



MIAMI-DADE COUNTY
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)

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 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, including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Mule-Hide Single Ply EPDM 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 renews NOA # 03-0703.08 and consists of pages 1 through 15.
 The submitted documentation was reviewed by Alex Tigera.



NOA No.: 09-1103.03
Expiration Date: 06/28/11
Approval Date: 01/27/10
Page 1 of 15

ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Single Ply
Material: EPDM

Deck Type: Concrete
Maximum Design Pressure -585 psf
Fire Classification: 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>
Standard Black EPDM	various	ASTM D 4637	Non-reinforced EPDM membrane.
FR EPDM	various	ASTM D 4637	Non-reinforced, fire retardant EPDM membrane.
FR-Plus EPDM			
Reinforced EPDM	various	ASTM D 4637	Reinforced EPDM membrane.
Sure-Tough			
Reinforced FR EPDM	various	ASTM D 4637	Reinforced, fire retardant EPDM membrane.
Fleece BACK	various	ASTM D 4637	EPDM membrane with fleece backing..
Fleece BACK AFX			
White-on-Black EPDM	various	ASTM D 4637	Non-reinforced white on black EPDM membrane.
White-on-Black Fleece BACK EPDM	Various	ASTM D4637	Non-reinforced white on black fleece backed EPDM membrane.
RMS	various	ASTM D 4637	Reinforced securement strip.
Tape Primer	various	TAS 110	Solvent-Based Primer
CCW 702LT Primer	various	TAS 110	Low-Temperature Solvent-Based Primer
CCW 714 Primer	various	TAS 110	Water-Based Primer
CCW 725 Vapor Barrier	various	TAS 110	Vapor Barrier
FAST 100 Adhesive	various	TAS 110	Spray Polyurethane Adhesive
FAST 100-LV Adhesive			
FAST 100-P Adhesive			
FAST 102 Adhesive			
All-Purpose Sealant (white)		TAS 110	Lap Sealant for White-on-Black, Black EPDM membranes.
Black Lap Sealant			
White Splice Cement		TAS 110	Splicing Adhesive for EPDM membranes.
Black Splice Cement			
In-Seam Tape		TAS 110	Tape Adhesive for EPDM membranes.
Mule-Hide Bonding Adhesive		TAS 110	Solvent-based bonding adhesive.

<u>Product Name</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
B-500 Bonding Adhesive		TAS 110	Water-based bonding adhesive.
Mule-Hide Water Base Bonding Adhesive		TAS 110	Water-based bonding adhesive
All-Purpose Bars, ST Fastening Bars	1" wide	TAS 114	Metal bars used for membrane securement.

APPROVED INSULATIONS:

TABLE 2

<u>Product Name</u>	<u>Product Description</u>	<u>Manufacturer (With Current NOA)</u>
ACFoam Composite	Isocyanurate Insulation with perlite facer	Atlas Roofing Corp.
ACFoam II, III	Isocyanurate Insulation	Atlas Roofing Corp.
Poly ISO 2 Composite	Isocyanurate Insulation with perlite facer	Mule-Hide Products Co., Inc.
Poly ISO 2	Isocyanurate Insulation	Mule-Hide Products Co., Inc.
Polyisocyanurate HP, HP-N, HP-H, HP-W	Polyisocyanurate roof insulation.	Carlisle SynTec, Inc.
Sure-Seal HP Recovery Board	High Density Wood Fiberboard.	Carlisle SynTec, Inc.
EPS/Fiberboard	High Density Wood Fiberboard bonded to EPS.	Carlisle SynTec, Inc.
EPS Insulation	Expanded Polystyrene.	Carlisle SynTec, Inc.
Carlisle Foamular ½" Board	Extruded Polystyrene recovery board.	Carlisle SynTec, Inc.
Hytherm, Hytherm AP	Isocyanurate Insulation	Dow Chemical
Styrofoam	Extruded Polystyrene.	Dow Chemical
ISO 95+ GL, 95+ GW	Polyisocyanurate foam insulation	Firestone
Dens Deck, Dens Deck Prime	Silicon treated gypsum	G-P Products
Sturdi-Top	Wood fiber insulation board.	G-P Products
High Density Wood Fiberboard	High Density Wood Fiber insulation board.	Generic
High Density Wood Fiberboard Perlite Insulation Board	High Density Wood Fiber insulation board Perlite Insulation	Knight Celotex Generic
Type X Gypsum , Gypsum	Gypsum Wallboard	Generic
EPS or XPS Insulation	Expanded or Extruded Polystyrene.	Generic
Ultra/M-II	Isocyanurate Insulation	Homasote Co.
H-Shield	Isocyanurate Insulation	Hunter Panels
ENRGY 2, ENERGY 3, PSI-25	Isocyanurate Insulation	Johns Manville



APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Foamular, Thermapink, Durapink	Extruded Polystyrene.	Owens Corning
Strataguard	Gypsum Wallboard	Owens Corning
Green Guard	Extruded Polystyrene insulation	Pactiv
Multi-Max, FA	Polyisocyanurate foam insulation	Rmax, Inc.
Fiber Base	Asphalt coated wood fiber insulation	Temple Inland Forest Products Corp.
Structodeck	High Density Wood Fiber insulation board.	Wood Fiber Industries

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Sure-Seal HP, HD 14-10 Fasteners	Threaded fasteners used for insulation and membrane securement.		Carlisle SynTec, Inc.
2.	Sure-Seal HP Concrete Spikes, CD-10	Driven fasteners used for insulation and membrane securement.		Carlisle SynTec, Inc.
3.	Sure-Seal Insulation Plates	Metal plates used for insulation securement.	2 7/8" dia	Carlisle SynTec, Inc.
4.	Sure-Seal Seam Fastening Plates	Metal plates used for membrane securement.	2" dia	Carlisle SynTec, Inc.
5.	Sure-Seal Polymer Seam Plates	Plastic plates used for membrane securement.	2" dia	Carlisle SynTec, Inc.
6.	Sure-Seal HP Seam Plates	Metal plates used for membrane securement.	2" dia	Carlisle SynTec, Inc.
7.	Dekfast Fasteners #14 & #15	Fastener for wood, steel and concrete decks		SFS Intec, Inc.
8.	Dekfast Hex Plate	Galvalume hex stress plate.	2-7/8" x 3-1/4"	SFS Intec, Inc.
9.	#14 & #15 Roofgrip Fasteners	Fastener for wood, steel and concrete decks.		ITW Buildex Corp.
10.	Metal Plate	Galvalume stress plate.	3" round 3" square	ITW Buildex Corp.
11.	Olympic Fastener #12 & #14, CD-10, HD 14-10	Insulation fastener		Olympic Mfg. Group, Inc.



APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
12.	Olympic G-2	Galvalume AZ55 steel plate	3.5" round	Olympic Mfg. Group, Inc.
13.	Olympic Standard	3" round galvalume AZ50 steel plate	3" round	Olympic Mfg. Group, Inc.
14.	Rawl Drive	Fastener for concrete decks		Powers Fasteners, Inc.
15.	Rawl Spike	Fastener for concrete decks		Powers Fasteners, Inc.
16.	Rawl	Galvalume AZ55 steel plate	3" round	Powers Fasteners, Inc.
17.	#14 HD Insul-Fixx Fastener	Fastener for wood, steel and concrete decks		SFS Intec, Inc.
18.	Insul-Fixx S Plate	Galvalume AZ50 steel plate	3" round	SFS Intec, Inc.
19.	Insul-Fixx P Plate	Polyethylene stress plate	3" round	SFS Intec, Inc.
20.	Isofast Plate	Square or oblong galvalume steel plates for use with Isofast fasteners		SFS Intec, Inc.
21.	Tru-Fast HD	Fastener for wood, steel and concrete decks		The Tru-Fast Corp.
22.	Tru-Fast CF Fasteners	Fastener for concrete decks		The Tru-Fast Corp.
23.	Tru-Fast Ultra	Stainless Steel fastener for use in steel, wood and concrete decks		The Tru-Fast Corp.
24.	Tru-Fast Plates	Galvalume AZ55 steel plate	3" round	The Tru-Fast Corp.
25.	Tru-Fast Plates	Polyethylene plastic plate	3" round	The Tru-Fast Corp.
26.	Tru-Fast Plates	Galvalume AZ50 steel plate	3.23" round	The Tru-Fast Corp.
27.	Mule-Hide HD Fasteners	Fastener for wood, steel and concrete decks		Mule-Hide Products Co., Inc.
28.	Mule-Hide CF Fasteners	Fastener for concrete decks		Mule-Hide Products Co., Inc.
29.	Mule-Hide Ultra	Stainless Steel fastener for use in steel, wood and concrete decks		Mule-Hide Products Co., Inc.
30.	Mule-Hide Plates	Galvalume AZ55 steel plate	3" round	Mule-Hide Products Co., Inc.
31.	Mule-Hide Plates	Polyethylene plastic plate	3" round	Mule-Hide Products Co., Inc.
32.	Mule-Hide Plates	Galvalume AZ50 steel plate	3.23" round	Mule-Hide Products Co., Inc.



APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
33.	Mule-Hide Seam Fastening Plates	Metal Plates used for membrane securement fastening	2" dia. 2" dia. barbed	Mule-Hide Products Co., Inc.
34.	Mule-Hide Polymer Seam Fastening Plates	Plastic plates used for membrane securement	2" dia.	Mule-Hide Products Co., Inc.

EVIDENCE SUBMITTED

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Architectural Testing Inc.	ATI-17601-02	Wind Uplift Classification	07/30/96
Architectural Testing Inc.	ATI-18535	Wind Uplift Classification	10/14/96
Factory Mutual Research Corp.	J.I.1B7A5.AM	Wind Uplift and Fire Classification	02/23/98
Factory Mutual Research Corp.	J.I. 2Z3A9.AM	Wind Uplift and Fire Classification	07/30/97
Factory Mutual Research Corp.	J.I. 4B2A1.AM	Wind Uplift Classification	06/11/97
Factory Mutual Research Corp.	J.I.3B8Q4.AM	Wind Uplift Classification	06/04/97
Factory Mutual Research Corp.	J.I. 0B4A7.AM	Wind Uplift Classification	05/29/97
Factory Mutual Research Corp.	J.I. 2B2A1.AM	Wind Uplift Classification	05/29/97
Factory Mutual Research Corp.	J.I. 2Z2A8.AM	Seam Test	05/16/97
Factory Mutual Research Corp.	J.I. 3B5A1.AM	Wind Uplift and Fire Classification	04/28/97
Factory Mutual Research Corp.	J.I 409A6.AM	Wind Uplift Classification	08/03/98
Factory Mutual Research Corp.	Letter	Wind Uplift Classification	09/15/98
Factory Mutual Research Corp.	J.I. 2D6A6.AM	Wind Uplift Classification	10/07/98
Factory Mutual Research Corp.	3003326	Class 4470	04/12/99
Factory Mutual Research Corp.	3000348	Class 4470	04/19/99
Factory Mutual Research Corp.	30013584	Class 4470	
Factory Mutual Research Corp.	3012458	Class 4470	02/23/02
Factory Mutual Research Corp.	3016162	Class 4470	10/25/03
Factory Mutual Research Corp.	J.I. 1B7A4.AM	Class 4470	07/08/99
Underwriters Laboratories, Inc.	96NK21757	Fire Classification	09/06/96
Underwriters Laboratories, Inc.	96NK10924	Fire Classification	10/31/96
Underwriters Laboratories, Inc.	96NK28871	Fire Classification	11/06/96
Underwriters Laboratories, Inc.	96NK33323	Fire Classification	10/24/97
Underwriters Laboratories, Inc.	Letter	Fire Classification	08/06/98
Underwriters Laboratories, Inc.	Letter	Fire Classification	09/09/98
Underwriters Laboratories, Inc.	02NK46936	UL 790	12/15/03



APPROVED ASSEMBLIES

- Membrane Type:** Single Ply, Thermoset, EPDM, Reinforced, Nonreinforced, Fleece Backed
- Deck Type 3I:** Concrete Decks, Insulated
- Deck Description:** 2500 psi structural concrete.
- System Type A(1):** One or more layers of insulation adhered with approved asphalt or FAST Adhesive. Membrane fully adhered.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
Polyisocyanurate HP, HP-H, HP-N, HP-W, Hytherm AP, ENRGY-2, ENRGY-3, AC Foam II, AC Foam III, Poly ISO 2 Minimum 1.5" thick	N/A	N/A
Dens Deck, Dens Deck Prime, Strataguard Minimum ¼" thick	N/A	N/A
HP Recovery, Wood Fiber Minimum ½" thick	N/A	N/A

Note: 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 or FAST Adhesive at a rate of 1.2 gal./sq. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

