



**BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION**

**MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908**

NOTICE OF ACCEPTANCE (NOA)

**Johns Manville Corporation
717 17th Street
Denver, CO 80202**

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Johns Manville PVC Single Ply Roof Systems over Concrete Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA # 01-0112.06 and consists of pages 1 through 21.
The submitted documentation was reviewed by Frank Zuloaga, RRC



**NOA No.: 03-0421.05
Expiration Date: 06/21/06
Approval Date: 11/06/03
Page 1 of 21**

ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Single Ply
Material: PVC
Deck Type: Concrete
Maximum Design Pressure -377.5 psf
Fire Classification: See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
UltraGard SR-50, SR-60 and SR-80	37.5" - 81" wide	ASTM D 4434	Polyester reinforced PVC membrane 50, 60 or 80 mils thickness used in mechanically fastened and adhered roofing assemblies, and as membrane flashing for walls, curbs, etc.
UltraGard FAS-50, FAS-60, FAS-80	81" wide	ASTM D 4434	Glass fiber scrim reinforced PVC membrane available in 50, 60 and 80 mil thickness used in adhered roofing assemblies and as adhered membrane flashing for walls, curbs, etc.
UltraGard Plus 50 Plus 60	53" - 81" wide	ASTM D 4434	Polyester reinforced PVC membrane 50 mils and 60 mils thick with a 7.5 ounce polyester fleece laminated to the underside. UltraGard Plus may be mechanically attached or adhered to acceptable substrates.
UltraGard V-2/50 and V-2/60	37.5" - 81" wide	ASTM D 4434	Polyester reinforced PVC polymer based, 50 or 60 mil membrane used in mechanically fastened and adhered roofing assemblies, and as membrane flashing for walls, curbs, etc.
Seekure Paper Slipsheet	96" x 300'		A laminated Kraft paper slipsheet with a fiberglass scrim reinforcement intended for use with mechanically attached systems as a separating slipsheet over smooth substrates. It is not intended for use over smooth surface BURs.
CTP Foil Slipsheet	6' - 300'		A laminated foil/Kraft paper slip sheet with a polyethylene coating on both sides of the foil intended for use with mechanically attached systems as a separation layer.



<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
DN Flameguard Slipsheet	71" x 700'		A laminated aluminum foil/Kraft paper slipsheet with proprietary flame extinguishing adhesive and a fiberglass scrim reinforcement for use with mechanically attached systems as a fire-retardant slipsheet in certain UL and FM assemblies.
Polyester Protection Mat	12' x 100'		A 9 ounce needle-punched polyester fabric that is used as a cushioning layer in certain applications.
Detail Membrane 80	35" x 75'	ASTM D 4434	35" wide, 80 mil thick PVC membrane used in field-formed flashing where heat forming is required. Available in white, grey, pearl or black.
Detail Strip 80	6" x 150'		6" wide 80 mil thick unreinforced PVC membrane strips used to waterproof joints of UltraGard metal. Available in white, grey, pearl and black.
Inside Corner	various		Pre-manufactured corners available in white or grey used to waterproof the corners of walls, parapets, etc..
Outside Corner	various		Pre-manufactured corners available in white or grey used to waterproof the corners of walls, parapets, curbs, pitch pockets, etc..
Coated Metal Sheets	4' x 8' 4' x 10'		Available in white, grey and black. 4' x 8' and 4' x 10' sheet sizes. UltraGard metal is a laminate of UltraGard PVC membrane and galvanized steel field fabricated into metal base flashings, edge details, and pitch pockets.
Coated Metal 3" strip	3" x 8' 3" x 10'		Pre-cut UltraGard metal strips are used for base securement and membrane flashing securement in specific details.
Pipe Boots	various		Pre-manufactured membrane boots used to flash round penetrations from 1" to 12" in diameter.
¼" Microfoam	6' x 225'		A multi-ply polypropylene foam intended for use with mechanically attached systems as a cushioning slipsheet over rough, uneven substrates. It is not intended for use over existing gravel surfaced built-up roofs.



