



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
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NOTICE OF ACCEPTANCE (NOA)

Mule-Hide Products Co., Inc.
1195 Prince Hall Dr.
Beloit, WI 53511

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section 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 Section (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. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section 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 including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Mule-Hide Single Ply PVC Roof Systems over Steel 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 consists of pages 1 through 10.

The submitted documentation was reviewed by Alex Tigera.



NOA No.: 16-0822.07
Expiration Date: 08/24/21
Approval Date: 06/08/17
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ROOFING SYSTEM APPROVAL

<u>Category:</u>	Roofing
<u>Sub-Category:</u>	Single Ply
<u>Material:</u>	PVC
<u>Deck Type:</u>	Steel
<u>Maximum Design Pressure</u>	-82.5 psf
<u>Fire Classification:</u>	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

<u>Product Name</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
PVC Membrane	various	TAS131	Reinforced white or colored PVC membrane

APPROVED INSULATIONS:

TABLE 2

<u>Product Name</u>	<u>Product Description</u>	<u>Manufacturer (With Current NOA)</u>
ACFoam Composite	Polyisocyanurate Insulation with perlite facer	Atlas Roofing Corp.
Poly ISO 2 Composite	Polyisocyanurate Insulation with perlite facer	Mule-Hide Products Co., Inc.
ACFoam-II	Polyisocyanurate Insulation	Atlas Roofing Corp.
Poly ISO 2	Polyisocyanurate Insulation	Mule-Hide Products Co., Inc.
DensDeck, DensDeck Prime	Silicon treated gypsum	Georgia-Pacific Gypsum LLC
H-Shield	Polyisocyanurate Insulation	Hunter Panels, LLC
Mule-Hide Poly ISO 1	Polyisocyanurate Insulation	Mule-Hide Products Co., Inc.
ENRGY 3, ENRGY 3 25 PSI	Polyisocyanurate Insulation	Johns Manville Corp.
Insulfoam SP	Expanded Polystyrene	Insulfoam – a division of Carlisle Construction Materials Inc.
R-TECH, R-TECH Fan Fold	Expanded Polystyrene	Insulfoam – a division of Carlisle Construction Materials Inc.
SECUROCK Gypsum-Fiber Roof Board	Gypsum based board stock	United States Gypsum Corporation



APPROVED FASTENERS / ADHESIVES:

TABLE 3

<u>Fastener Number</u>	<u>Product Name</u>	<u>Product Description</u>	<u>Dimensions</u>	<u>Manufacturer (With Current NOA)</u>
1.	Sure-Seal HP	Insulation and membrane fastener	Various	Carlisle SynTec, a division of Carlisle Construction Materials, Inc.
2.	OMG XHD	Insulation and membrane fastener	Various	OMG, Inc.
3.	OMG Super XHD	Insulation and membrane fastener	Various	OMG, Inc.
4.	OMG Purlin	Insulation and membrane fastener	Various	OMG, Inc.
5.	OMG 2-3/8" Barbed XHD Plate	Metal plates used for membrane securement with OMG fasteners	2-3/8" dia	OMG, Inc.
6.	#12 Standard Roofgrip	Insulation and membrane fastener	Various	OMG, Inc.
7.	#14 Roofgrip	Insulation and membrane fastener	Various	OMG, Inc.
8.	OMG Plastic Plate	Round high density polypropylene stress plates for fasteners	3" round	OMG, Inc.
9.	Insul-Fixx Fastener	Insulation fastener for steel and wood decks	Various	SFS Intec, Inc.
10.	OMG OlyBond 500	Spray Polyurethane Adhesive	Various	OMG, Inc.
11.	FAST 100 LV	Spray Polyurethane Adhesive	Various	Carlisle SynTec, a division of Carlisle Construction Materials, Inc.
12.	Low VOC PVC Bonding Adhesive	Solvent-based bonding adhesive	Various	Carlisle SynTec, a division of Carlisle Construction Materials, Inc.

EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Factory Mutual Research Corp.	3009502	FM 4470	12/21/00
	3014692	FM 4470	08/05/03
	3021764	FM 4470	01/11/06
	3028154	FM 4470	11/16/07
	3035880	FM 4470	07/02/09
	3037400	FM 4470	09/02/09
Trinity ERD	C14040.03.12-R1	ASTM D 2196-99	03/28/12

DECK STRESS ANALYSIS CALCULATIONS/REPORTS

<u>Engineer/Agency</u>	<u>Identifier</u>	<u>Assemblies:</u>	<u>Date</u>
FM Approval Deck Limitation	RoofNav Listing	C(1), C(2), D(1), D(2), D(3)	08/05/16



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APPROVED ASSEMBLIES

Membrane Type: Single Ply, PVC

Deck Type 2I: Steel, Insulated

Deck Description: Minimum 22 gage Grade 33 Steel deck fastened to structural supports at a maximum span of 6 feet o.c. Steel deck shall be fastened with minimum ITW Buildex Teks 5 at a maximum spacing of 6 inches o.c. Side laps shall be fastened with ITW Buildex Teks 1 at a maximum spacing of 24 inches o.c.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submitted Table.

