100 ft ² (3.37 l/m ²)	219536-0-0			
		Re-Cover	0.25 (21)							SB	1.67 gal/100 ft ² (6.76 l/m ²)	219550-0-0			
			0.5 (42)							WB	0.84 gal/100 ft ² (3.37 l/m ²)	219552-0-0			

Adhesives

2P UIA = JM Two-Part Urethane Insulation Adhesive
 UIA = JM Urethane Insulation Adhesive
 BA = MBR Bonding Adhesive
 CAA = Cold Application Adhesive
 PCA = Premium Cold Application Adhesive
 G2P UIA = JM Green Two-Part Urethane Insulation Adhesive

Fasteners and Plates

UF = UltraFast
 HL = High Load
 PBS = Polymer Batten Strips
 XHL = Extra High Load
 AP = All Purpose
 PF = Purlin Fastener
 RR = RhinoPlate

Membrane Adhesives

SB = JM TPO Membrane Adhesive (Solvent Based)
 WB = JM TPO Membrane Adhesive (Water Based)
 LVOC = JM TPO Membrane Adhesive (Low VOC)

Insulation and Cover Boards

LL = Loose Laid

FM Global Approvals – JM PVC Systems – Mechanically Fastened

Deck	FM Rating	Application	Max. Slope in./ft (mm/m)	ENRGY 3 Insulation			Invinsa Roof Board		Membrane		RoofNav Number			
				Thickness, min.	Attachment	Rate	Attachment	Rate	Attachment	Rate				
Steel	1A-75	New Roof	1 (83)	1.5" (38 mm)	LL	-	UF/UF	5/board	HL/RR	5' (1.52 m) - 18" (46 cm) o.c.	250279-0-0			
		Re-Cover		0.5" (13 mm)							250291-0-0			
	1A-90	New Roof		1.5" (38 mm)			HL/RR	6/board - 1 per 5.33 ft ² (0.5 m ²)	-	-	247656-0-0			
		Re-Cover		0.5" (13 mm)			UF/UF	5/board	HL/RR	10' (3.05 m) rows @ 6" (15 cm) o.c.	250227-0-0			
	1A-105	New Roof		1.5" (38 mm)			HL/RR	6/board - 1 per 5.33 ft ² (0.5 m ²)	-	-	247663-0-0			
		Re-Cover		0.5" (13 mm)			UF/UF	5/board	HL/RR	5' (1.52 m) - 12" (31 cm) o.c.	250240-0-0 250250-0-0			
	1A-135	New Roof		1.5" (38 mm)			HL/RR	8/board - 1 per 4 ft ² (0.37 m ²)	-	-	247668-0-0			
		Re-Cover		0.5" (13 mm)			UF/UF	5/board	HL/RR	5' (1.52 m) - 6" (15 cm) o.c.	247675-0-0 250263-0-0 250272-0-0			
	1A-210	New Roof		1.5" (38 mm)			HL/RR	8/board - 1 per 4 ft ² (0.37 m ²)	-	-	247669-0-0			
		Re-Cover		0.5" (13 mm)			UF/UF	5/board	HL/RR	5' (1.52 m) - 6" (15 cm) o.c.	250265-0-0 250267-0-0			
	Concrete	NC A-135		New Roof			1.5" (38 mm)	LL	-	UF/UF	5/board	HL/RR	5' (1.52 m) - 6" (15 cm) o.c.	250265-0-0
				Re-Cover										250267-0-0
	NC A-210	New Roof		HL/RR						8/board - 1 per 4 ft ² (0.37 m ²)	-	-	250283-0-0 251882-0-0	
		Re-Cover		UF/UF						5/board	HL/RR	10' (3.05 m) rows @ 6" (15 cm) o.c.	251886-0-0	
Standing Seam	1A-90	Re-Cover	1.5" (38 mm)	LL	-	UF/UF				5/board	PF/RR	5' (1.52 m) - 18" (46 cm) o.c.	251874-0-0	
											PF/HL	252080-0-0		
											PF/RR	10' (3.05 m) rows @ 6" (15 cm) o.c.	251871-0-0	
											PF/HL	5' (1.52 m) - 12" (31 cm) o.c.	252074-0-0	
											PF/RR	5' (1.52 m) - 6" (15 cm) o.c.	252074-0-0	

Adhesives

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 UIA = JM Urethane Insulation Adhesive
 BA = MBR Bonding Adhesive
 CAA = Cold Application Adhesive
 PCA = Premium Cold Application Adhesive
 G2P UIA = JM Green Two-Part Urethane Insulation Adhesive

Fasteners and Plates

UF = UltraFast
 HL = High Load
 PBS = Polymer Batten Strips
 XHL = Extra High Load
 AP = All Purpose
 PF = Purlin Fastener
 RR = RhinoPlate

