



**DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY
AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION
NOTICE OF ACCEPTANCE (NOA)**

**MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION**
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/pera

**Firestone Building Products Company, LLC
250 West 96th Street
Indianapolis, IN 46260**

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 PERA – 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. PERA 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: Firestone UltraPly TPO (MD) Single Ply Roof Systems over Concrete Deck.

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 renews and revises NOA No. 07-0723.06 and consists of pages 1 through 21.
The submitted documentation was reviewed by Jorge L. Acebo.



**NOA No.: 12-0326.18
Expiration Date: 07/17/13
Approval Date: 06/28/12
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ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply Roofing
Material:	TPO
Deck Type:	Concrete
Maximum Design Pressure	-202.5 psf

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>
Firestone UltraPly TPO (MD)	45", 75", 96", 120" or 148" wide x 100' long x 45, 60, 70 or 80 mils thick	TAS 131 ASTM D 6878	Polyester reinforced Thermoplastic Olefin single ply membrane.
UltraPly Bonding Adhesive (MD)	5 gallon pails	Proprietary	Solvent based, contact adhesives for bonding of roof membrane to substrate.
Firestone ISO Twin Pack		Proprietary	Insulation Adhesive

APPROVED INSULATIONS:

TABLE 2

<u>Product</u>	<u>Product Description</u>	<u>Manufacturer (With current NOA)</u>
ACFoam II	Isocyanurate insulation	Atlas Roofing Corp.
ACFoam III	Isocyanurate insulation	Atlas Roofing Corp.
ACFoam Composite	Isocyanurate insulation with perlite facer	Atlas Roofing Corp.
H-Shield	Isocyanurate insulation	Hunter Panels
H-Shield-WF	Isocyanurate insulation with wood fiberboard facer	Hunter Panels
ENRGY-3	Isocyanurate insulation	Johns Manville
ENRGY-3 Plus	Isocyanurate insulation with wood fiberboard facer	Johns Manville
Multi-Max FA-3	Isocyanurate insulation	R-Max, Inc
Thermarroof Composite-3	Isocyanurate insulation with perlite facer	R-Max, Inc
Structodek High Density Fiberboard Roof Insulation	Wood fiberboard insulation	Blue Ridge Fiberboard, Inc.
DensDeck, DensDeck Prime	Silicon treated gypsum	G-P Gypsum
ISO95+GL	Isocyanurate insulation	Firestone Building Products
EPS	Type IX Expanded polystyrene with a minimum density of 1.8 pcf	Generic



NOA No.: 12-0326.18
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APPROVED FASTENERS:

TABLE 3

<u>Fastener No.</u>	<u>Product</u>	<u>Product Description</u>	<u>Manufacturer (With current NOA)</u>
1.	Dekfast Fasteners	Insulation and membrane fasteners.	SFS Intec
2.	OMG Fasteners	Insulation and membrane fasteners.	OMG, Inc.
3.	Tru-Fast Fasteners	Insulation and membrane fasteners.	Tru-Fast Corporation
4.	Firestone Fasteners	Insulation and membrane fasteners.	Firestone Building Products
5.	Firestone Heavy Duty Fasteners	Insulation and membrane fasteners.	Firestone Building Products
6.	Firestone Metal Batten Strip	Batten bar for mechanical attachment of membrane.	Firestone Building Products
7.	Firestone Polymer Batten Strip	Batten strip for mechanical attachment of membrane.	Firestone Building Products

EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Factory Mutual Research	3009797	FM 4470	02/04/02
	3007119	FM 4470	01/02/02
	3005794	FM 4470	12/13/01
	3002357	FM 4470	05/16/00
	3005415	FM 4470	02/08/00
	3002775	FM 4470	09/16/99
	3000919	FM 4470	04/07/99
	3003690	FM 4470	03/29/99
	3B9A2.AM	FM 4470	01/25/99
	4B1A9.AM	FM 4470	09/09/98
	1D9A7.AM	FM 4470	07/31/98
	1D9A0.AM	FM 4470	07/30/98
	1D0A3.AM	FM 4470	09/24/97
	1B0A9.AM	FM 4470	05/09/97
	3015927	FM 4470	01/26/04
	3023988	FM 4470	09/29/05
	3025484	FM 4470	05/31/06
3027476	FM 4470	08/11/06	
Exterior Research & Design, LLC.	8054.02.02-1	TAS 131	02/22/02
	EX30M3B	ASTM D 6878	06/17/04
Momentum Technologies, Inc.	01NK14490	Fire Classification	06/01/01
	96NK22037	TAS 114, (UL 790)	03/10/97
Underwriters Laboratories	01NK25823	TAS 114, (UL 1897)	07/02/01
	F8300.09.09-2-R1	ASTM D6878	11/24/08
Trinity ERD			



APPROVED ASSEMBLIES:

- Membrane Type:** Single Ply, TPO
- Deck Type 3I:** Concrete, Insulated
- Deck Description:** Min. 2500 psi structural concrete
- System Type A(1):** One or more layers of insulation adhered to deck with approved asphalt or adhesive.