<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
UltraFast Standard Fastener	1¼" - 16"	PA 114	Threaded fastener used with the appropriate membrane disc or insulation plate for membrane or insulation attachment to wood, concrete and minimum 24 gauge steel decks.
JM CD-10	1" - 16"	PA 114	Used with the appropriate membrane disc or insulation plate for membrane or insulation attachment to concrete decks.
UltraGard High Load Fastener	1¼" - 16"	PA 114	Threaded fastener used with UltraGard High Load Plate to attach membrane to wood, concrete and steel decks.
UltraGard High Load Plate	2-3/8" dia. with barbs	PA 114	Steel plate used with UltraGard High Load Fastener to attach membrane to wood, concrete and steel decks.
UltraGard 2 7/8" Hex Plate	2 7/8" Hex	PA 114	Metal insulation plate used with various fasteners for insulation attachment.
UltraGard 2" Round Metal Barbed Disc	2" Round	PA 114	Used with various acceptable fasteners for membrane attachment.
UltraGard 2" Round Tri-Lock Plastic Barbed Disc	2" Round	PA 114	2" round locking plate used with acceptable fasteners for membrane attachment.
UltraGard 3" Plastic Hex Locking Plate	3" Hex	PA 114	Plastic locking plate used with various fasteners for insulation attachment.
UltraGard System AIP	2 7/8" - 12"	PA 114	Pre-assembled fastener and plate designed not to back out, used for insulation attachment to wood and min. 24 gauge steel decks.
UltraGard System AMP	2 7/8" - 12"	PA 114	Pre-assembled fastener and plate designed not to back out, used for membrane attachment to wood and min. 24 gauge steel decks.
Termination Bar	1.35" x 10'		An extruded aluminum (0.93" thick) bar slotted 6" on center used to terminate adhered "SR" and "FAS" membrane flashings in certain details.
7" Round Disk Caps	7" round		Round membrane caps used to waterproof fastening discs in certain applications. Available in white and grey.
UltraGard PVC Membrane Adhesive (Latex)	5 Gal. Pail	Proprietary	Designed for bonding UltraGard PVC membrane to concrete, cellular concrete, and specific wood fiber roof insulations in horizontal applications only.



<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
UltraGard PVC Membrane Adhesive (Solvent)	5 Gal. Pail	Proprietary	Designed for bonding UltraGard PVC membrane to metal, wood, concrete, cellular concrete and specific roof insulations in both horizontal and vertical applications.
UltraGard PVC Membrane One-Step Adhesive	5 Gal. Pail		Designed for bonding UltraGard PVC membrane to various vertical and horizontal surfaces.
UltraGard Sealant	30 Tube box		A single component, gun grade elastomeric polyurethane sealant used to seal UltraGard termination bar, counter flashings, etc.. UltraGard caulk is not used to caulk field seams. UltraGard caulk is available in white and grey.
UltraGard Pourable Sealer	1 Gal. Can		A two part polyurethane sealant used as a pitch pocket filler.
UltraGard PVC Round Pitch Pocket	6.5" Round		Rigid PVC flashing with an opening 6.5" in diameter used to waterproof irregularly shaped penetrations.
UltraGard PVC Sealant	1 Gal.	Proprietary	A liquid PVC compound used to seal non-encapsulated edges of completed seams.
UltraGard Solvent Welding Solution	1 Gal.		May be used to weld UltraGard PVC membrane to UltraGard metal in certain detail applications.
UltraGard Roof Systems Membrane Cleaner	1 Gal. Can		May be used to clean small areas of the membrane where asphalt, roofing cement, etc. must be removed.
Type R Tie-in Membrane	24" x 82'		An asphalt compatible PVC membrane used as a tie-in material to existing built-up roofs.
WBP 100 Walkway	48" x 60'		100 mil thick texturized polyester reinforced PVC membrane used as a walkway and protection material. Available in blue or grey.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Millox	Isocyanurate Insulation with wood fiberboard facer	Apache Products Co.
Pyrox, White Line	Isocyanurate Insulation	Apache Products Co.
ACFoam Composite	Isocyanurate Insulation with perlite facer	Atlas Roofing Corp.



NOA No.: 03-0421.05
 Expiration Date: 06/21/06
 Approval Date: 11/06/03
 Page 5 of 21