- Vapor Retarder:** None.
- Barrier:** None.
- Membrane:** FleeceBACK or White-on-Black FleeceBACK 100 or 115 mil membrane fully adhered to the insulation using FAST Adhesive applied to the substrate at a rate of 1 gal./sq.
Or
Standard or White-on-Black 45 to 90 mil membrane fully adhered to the insulation using Mule-Hide Bonding Adhesive applied to the substrate at a rate of 1 gal/60ft.², or B-500 applied to the substrate at 1 gal/sq.
Or
FleeceBACK AFX or AFX Plus membrane adhered to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq.
- Surfacing:** (Optional) A two-part surfacing consisting of EM-8 Hypalon applied at the rate of 1 gal./150 ft² and silica sand applied into the wet coating at a rate of 35 lbs./sq. or two coats of Mule-Hide Acrylic Coating at a rate 1.5 gal/sq. per coat.
- Maximum Design Pressure:** -330 psf (For Fiberboard top layer) See General Limitation #9
-352.5 psf (For Gypsum board top layer) (See General Limitation #9)



Membrane Type: Single Ply, Thermoset, EPDM, Fleece Backed

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500 psi structural concrete.

System Type A(2): One or more layers of insulation adhered with approved asphalt or FAST Adhesive. Membrane fully adhered.

All General and System Limitations apply.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Polyisocyanurate HP, HP-N, HP-W, Hytherm AP, H-Shield, ENRGY-2, ENRGY-3, AC Foam II, AC Foam III, Poly ISO 2 Minimum 1.5" thick	N/A	N/A

Note: 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 or FAST Adhesive at minimum rate 1.2 gal/sq. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Vapor Retarder: None.

Barrier: None.

Membrane: FleeceBACK or White-on-Black FleeceBACK 100 or 115 mil membrane fully adhered to the insulation using FAST Adhesive applied to the substrate at a rate of 1 gal./sq.
 Or
 Standard or White-on-Black 45 to 90 mil membrane fully adhered to the insulation using Mule-Hide Bonding Adhesive applied to the substrate at a rate of 1 gal/60ft.², or B-500 applied to the substrate at 1 gal/sq.
 Or
 FleeceBACK AFX or AFX Plus membrane adhered to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) A two-part surfacing consisting of EM-8 Hypalon applied at the rate of 1 gal./150 ft² and silica sand applied into the wet coating at a rate of 35 lbs./sq. or two coats of Mule-Hide Acrylic Coating at a rate 1.5 gal/sq. per coat.

Maximum Design Pressure: -330 psf (See General Limitation #9)
 -562.5 psf (For FleeceBACK membranes) (See General Limitation #9)



Membrane Type: Single Ply, Thermoset, EPDM, Fleece Backed
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete.
System Type A(3): One or more layers of insulation adhered with Fast Adhesive. Membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Extruded or Expanded Polystyrene Minimum 1" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Dens Deck, Dens Deck Prime, Strataguard Minimum ¼" thick	N/A	N/A
HP Recovery, Wood Fiber Minimum ½" thick	N/A	N/A

Note: All insulation shall be adhered to the deck with FAST Adhesive at minimum rate 1.2 gal/sq. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Vapor Retarder: None.

Barrier: None.

Membrane: FleeceBACK or White-on-Black FleeceBACK 100 or 115 mil membrane fully adhered to the insulation using FAST Adhesive applied to the substrate at a rate of 1 gal./sq.
 Or
 Standard or White-on-Black 45 to 90 mil membrane fully adhered to the insulation using Mule-Hide Bonding Adhesive applied to the substrate at a rate of 1 gal/60ft.², or B-500 applied to the substrate at 1 gal/sq.
 Or
 FleeceBACK AFX or AFX Plus membrane adhered to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq.

Surfacing: (Optional) A two-part surfacing consisting of EM-8 Hypalon applied at the rate of 1 gal./150 ft² and silica sand applied into the wet coating at a rate of 35 lbs./sq. or two coats of Mule-Hide Acrylic Coating at a rate 1.5 gal/sq. per coat.

Maximum Design Pressure: -420 psf (For Extruded Polystyrene) (See General Limitation #9)
 -322.5 psf (For Expanded Polystyrene) (See General Limitation #9)



Membrane Type: Single Ply, Thermoset, EPDM, Reinforced, Nonreinforced, Fleece Backed

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500 psi structural concrete.