System Type C(1): All layers of insulation simultaneously attached; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ACFoam-II, Poly ISO 2, H-Shield, Mule-Hide Poly ISO 1 Minimum 2” thick	1, 2, 3, 4	1:1.6 ft ²

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. Single and multiple layers of insulation can be attached to base layer with FAST 100 LV adhesive.

Vapor Retarder: (Optional) Any UL or FM approved vapor retarder applied to the roof deck or over a base layer of insulation.

Membrane: PVC Membrane, 50, 60 or 80 mil membrane fully adhered to the insulation using Low VOC PVC Bonding Adhesive applied to the substrate at a rate of 1 gal/60 ft.² The outside 1.5” of the roof cover lap is heat welded.

Maximum Design Pressure: -67.5 psf. (See General Limitation #7.)



Membrane Type: Single Ply, PVC
Deck Type 2I: Steel, Insulated
Deck Description: Minimum 22 gage Grade 33 Steel deck fastened to structural supports at a maximum span of 6 feet o.c. Steel deck shall be fastened with minimum ITW Buildex Tek 5 at a maximum spacing of 6 inches o.c. Side laps shall be fastened with ITW Buildex Tek 1 at a maximum spacing of 24 inches o.c.
This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submitted Table.
System Type C(2): All layers of insulation simultaneously attached; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

<u>Base Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ENRGY 3, AC Foam-II, Poly ISO 2, H-Shield, Mule-Hide Poly ISO 1 Minimum 1.5" thick	N/A	N/A

<u>Top Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
Required over the insulations listed in Base Layer or optional over any of the insulations listed as Base or Top Layer: DensDeck Prime Minimum ¼" thick	1, 2, 3, 4, 6, 7, 9, with 8	1:2 ft ²

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. Single and multiple layers of insulation can be attached to base layer with FAST 100 LV adhesive.

Vapor Retarder: (Optional) Any UL or FM approved vapor retarder applied to the roof deck or over a base layer of insulation.
Membrane: PVC Membrane, 50, 60 or 80 mil membrane fully adhered to the insulation using Low VOC PVC Bonding Adhesive applied to the substrate at a rate of 1 gal/60 ft.² The outside 1.5" of the roof cover lap is heat welded.
Maximum Design Pressure: -45 psf. (See General Limitation #7.)



Membrane Type: Single Ply, PVC
Deck Type 2I: Steel, Insulated
Deck Description: Minimum 22 gage Grade 33 Steel deck fastened to structural supports at a maximum span of 6 feet o.c. Steel deck shall be fastened with minimum ITW Buildex Tek 5 at a maximum spacing of 6 inches o.c. Side laps shall be fastened with ITW Buildex Tek 1 at a maximum spacing of 24 inches o.c.
This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submitted Table.
System Type D(1): Membrane mechanically attached over preliminarily fastened insulation.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ENRGY 3, AC Foam-II, Poly ISO 2, H-Shield, Mule-Hide Poly ISO 1 Minimum 1.5" thick	N/A	N/A

Note: All layers of insulation and membrane shall be simultaneously attached. See membrane below for fasteners and density. Refer to Roofing Application Standard RAS 117 for insulation attachment requirements. Insulation shall have preliminary attachment, prior to the installation of the roofing membrane. 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. Single and multiple layers of insulation can be attached to the deck with FAST 100 LV adhesive.

Vapor Retarder: (Optional) Any UL or FM approved vapor retarder applied to the roof deck or over a base layer of insulation.

Membrane: PVC Membrane secured through the preliminarily attached insulation as specified below.

Fastening #1: OMG XHD fasteners with OMG 2-3/8" Barbed XHD Plates 6" o.c. through the PVC Membrane in the lap in rows spaced 35" o.c. The outside 1.5" of the roof cover lap is heat welded.
Maximum Design Pressure -82.5 psf. (See General Limitation #7.)