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
ACFoam I, II	Isocyanurate Insulation	Atlas Roofing Corp.
Polyisocyanurate HP-N	Polyisocyanurate roof insulation.	Carlisle Syntec, Inc.
Sure-Seal HP Recovery Board	High Density Wood Fiberboard.	Carlisle Syntec, Inc.
Sure-Seal EPS/Fiberboard	High Density Wood Fiberboard bonded to EPS.	Carlisle Syntec, Inc.
Styrofoam	Extruded polystyrene insulation	Dow
Dens Deck	Silicon treated gypsum	G-P Products
Sturdi-Top	Wood fiber insulation board.	G-P Products
ENRGY 2, ENERGY 3, PSI-25	Isocyanurate Insulation	Johns Manville
Fesco Foam, DuraFoam	Isocyanurate Insulation with perlite facer	Johns Manville
Retro-Fit Board, DuraBoard	A high-density perlite roof insulation.	Johns Manville
Fesco Board	Rigid perlite roof insulation board.	Johns Manville
Wood Fiberboard	Regular wood fiber insulation	Generic
High Density Wood Fiberboard	High Density Wood Fiber insulation board.	Generic
Perlite Insulation Board	Perlite Insulation	Generic
Type X Gypsum	Gypsum Wallboard	Generic
XPS	Extruded polystyrene	Generic
Fiber Base	Asphalt coated wood fiber insulation	Temple Inland Forest Products Corp.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Dekfast Fasteners #14 & #15	Insulation fastener for wood, steel and concrete decks		Construction Fasteners Inc.
2.	Dekfast Hex Plate	Galvalume hex stress plate.	2 7/8" x 3 1/4"	Construction Fasteners Inc.
3.	Dekfast Lock Plate	Galvalume hex stress plate.	3" x 3 1/4"	Construction Fasteners Inc.



APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
4.	#14 & #15 Roofgrip Fasteners	Insulation fastener for wood, steel and concrete decks.		ITW Buildex Corp.
5.	Metal Plate	Galvalume stress plate.	3" round 3" square	ITW Buildex Corp.
6.	Gearlok Plastic Plate	Polyolefin plastic plate,	3" round	ITW Buildex Corp.
7.	UltraFast (#14 Only)	Insulation fastener for concrete decks.		Johns Manville
8.	JM CD-10	Insulation fastener for concrete decks.		Johns Manville
9.	High Load Fasteners	Membrane fastener for wood and steel.		Johns Manville
10.	High Load Metal Plates	Galvalume AZ55 steel plate	2-3/8" round	Johns Manville
11.	APB Metal Plates	Galvalume AZ55 steel plate	2" round	Johns Manville
12.	UltraFast Metal Plate	Galvalume AZ55 steel plate	3" square	Johns Manville
13.	UltraFast Plastic Plate	High Density Polyolefin round plate	3" round	Johns Manville
14.	Olympic Fastener #14	Insulation fastener for concrete decks.		Olympic Mfg. Group,
15.	Olympic G-2	Galvalume AZ55 steel plate	3.5" round	Olympic Mfg. Group,
16.	Olympic Standard	Galvalume AZ50 steel plate	3" round	Olympic Mfg. Group,
17.	Rawl Fasteners #14	Insulation fastener for concrete decks		Powers Fasteners, Inc.
18.	Rawl Drive	Insulation fastener for concrete decks		Powers Fasteners, Inc.
19.	Rawl Spike	Insulation fastener for concrete decks		Powers Fasteners, Inc.



APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
20.	Rawl	Galvalume AZ55 steel plate	3" round	Powers Fasteners, Inc.
21.	#14 HD Insul-Fixx Fastener	Insulation fastener for wood, steel and concrete decks		SFS Stadler, Inc.
22.	Insul-Fixx S Plate	Galvalume AZ50 steel plate	3" round	SFS Stadler, Inc.
23.	Insul-Fixx P Plate	Polyethylene stress plate	3" round	SFS Stadler, Inc.
24.	Tru-Fast HD	Insulation fastener for wood, steel and concrete decks		The Tru-Fast Corp.
25.	Tru-Fast Plates	Galvalume AZ55 steel plate	3" round	The Tru-Fast Corp.
26.	Tru-Fast Plates	Polyethylene plastic plate	3" round	The Tru-Fast Corp.
27.	Tru-Fast Plates	Galvalume AZ50 steel plate	3.23" round	The Tru-Fast Corp.

EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Factory Mutual Research Corp,	J.I. 2W1A3.AM	Wind Uplift	01/03/94
Factory Mutual Research Corp,	J.I.3Y6A0.AM	Wind Uplift	11/15/95
Factory Mutual Research Corp,	J.I. 4Z0A5.AM	Wind Uplift	02/07/96
Factory Mutual Research Corp,	1D6A1.AM	PA 114	09/04/98
	0D9A8.AM		04/26/99
Factory Mutual Research Corp.	3012974	Wind Uplift	06/03/02
Dynatech Engineering Corporation	94.9.27	Wind Uplift	09/28/94
Underwriters Laboratories	R 6509	Fire Classification	05/10/93
Exterior Research & Design, LLC	#3705.09.96-1	PA 114	09/03/96
Exterior Research & Design, LLC	#3705.10.97-1	PA 114	10/17/97