Insulation and Cover Boards

LL = Loose Laid

FM Global Approvals – JM PVC Systems – Fully Adhered

Deck	FM Rating	Application	Slope	ENRGY 3 Insulation			Invinsa Roof Board		Membrane		RoofNav Number
				Thickness, min.	Attachment	Rate	Attachment	Rate	Attachment	Rate	
Steel	1A-90	New Roof	1 (83)	1.5" (38 mm)	LL	–	UF/UF	16/board - 1 per 2 ft ² (0.19 m ²)	LVOC	1.67 gal/100 ft ² (6.76 l/m ²)	173434-0-0
				2" (51 mm)	UF/UF	8/board - 1 per 4 ft ² (0.37 m ²)	2P UIA	0.75" (19 mm) @ 12" (31 cm) o.c.			268259-0-0
Concrete	NC A-90	Re-Cover	1 (83)	1.5" (38 mm)	LL	–	AP/UF	16/board - 1 per 2 ft ² (0.19 m ²)	LVOC	1.67 gal/100 ft ² (6.76 l/m ²)	173437-0-0
				2" (51 mm)	AP/UF	8/board - 1 per 4 ft ² (0.37 m ²)	2P UIA	0.75" (19 mm) @ 12" (31 cm) o.c.			268466-0-0
	NC A-210	New Roof		1.5" (38 mm)	2P UIA	0.75" (19 mm) @ 12" (31 cm) o.c.			UIA, BA	WB LVOC	0.67 gal/100 ft ² (2.68 l/m ²) / 1.67 gal/100 ft ² (6.76 l/m ²)
		Re-Cover					228669-0-0				
	NC A-225	New Roof		–	–	–	BA	1.5 gal/100 ft ² (6.01 l/m ²)	162889-0-0		
		Re-Cover								162893-0-0	

FM Global Approvals – JM PVC Fleece-Backed Systems – Fully Adhered

Deck	FM Rating	Application	Slope	ENRGY 3 Insulation			Invinsa Roof Board		Membrane		RoofNav Number
				Thickness, min.	Attachment	Rate	Attachment	Rate	Attachment	Rate	
Steel	1A-60	Re-Cover	1 (83)	0.5" (13 mm)	LL	–	UF/UF	16/board - 1 per 2 ft ² (0.19 m ²)	LVOC	1.67 gal/100 ft ² (8.15 l/m ²)	227677-0-0
	1A-90			229503-0-0							
Concrete	NC A-90	New Roof	1 (83)	1.5" (38 mm)	2P UIA	0.75" (19 mm) @ 12" (31 cm) o.c.	2P UIA	0.75" (19 mm) @ 12" (31 cm) o.c.	WB LVOC	2 gal/100 ft ² (8.15 l/m ²) / 1.67 gal/100 ft ² (6.76 l/m ²)	229505-0-0
	NC A-210	Re-Cover									227608-0-0
											228650-0-0

FM Global Approvals – JM EPDM Systems – Fully Adhered

Deck	FM Rating	Application	Slope	ENRGY 3 Insulation			Invinsa Roof Board		Membrane		RoofNav Number
				Thickness, min.	Attachment	Rate	Attachment	Rate	Attachment	Rate	
Steel	1A-75	New Roof	1.5 (125)	LL	–	UF/UF	16/board - 1 per 2 ft ² (0.19 m ²)	SB	1.67 gal/100 ft ² (6.76 l/m ²)	195332-0-0	
			2 (167)							195331-0-0	
Concrete	NC A-165	Re-Cover	1.5 (125)	BA, UIA, G2P UIA	0.75" (19 mm) @ 12" (31 cm) o.c.	G2P UIA	0.75" (19 mm) @ 12" (31 cm) o.c.			195327-0-0	
				G2P UIA					195328-0-0		

Adhesives

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 CAA = Cold Application Adhesive
 PCA = Premium Cold Application Adhesive
 G2P UIA = JM Green Two-Part Urethane Insulation Adhesive

Fasteners and Plates

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 HL = High Load
 PBS = Polymer Batten Strips
 XHL = Extra High Load
 AP = All Purpose
 PF = Purlin Fastener
 RR = RhinoPlate

Insulation and Cover Boards

LL = Loose Laid

Membrane Adhesives

SB = JM EPDM Bonding Cement (Solvent Based)
 WB = JM PVC Membrane Adhesive (Water Based)
 LVOC = JM PVC Membrane Adhesive (Low VOC)