Fastening #2: OMG XHD fasteners with OMG 2-3/8" Barbed XHD Plates 12" o.c. through the PVC Membrane in the lap in rows spaced 35" o.c. The outside 1.5" of the roof cover lap is heat welded.
Maximum Design Pressure -52.5 psf. (See General Limitation #7.)

Maximum Design Pressure: -See Fastening Options Above



Membrane Type: Single Ply, PVC
Deck Type 2I: Steel, Insulated
Deck Description: Minimum 20 gage Grade 33 Steel deck fastened to structural supports at a maximum span of 6 feet o.c. Steel deck shall be fastened with minimum ITW Buildex Tek 5 at a maximum spacing of 6 inches o.c. Side laps shall be fastened with ITW Buildex Tek 1 at a maximum spacing of 24 inches o.c.
This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submitted Table.
System Type D(2): Membrane mechanically attached over preliminarily fastened insulation.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ENRGY 3, AC Foam-II, Poly ISO 2, H-Shield, Mule-Hide Poly ISO 1 Minimum 1.5" thick	N/A	N/A

Note: All layers of insulation and membrane shall be simultaneously attached. See membrane below for fasteners and density. Refer to Roofing Application Standard RAS 117 for insulation attachment requirements. Insulation shall have preliminary attachment, prior to the installation of the roofing membrane. 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. Single and multiple layers of insulation can be attached to the deck with FAST 100 LV adhesive.

Vapor Retarder: (Optional) Any UL or FM approved vapor retarder applied to the roof deck or over a base layer of insulation.

Membrane: PVC Membrane secured through the preliminarily attached insulation as specified below.

Fastening #1: OMG XHD fasteners with OMG 2-3/8" Barbed XHD Plates 6" o.c. through the PVC Membrane in the lap in rows spaced 75.5" o.c. The outside 1.5" of the roof cover lap is heat welded.
Maximum Design Pressure –52 psf. (See General Limitation #7.)

Fastening #2: OMG Super XHD with OMG 2-3/8" Barbed XHD Plates 12" o.c. through the PVC Membrane in the lap in rows spaced 75.5" o.c. The outside 1.5" of the roof cover lap is heat welded.
Maximum Design Pressure –45 psf. (See General Limitation #7)

Maximum Design Pressure: –See Fastening Options Above



Membrane Type: Single Ply, PVC
Deck Type 2I: Steel, Insulated
Deck Description: Minimum 22 gage ASTM A1008 or A653 SS Grade 80 Steel deck fastened to structural supports at a maximum span of 6 feet o.c. Steel deck shall be fastened with minimum ITW Buildex Tek 5 at a maximum spacing of 6 inches o.c. Side laps shall be fastened with ITW Buildex Tek 1 at a maximum spacing of 24 inches o.c.
This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submitted Table.
System Type D(3): Membrane mechanically attached over preliminarily fastened insulation.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ENRGY 3, ACFoam-II, Poly ISO 2, H-Shield, Mule-Hide Poly ISO 1, Insulfoam SP, R-TECH, R-TECH Fan-Fold, SECUROCK Gypsum-Fiber Roof Board Minimum 1.5" thick	N/A	N/A

Note: All layers of insulation and membrane shall be simultaneously attached. See membrane below for fasteners and density. Refer to Roofing Application Standard RAS 117 for insulation attachment requirements. Insulation shall have preliminary attachment, prior to the installation of the roofing membrane. 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. Single and multiple layers of insulation can be attached to the deck with FAST 100 LV adhesive.

Vapor Retarder: (Optional) Any UL or FM approved vapor retarder applied to the roof deck or over a base layer of insulation.
Membrane: PVC Membrane secured through the preliminarily attached insulation as specified below.
Fastening: OMG XHD fasteners with OMG 2-3/8" Barbed XHD Plates 12" o.c. through the PVC Membrane in the lap in rows spaced 75.5" o.c. The outside 1.5" of the roof cover lap is heat welded.
Maximum Design Pressure: -45 psf. (See General Limitation #7.)



STEEL 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 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 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. The membrane can be identified using the identification code printed outside the splice overlap area (visible every 50') or within the splice area. The code begins with either 9 or 91 to designate the plant. The next three letters designate the material and color. The next six numbers designate the date of manufacture (year/month/day). The next letter designates the shift and the last number designates the machine. In addition to this identification code, the letters "CCM" are also printed within the splice overlap area.



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. 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 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 membranes or packaging shall bear the imprint or identifiable marking of the manufacturer's name or logo and the following statement: "Miami-Dade County Product Control Approved" or the Miami-Dade County Product Control Seal as shown below.



11. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE



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