APPROVED ASSEMBLIES

- Membrane Type:** Single Ply, Thermoplastic, Adhered PVC
- Deck Type 3I:** Concrete Decks, Insulated
- Deck Description:** 2500 psi structural concrete or concrete plank
- System Type A:** All insulation layers are adhered, to a mechanically attached or adhered anchor/base-sheet. Membrane is subsequently fully or partially adhered to insulation.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ENRGY 2, JM ISO-1 Minimum 1.5" thick	N/A	N/A
Esgard Fiberboard, Huebert Fiberboard, Fiberboard, GAFTEMP Fiberboard Minimum 1" thick	N/A	N/A
Dens Deck Minimum ¼" thick	N/A	N/A

Note: Concrete deck shall be primed with ASTM D 41 asphalt primer and allowed to dry prior to application of base sheet. All insulation shall be adhered to the deck in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the polyisocyanurate side facing down.

Vapor Retarder: (Optional) An FMRC approved vapor barrier approved for use with hot asphalt may be applied to the deck or base insulation layer.

Barrier: None.

Membrane: UltraGard PVC Roofing Systems SR-50, 60 or 80, Plus 50 or Plus 60 or V-2/50 or V-2/60 installed utilizing UltraGard PVC Membrane Adhesive at a rate of 60 square feet/gallon or UltraGard PVC Latex Adhesive (where acceptable) at a rate of 40 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment, which will give a minimum 1½" weld area. UltraGard Liquid PVC Seam Sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam areas.



Maximum Design
Pressure:

- 342.5 psf (using JM ISO-1 / UltraGard Membrane Adhesive / SR-50, 60, 80, V-2/50 or V-2/60 membrane) (See General Limitation #9.)
- 130.5 psf (using JM ISO-1 / One-Step Adhesive / SR-50, 60, 80, V-2/50 or V-2/60 membrane) (See General Limitation #9.)
- 310 psf (using JM ISO-1 with Dens Deck coverboard / UltraGard Membrane Adhesive / SR-50, 60, 80, V-2/50 or V-2/60 membrane) (See General Limitation #9.)
- 45 psf (all other insulation / adhesive / membrane combinations) (See General Limitation #9.)



Membrane Type: Single Ply, Thermoplastic, Adhered PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500 psi structural concrete or concrete plank

System Type A(2): Insulation layer is adhered to roof deck. Membrane is subsequently fully or partially adhered to insulation.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
JM ISO-1 Minimum 1.5" thick	N/A	N/A

Note: Concrete deck shall be primed with ASTM D 41 asphalt primer and allowed to dry prior to application of vapor barrier or insulation. All insulation shall be adhered to the vapor barrier or primed deck in Insta-Stik applied in continuous 3/4" to 1" wide ribbons at a maximum spacing of 12" o.c. or OlyBond Adhesive Fastener at a rate of 1 gal./100 ft².

Membrane: UltraGard SR-50, SR-60, SR-80, V-2/50 or V-2/60 adhered with UltraGard PVC One-Step Adhesive at a rate of 40 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment, which will give a minimum 1 1/2" weld area. UltraGard Liquid PVC Seam Sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam areas.

Maximum Design Pressure: -90 psf (See General Limitation #9.)



Membrane Type: Single Ply, Thermoplastic, Adhered PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete or concrete plank
System Type B(1): Base layer of insulation mechanically fastened; top layer adhered with approved asphalt or adhesive.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ENRGY 2, PSI-25, JM ISO-1		
Minimum 1.5" thick	17, 18 or 19	1:2 ft²
Minimum 2" thick	17, 18 or 19	1:2.6 ft²
Esgard Fiberboard, Huebert Fiberboard, Fiberboard, GAFTEMP Fiberboard		
Minimum 1" thick	17, 18 or 19	1:2 ft²
Dens Deck		
Minimum ¼" thick	17, 18 or 19	1:2 ft²

Note: Base layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
-----------------------------	---	--

Any of the insulation listed for Base Layer, above.

Note: Optional top layer of insulation shall be adhered with approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft² or OlyBond Adhesive Fastener at a rate of 1 gal./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Vapor Retarder: (Optional) A FMRC approved vapor barrier approved for use with hot asphalt may be applied to the deck or base insulation layer.

Barrier: None.