FM Global Approvals – JM SBS Systems – Cold Adhesive Applied

Deck	FM Rating	Application	Slope	ENRGY 3 Insulation		Invinsa Roof Board		Membrane		RoofNav Number	Notes
				Thickness, min.	Attachment	Attachment	Rate	Attachment	Rate		
Steel	1A-90	New Roof	0.5 (42)	1.5" (38 mm)	LL	UF/UF	16/board - 1 per 2 ft ² (0.19 m ²)	CAA	2 gal/100 ft ² (8.15 l/m ²)	144245-144211-0	2-Ply (CAA)
144245-144212-0										3-Ply (CAA)	
144245-144213-0						4-Ply (CAA)					
Concrete						144247-144211-0				2-Ply (CAA)	
144247-144212-0										3-Ply (CAA)	
144247-144213-0	4-Ply (CAA)										

FM Global Approvals – JM SBS Systems – Self-Adhering

Deck	FM Rating	Application	Slope	ENRGY 3 Insulation			Invinsa Roof Board		Membrane	Roof Nav Number	Notes
				Thickness, min.	Attachment	Rate	Attachment	Rate	Attachment		
Steel	1A-90	New Roof	1 (83)	1.5" (38 mm)	LL	-	UF/UF plastic	16/board - 1 per 2 ft ² (0.19 m ²)	Self-Adhering	262904-137159-0	2-Ply (HW)
	1A-165			2" (51 mm)				32/board - 1 per 1 ft ² (0.09 m ²)		262905-137159-0	
Concrete	NC A-210		0.75 (63)	1.5" (38 mm)	UIA	0.75" (19 mm) @ 12" (31 cm) o.c.	UIA, BA	0.75" (19 mm) @ 12" (31 cm) o.c.		162901-77921-0	2-Ply (SA)
	NC A-225				UIA, 2P UIA		BA			1.5 gal/100 ft ² (6.04 l/m ²)	
	Re-Cover		-	-	-	-	162907-77921-0	ALL, 2-Ply (SA)			

UL® External Fire Resistance (UL 790) – Major Approvals – Invinsa Roof Board – New Construction

Deck	Class	Max. Slope in./ft (mm/m)	Insulation	Membrane	Attachment Method	UL Number*
Noncombustible	A	1 (83)	ENRGY 3	JM EPDM	Fully Adhered	EPDM-42
		2 (167)	-			EPDM-43
		1 (83)	ENRGY 3 (Optional)	JM PVC Fleece		PVC-18
		2 (167)		JM PVC	PVC-28	
		0.5 (42)		Mechanically Fastened	PVC-36	
		1 (83)			JM TPO	TPO-17
		0.5 (42)		Mechanically Fastened	TPO-33	
					JM SBS	SBS-Hot-9
				Self-Adhering	SBS-Hot-39	
		Combustible			JM BUR	Mechanically Fastened
					BUR-14	

*UL Number refers to constructions (paragraph) in JM's UL 790 listing.

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 XHL = Extra High Load
 AP = All Purpose
 PF = Purlin Fastener
 RR = RhinoPlate

Insulation and Cover Boards

LL = Loose Laid

Membrane Notes

PVC-FB = Fleece-Backed PVC
 MP = Any Multi-Ply Cover (existing roof)
 ALL = Any Membrane Cover (existing roof)
 HW = Heat Weld
 SA = Self-Adhering
 SP = Any Single Ply Cover (existing roof)

For more detailed application or code and approval information, please contact your JM representative or call us at (800) 922-5922.

PRODUCT WARRANTIES

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

JM Peak Advantage Guarantees are available only on qualified JM roofing systems containing JM roofing products. JM standard product terms and conditions will apply to include a one-year limited product warranty. Limited product warranty information is available at www.jm.com/roofing/AboutJM/TermsandConditions.

Peak Advantage Contractor Program

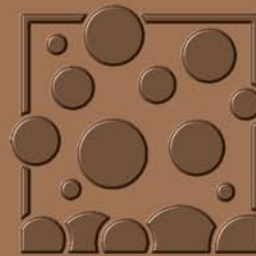
To ensure quality workmanship and top-notch installation, JM offers its Peak Advantage Contractor Program. Contractors selected to participate are proven to be best of class, having lived up to the highest performance standards. These contractors have access to JM's strongest guarantees. To be assured of the best possible results on the roofing system you specify, make sure it's installed by a JM Peak Advantage contractor.



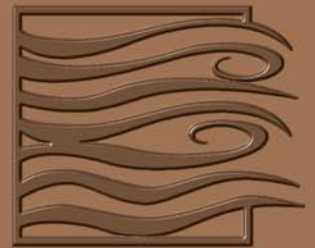
W A T E R



F I R E



H A I L



W I N D



717 17th St.
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www.jm.com/roofing