MIAMI-DADE

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 Florida Building Code and the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: JM PVC Single Ply Roof Systems over Lightweight Insulating 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 No. 07-1017.03 and consists of pages 1 through 8.
The submitted documentation was reviewed by Jorge L. Acebo.

MIAMI-DADE COUNTY APPROVED

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply
Material:	PVC
Deck Type:	Lightweight Insulating Concrete
Maximum Design Pressure	-367.5 psf

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
JM PVC Membrane	50 mil x 39 or 78" x 100' 60 mil x 39 or 78" x 100' 80 mil x 39 or 78" x 75'	ASTM D4434	PVC polyester reinforced membrane.
JM PVC Fleece Back	50 mil x 76" x 90' 60 mil x 76" x 90'	ASTM D4434	PVC polyester reinforced membrane backed with a lightweight polyester fleece.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Invinsa Roof Board	High-density polyisocyanurate with fiber glass reinforced facers	Johns Manville
Dens Deck	Silicon treated gypsum	G-P Products
ENRGY 3, PSI-25, JM ISO-3	Isocyanurate Insulation	Johns Manville
ISO 95+ GL	Polyisocyanurate foam insulation	Firestone
ACFoam II, ACFoam III	Isocyanurate Insulation	Atlas Roofing Corp.
Hytherm AP	Isocyanurate Insulation	Dow Chemical
H-Shield, H-Shield C	Isocyanurate Insulation	Hunter Panels
Multi-Max, Multi-Max FA	Polyisocyanurate foam insulation	Rmax, Inc.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.				

EVIDENCE SUBMITTED:

Test Agency/Identifier	Name	Report	Date
Factory Mutual	3018807	FM 4470	06/25/04
Research Corporation	3014692	FM 4470	08/05/03
	3016629	FM 4470	12/12/03
	3025881	FM 4450	08/09/06
	3015444	FM 4450	07/11/03
	3030351	FM 4470	08/01/07
Trinity|ERD	02764.09.05	FM 4470/TAS 114	09/09/05
	02762.03.05	FM 4470/TAS 114	03/30/05
Atlantic & Caribbean Roofing Consultants, LLC	ACRC 06-045	TAS 114	12/15/06

APPROVED ASSEMBLIES

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell

System Type A(1): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
ACFoam II, ISO 95+ GL, ENRGY 3, JM ISO 3, Hy-Therm AP, Multi Max FA or PSI-25 Minimum 1.5" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with JM Two-Part Urethane Insulation Adhesive in ¾" ribbons spaced 12" o.c. (with all insulations except Multi Max FA, Hy-Therm AP and PSI 25) or JM Urethane Insulation Adhesive in ½" ribbons spaced 6" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
Invinsa Roof Board Minimum ¼" thick	**N/A**	**N/A**

Note: Invinsa Roof Board shall be adhered to the insulation with JM Urethane Insulation Adhesive in ¾" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Membrane: JM PVC Membrane fully adhered to the Invinsa Roof Board with TACC LA 432 at a rate of 1.0 gal./sq. on both membrane and substrate, JM PVC Membrane Adhesive (Low Solvent Based) at a rate of 0.83 gal./sq. on both membrane and substrate, TACC FA 636 at a rate of 0.67 gal./sq., or JM PVC Membrane Adhesive (Solvent Based) at a rate of 0.83 gal./sq. on both membrane and substrate.

Maximum Design Pressure: -112.5 psf; (See General Limitation #9.)

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, minimum 200 psi Mearlcrete, Celcore or Elastizell

System Type A(2): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ACFoam II, ACFoam III, ISO 95+ GL, ENRGY 3, JM ISO 3, or Multi Max FA Minimum 1.5" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with Tite-Set Insulation Adhesive in 3-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Invinsa Roof Board Minimum ¼" thick	**N/A**	**N/A**

Note: Invinsa Roof Board shall be adhered to the insulation with JM Urethane Insulation Adhesive in ¾" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Membrane: JM PVC Membrane fully adhered to the Invinsa Roof Board with TACC LA 432 at a rate of 1.0 gal./sq. on both membrane and substrate, JM PVC Membrane Adhesive (Low Solvent Based) at a rate of 0.83 gal./sq. on both membrane and substrate, TACC FA 636 at a rate of 0.67 gal./sq., or JM PVC Membrane Adhesive (Solvent Based) at a rate of 0.83 gal./sq. on both membrane and substrate.

Maximum Design Pressure: -112.5 psf; (See General Limitation #9.)

Deck Type 4: Lightweight Concrete

Deck Description: Lightweight Insulating Concrete

System Type F(1): Membrane fully adhered to deck.

All General and System Limitations apply.

Deck:	22 ga. Vented corrugated 1.5" WR Type B steel fastened to the 6'-0" o.c. steel supports with #12-24 Tek 5 SD screws. One screw per every flute and fastened 6" o.c. to steel testing frame. Side laps of sheets fastened with #12 SD screws 12" o.c.
Lightweight Concrete:	Lightweight Insulating Concrete with a minimum compressive strength of 330 psi, and a MCRF of 233.614 lbf with ES FM-90 or OMG 1.7" BSF. A ¼" thick slurry of lightweight insulating concrete poured over deck. One layer of EPS Dyplast with a density of 1.0lb firmly pressed into the slurry. LWIC was poured over the EPS board to a thickness of 2.0" minimum.
Membrane:	JM PVC Fleece Back fully adhered to the deck with JM PVC Membrane Adhesive (water-based) applied at a rate of 1 gal/sq to the substrate and heat-welded 3" side laps.
Maximum Design Pressure:	-90.0 psf (See General Limitation #9).

Deck Type 4:	Lightweight Concrete
Deck Description:	Lightweight Insulating Concrete
System Type F(2):	Membrane fully adhered to deck.

All General and System Limitations apply.

Deck:	Structural Concrete Deck
Lightweight Concrete:	Celcore MF Cellular Concrete with Celcore HS Rheology Modifying Admixture cast to a depth of 1/8" with a wet cast density of 49 lb/ft³. The Celcore HS admixture is to be added to the mixture during the mixing process at a rate of 3.4 fl. Oz. per 100 lbs. of cement. Dyplast, Carpenter, Cellofoam, or Insulfoam Holey Board, 1" thick, shall be placed into the wet concrete. The following day, 2" thick Celcore MF Cellular Concrete with Celcore HS admixture shall be poured with a wet cast density of 44.6 lb/ft³ with the admixture added to the top coat in the same manner described above. The following day, Celcore PVA Curing Compound shall be spray applied over the top coat at a rate of 0.33 gal/sq.
Membrane:	JM PVC Fleece Back fully adhered to the deck with JM PVC Membrane Adhesive (water-based) applied at a rate of 1 gal/sq to the substrate and heat-welded 1.5" side laps.
Maximum Design Pressure:	-367.5 psf (See General Limitation #9).

LIGHTWEIGHT INSULATING CONCRETE 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 equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117 and/or RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.
2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.
3. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

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 side lap 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 Professional Engineer, Registered 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 and/or RAS 137. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(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 to 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