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

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
One of the following covered with the boards listed in Top Layer or Base or Top Layer.		
Extruded or Expanded Polystyrene Minimum 1" thick	N/A	N/A
Perlite Minimum ¾" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top or base 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. Single and multiple layers of insulation can be adhered with FAST Adhesive in a full coverage application. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base or Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Multi-Max FA, Hytherm AP, Ultra/M-II Iso/glas, ISO 95+GL, HF, Rhoflex GL, HF Minimum 1.2" thick	1, 2, 7, 9, 11, 14, 15, 17, 21, 27 or 28	1:2 ft ²
ENRGY-2, ENRGY-3, PSI-25, WHITELINE, Hytherm AP, AC Foam II, AC Foam III, H-Shield, Polyisocyanurate HP, HP-H HP-N, HP-W, Poly ISO 2 Minimum 1.5" thick	1, 2, 7, 9, 11, 14, 15, 17, 21, 27 or 28	1:2 ft ²
Minimum 2" thick	1, 2, 7, 9, 11, 14, 15, 17, 21, 27 or 28	1:4 ft ²
ACFoam Composite, Poly ISO 2 Composite, Rhoflex Composite, Fesco Foam, ISO 95+GL, HF, Rhoflex GL, HF, Minimum 1.5" thick	1, 2, 14, 15, 27 or 28	1:3 ft. ²
High Density Fiberboard Minimum ¾" thick	7, 11, 21, 27 or 28	1:2.67 ft. ²
Structodeck, Fiber Base, HP Recovery, High Density Wood Fiber, Minimum ½" thick	7, 11, 21, 27 or 28	1:2 ft ²
Dens Deck, Dens Deck Prime, Strataguard Minimum ¼" thick	1, 2, 7, 9, 11, 14, 15, 17, 21, 27 or 28	1:2 ft ²

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Required over the insulations listed in Base Layer or optional over any of the insulations listed as Base or Top Layer :		



HP Recovery (for use over all insulation types)

Minimum ½" thick

1, 2, 14, 15, 27 or 28

1:2 ft.²

Fiber Base (for use over polyisocyanurate, gypsum or perlite)

Minimum ½" thick

1, 11, 27 or 28

1:2.9 ft.²

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

Barrier: None.

Membrane #1: Standard or White-on-Black 45 to 90 mil membrane fully adhered to the insulation using Mule-Hide Bonding Adhesive applied to the substrate at a rate of 1 gal/60 ft.², or B-500 applied to the substrate at 1 gal./sq. or Mule-Hide Water Base Bonding Adhesive applied only to High Density Wood Fiberboard at a rate of 1 gal/sq. **Maximum Design Pressure –45 psf (See General Limitation #9)**

Membrane #2: FleeceBACK or White-on-Black FleeceBACK 100 or 115 mil membrane fully adhered to the insulation using FAST Adhesive applied to the substrate at a rate of 1 gal/sq. **Maximum Design Pressure –60 psf. (See General Limitation #7)**

Membrane #3: FleeceBACK AFX or AFX Plus membrane adhered to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq. **Maximum Design Pressure – 60 psf. (See General Limitation #7).**

Surfacing: (Optional) A two-part surfacing consisting of EM-8 Hypalon applied at the rate of 1 gal./150 ft² and silica sand applied into the wet coating at a rate of 35 lbs./sq. or two coats of Mule-Hide Acrylic Coating at a rate 1.5 gal/sq. per coat.

Maximum Design Pressure: See Membrane Options Above

Membrane Type: Single Ply, Thermoset, EPDM, Reinforced

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500 psi structural concrete.

System Type D: Membrane mechanically attached over preliminary fastened insulation;

All General and System Limitations apply.

Base Insulation Layer

One of the following covered with the boards listed in Top Layer or Base or Top Layer.

Extruded or Expanded Polystyrene
Minimum 1" thick

**Insulation Fasteners
(Table 3)**

**Fastener
Density/ft²**

N/A

N/A

Perlite
Minimum ¾" thick

N/A

N/A

Base or Top Insulation Layer

ACFoam II, ACFoam III, Polyisocyanurate HP, HP-H, HP-N, HP-W, ACFoam Composite, Rhoflex Composite, Fesco Foam, ENRGY-2, ENRGY-3, ISO 95+GL, GW, Rhoflex GL, GW, Hytherm AP, ISO 95+ HF, Rhoflex HF, Multi-Max FA, Ultra/M-II Iso/glas, UltraGard Gold, Isolite E, Poly ISO 2 or Poly ISO 2 Composite.
Minimum 1" thick

**Insulation Fasteners
(Table 3)**

**Fastener
Density/ft²**

N/A

N/A

HP Recovery, Structodeck, High Density Fiberboard
Minimum ½" thick

N/A

N/A

Dens Deck, Dens Deck Prime, Strataguard
Minimum ¼" thick

N/A

N/A

Top Insulation Layer

Required over the insulations listed in Base Layer or optional over any of the insulations listed as Base or Top Layer :

**Insulation Fasteners
(Table 3)**

**Fastener
Density/ft²**

Fiber Base (use over polyisocyanurate, Gypsum or perlite), HP Recovery (use over all insul. types)
Minimum ½" thick

N/A

N/A

Note: All insulations 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 Adhesive at minimum rate 1.2 gal/sq.