Membrane: UltraGard PVC Roofing Systems SR-50, 60 or 80, Plus 50 or Plus 60 or V-2/50 or V-2/60 installed utilizing UltraGard PVC Membrane Adhesive at a rate of 60 square feet/gallon or UltraGard PVC Latex Adhesive (where acceptable) at a rate of 40 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment, which will give a minimum 1½" weld area. UltraGard Liquid PVC Seam Sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam areas.

Maximum Design Pressure: -60 psf. (See General Limitation #9.)



NOA No.: 03-0421.05
Expiration Date: 06/21/06
Approval Date: 11/06/03
Page 12 of 21

Membrane Type: Single Ply, Thermoplastic, Adhered PVC

Deck Type 3I: Concrete Decks, Insulated, New Construction

Deck Description: 2500 psi structural concrete or concrete plank

System Type B: Base layer of insulation is mechanically attached to roof deck. Any subsequent layers are then adhered to base layer of insulation. Membrane is subsequently fully or partially adhered to insulation.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
JM ISO-1 Minimum 1.5" thick	1 or 21	1:1.3 ft²

Note: Base layer shall be mechanically attached with fasteners and density described. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Dens Deck Minimum 1.5" thick	N/A	N/A

Note: Apply top layer of insulation in a full mopping of any approved mopping asphalt within the EVT range and at a rate of 20-40 lbs/100 ft² or OlyBond Adhesive Fastener at a rate of 1 gal./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as Base Layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Membrane: UltraGard SR-50, SR-60, SR-80, V-2/50 or V-2/60 adhered with UltraGard PVC Membrane Adhesive at a rate of 50-60 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment, which will give a minimum 1½" weld area. UltraGard Liquid PVC Seam Sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam areas.

Maximum Design Pressure: -75 psf (See General Limitation #9.)



Membrane Type: Single Ply, Thermoplastic, Adhered PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete or concrete plank
System Type C(1): All insulation layers simultaneously fastened.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ENRGY 2, JM ISO-1 Minimum 1.5" thick	N/A	N/A
Esgard Fiberboard, Huebert Fiberboard, Fiberboard, GAFTEMP Fiberboard Minimum 1" thick	N/A	N/A
Dens Deck Minimum ¼" thick	N/A	N/A

Note: All layers shall be simultaneously fastened. See top layer below for fasteners and density.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ENRGY 2, PSI-25, JM ISO-1 Minimum 1.5" thick	17, 18 or 19	1:2 ft ²
Minimum 2" thick	17, 18 or 19	1:2.6 ft ²
Esgard Fiberboard, Huebert Fiberboard, Fiberboard, GAFTEMP Fiberboard Minimum 1" thick	17, 18 or 19	1:2 ft ²
Dens Deck Minimum ¼" thick	17, 18 or 19	1:2 ft ²

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Vapor Retarder: (Optional) An FMRC approved vapor barrier approved for use with hot asphalt may be applied to the deck or base insulation layer.

Barrier: None.

Membrane: UltraGard PVC Roofing Systems SR-50, 60 or 80, Plus 50 or Plus 60 or V-2/50 or V-2/60 installed utilizing UltraGard PVC Membrane Adhesive at a rate of 60 square feet/gallon or UltraGard PVC Latex Adhesive (where acceptable) at a rate of 40 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment, which will give a minimum 1½" weld area. UltraGard Liquid PVC Seam Sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam areas.

Maximum Design Pressure: -60 psf. (See General Limitation #9.)



Membrane Type: Single Ply, Thermoplastic, Mechanically Fastened PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500 psi structural concrete or concrete plank

System Type C(2): All layer of insulation are mechanically attached to roof deck. Membrane is subsequently fully or partially adhered to insulation.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
JM ISO-1 Minimum 1.5" thick	1 or 21	1:1.3 ft ²

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Membrane: UltraGard SR-50, SR-60, SR-80, V-2/50 or V-2/60 adhered with UltraGard PVC Membrane Adhesive at a rate of 50-60 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment, which will give a minimum 1½" weld area. UltraGard Liquid PVC Seam Sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam areas.

Maximum Design Pressure: -97.5 psf. (See General Limitation #9.)



Membrane Type: Single Ply, Thermoplastic, Adhered PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500 psi structural concrete or concrete plank

System Type C(3): All layer of insulation are mechanically attached to roof deck. Membrane is subsequently fully or partially adhered to insulation.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
JM ISO-1 Minimum 1.5" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Dens Deck Minimum ¼" thick	1 or 21	1:1.3 ft²

Membrane: UltraGard SR-50, SR-60, SR-80, V-2/50 or V-2/60 adhered with UltraGard PVC Membrane Adhesive at a rate of 50-60 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment, which will give a minimum 1½" weld area. UltraGard Liquid PVC Seam Sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam areas.

Maximum Design Pressure: -50 psf. (See General Limitation #9.)



Membrane Type: Single Ply, Thermoplastic, Mechanically Fastened PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500 psi structural concrete or concrete plank

System Type D: Membrane mechanically fastened over preliminary fastened insulation.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ENRGY 2, PSI-25, JM ISO-1 Minimum 1.4" thick	N/A	N/A
Fesco Board, DuraBoard Minimum 3/4" thick	N/A	N/A
Fiberglas Roof Insulation Minimum 15/16" thick	N/A	N/A
Dens Deck Minimum 1/4" thick	N/A	N/A

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at an application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Vapor Retarder: (Optional) An FMRC approved vapor barrier approved for use with hot asphalt may be applied to the deck or perlite base layer.

Barrier: None.



Membrane:

Option #1: Membrane: UltraGard PVC Roofing Systems SR-50, 60 or 80, Plus 50 or Plus 60 or V-2/50 or V-2/60 installed in sheets up to 81" wide with a 5" overlap and fastened in the lap 6" o.c. using Tru-Fast HD, AMP-A1P or Rawl Spikes with 2" Trilock or Rawl 2" Membrane Plates, UltraFast #14, Dekfast #14, Dekfast #15 Heavy or TPR fasteners with Dekfast DK Barbed Plates, HD Insul-Fixx or TPR fasteners with ES lap plates, or Isofast IF2 or TPR fasteners with IFC/IW-82x40 Domed Convex Plates. Sheets are then heat seamed together with a minimum 1½" weld area. UltraGard liquid PVC seam sealant is to be applied to all cut or non-encapsulated edges. (1:3.166 ft²)

Option #2: UltraGard PVC Roofing Systems SR-50, 60 or 80, Plus 50 or Plus 60 or V-2/50 or V-2/60 installed in sheets 53" wide with a 5" overlap and fastened at the lap 18" o.c. using the fastener options noted above. Sheets are then heat seamed together with a minimum 1½" weld area. UltraGard liquid PVC seam sealant is to be applied to all cut or non-encapsulated edges. (1:6 ft²)

Option #3: UltraGard PVC Roofing Systems SR-50, 60 or 80, Plus 50 or Plus 60 or V-2/50 or V-2/60 installed in sheets 75" wide with a 5" overlap and fastened at the lap 12" o.c. using SFS Extral Load Fastener HD and Extra Load Plate or UltraGard High Load Fastener and High Load Plates. Sheets are then heat seamed together with a minimum 2" weld area. UltraGard liquid PVC seam sealant is to be applied to all cut or non-encapsulated edges. (1:5.83 ft²)

Maximum Design
Pressure:

-45 psf. (See General Limitation #9.)



Membrane Type: Single Ply, Thermoplastic, Adhered PVC
Deck Type 3: Concrete Decks, Non-insulated, New Construction
Deck Description: 2500 psi structural concrete or concrete plank
System Type F: Membrane adhered to deck.

All General and System Limitations apply.

Barrier: None.

Membrane UltraGard PVC Roofing Systems SR-50, SR-60 or SR-80, or V-2/50 or V-2/60 installed utilizing UltraGard PVC Membrane Adhesive at a rate of 60 square feet/gallon or UltraGard PVC Latex Adhesive (where acceptable) at a rate of 40 square feet/gallon. Field sheets are to be lapped a minimum of 3" and heat seamed together using hot air equipment which will give a minimum 1½" weld area. UltraGard liquid PVC sealant is to be applied to all cut or non-encapsulated edges. Care shall be taken to avoid getting adhesive in the seam area.

Maximum Design Pressure:
-377.5 psf (using UltraGard PVC Membrane Adhesive)
(See General Limitation #9.)
-330 psf (using UltraGard PVC Latex Adhesive) (See General Limitation #9.)
-45 psf (for all other adhesive / membrane combinations)
(See General Limitation #9.)



CONCRETE DECK SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.



GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
10. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 9B-72 of the Florida Administrative Code.

END OF THIS ACCEPTANCE



NOA No.: 03-0421.05
Expiration Date: 06/21/06
Approval Date: 11/06/03
Page 21 of 21