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

Barrier: None.

Membrane: Reinforced, FR Reinforced or Sure-Tough secured through the preliminary attached insulation as specified below.

- Fastening #1: Mule-Hide Metal Fastening Bar or ST Fastening Bar with Concrete Fasteners spaced 12" o.c. the membrane lap or through an RMS spaced maximum 9'-6" o.c.
Maximum Design Pressure –45 psf (See General Limitation #7)
- Fastening #2: Mule-Hide Metal Fastening Bar or ST Fastening Bar with Concrete Fasteners spaced 6" o.c. the membrane lap or through an RMS spaced maximum 9'-6" o.c.
Maximum Design Pressure –60 psf. (See General Limitation #7)
- Fastening #3: Mule-Hide Metal Fastening Bar or ST Fastening Bar with Concrete Fasteners spaced 6" o.c. the membrane lap or through an RMS spaced maximum 6'-6" o.c.
Maximum Design Pressure –75 psf (See General Limitation #7)
- Fastening #4: Concrete fasteners and Polymer Plates 6" o.c. installed through the lap or through an RMS strip in rows spaced maximum 9'-6" o.c..
Maximum Design Pressure –52.5 psf. (See General Limitation #7)
- Fastening #5: Concrete Fasteners and 2" Polymer Plates spaced 6" o.c. through Sure-Tough Membrane in the lap in rows spaced maximum 9'-6" o.c.
Maximum Design Pressure –60 psf (See General Limitation #7)
- Surfacing: (Optional) A two-part surfacing consisting of EM-8 Hypalon applied at the rate of 1 gal./150 ft² and silica sand applied into the wet coating at a rate of 35 lbs./sq. or two coats of Mule-Hide Acrylic Coating at a rate 1.5 gal/sq. per coat.

Maximum Design Pressure: See Fastening Above



Membrane Type: Single Ply, Thermoset, EPDM, Reinforced, Nonreinforced, Fleece Backed

Deck Type 3: Concrete Decks, Non-insulated

Deck Description: 2500 psi structural concrete.

System Type F(1): Membrane fully adhered.

All General and System Limitations apply.

Vapor Retarder: None.

Barrier: None.

Membrane: Standard or White-on-Black 45 to 90 mil membrane fully adhered to concrete deck using 90-8-30 applied to the substrate at a rate of 1 gal/60ft.², or B-500 applied to the substrate at 1 gal/sq.

Surfacing: (Optional) A two-part surfacing consisting of EM-8 Hypalon applied at the rate of 1 gal./150 ft² and silica sand applied into the wet coating at a rate of 35 lbs./sq. or two coats of Mule-Hide Acrylic Coating at a rate 1.5 gal/sq. per coat.

Maximum Design Pressure: -240 psf. (See General Limitation #9)

Membrane Type: Single Ply, Thermoset, EPDM, Reinforced, Nonreinforced, Fleece Backed

Deck Type 3: Concrete Decks, Non-insulated, New Construction

Deck Description: 2500 psi structural concrete.

System Type F(2): Membrane fully adhered with asphalt or FAST Adhesive.

All General and System Limitations apply.

Vapor Retarder: None.

Barrier: None.

Membrane: FleeceBACK or White-on-Black FleeceBACK 100 or 115 mil membrane fully adhered to the deck using FAST Adhesive applied to the substrate at a rate of 1 gal./sq.

Or

FleeceBACK AFX or AFX Plus membrane adhered to the deck in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq.

Surfacing: (Optional) A two-part surfacing consisting of EM-8 Hypalon applied at the rate of 1 gal./150 ft² and silica sand applied into the wet coating at a rate of 35 lbs./sq. or two coats of Mule-Hide Acrylic Coating at a rate 1.5 gal/sq. per coat.

Maximum Design Pressure: -585 psf. (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 117, 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.: 09-1103.03
Expiration Date: 06/28/11
Approval Date: 01/27/10
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