All General and System Limitations apply.

Insulation: Concrete deck shall be primed with ASTM D41 asphalt primer and allowed to dry. One or more layer of maximum 4 x 4 ft (1.2 x 1.2 m) ACFoam II adhered to the deck or to each other with hot asphalt applied within the EVT range and at a rate of 20-40 lbs/ 100 ft². Membrane applied as noted below.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied at 30 ft²/gal (0.7 m²/L) to both the substrate and the bottom side of the roof cover for a combined rate of 60 ft²/gal (1.5 m²/L).

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



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete
System Type A(2): One or more layers of insulation adhered to deck with approved asphalt or adhesive.

All General and System Limitations apply.

One or more layers of the following:

<u>Insulation Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
H-Shield, AC Foam II Minimum: 1.5" thick	N/A	N/A
DensDeck, DensDeck Prime Minimum: 0.25" thick	N/A	N/A
Structodek High Density Fiberboard Roof Insulation Minimum: 0.5" 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 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -202.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(3): 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:

<u>Base Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ACFoam II, H-Shield, ENRGY 3 Minimum 1.0" thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 0.25" thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
DensDeck, DensDeck Prime Minimum 0.25" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in full coating of OlyBond Adhesive Fastener at a rate of 1 gal/sq. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)
Maximum Design Pressure: -202.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(4): 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:

<u>Base Insulation Layer (Optional)</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
Approved EPS Minimum 2.0” thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
Structodek High Density Fiberboard Roof Insulation Minimum 1.0” thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 0.25” thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ¾” – 1” wide beads 12” o.c. of OlyBond 500 or Spot Shot Adhesive Fastener. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -120 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(5): 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:

<u>Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ACFoam II, H-Shield, ISO 95+GL Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ¾" – 1" wide beads 12" o.c. of OlyBond 500 or OlyBond 500 Spot Shot Adhesive Fastener. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -150 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(6): 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:

<u>Base Insulation Layer (Optional)</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ACFoam II, H-Shield, ISO 95+GL Minimum 1.5" thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
DensDeck, DensDeck Prime Minimum 0.25" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ¾" – 1" wide beads 12" o.c. of OlyBond 500 or Spot Shot Adhesive Fastener. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -150 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(7): 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:

<u>Base Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ENRGY 3 Minimum 1.5" thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
DensDeck, DensDeck Prime Minimum 0.25" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ¾" – 1" wide beads 12" o.c. of OlyBond 500 or Spot Shot Adhesive Fastener. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -127.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(8): 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:

<u>Base Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ISO 95+ GL Minimum 1.5" thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
Structodek High Density Fiberboard Roof Insulation Minimum 0.5" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ¾" – 1" wide beads 12" o.c. of OlyBond 500 or Spot Shot Adhesive Fastener. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -202.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(9): 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:

<u>Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
DensDeck, DensDeck Prime Minimum 0.25" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ¾" – 1" wide beads 12" o.c. of OlyBond 500 or Spot Shot Adhesive Fastener. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -202.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(10): 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:

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ACFoam II, Multi-Max FA-3, ENRGY 3, H-Shield Minimum 1.5” thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 0.25” thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ½” to ¾” wide beads 12” o.c. of Firestone ISO Twin Pack or Weather-Tite One Step Foamable Adhesive. 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.

Vapor Retarder: (Optional) Any UL or FM approved asphaltic vapor retarder may be installed over the deck or the base layer of insulation

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: **-202.5 psf (with no vapor retarder)** (See General Limitation #9)
-157.5 psf (with asphaltic vapor retarder) (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(11): 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:

<u>Base Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ACFoam II, Multi-Max FA-3, ENRGY 3, H-Shield, ISO 95+GL Minimum 1.5" thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
Structodek High Density Fiberboard Roof Insulation Minimum 0.5" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in ½" to ¾" wide beads 12" o.c. of Firestone ISO Twin Pack or Millennium One Step Foamable Adhesive. 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.

Vapor Retarder: (Optional) Any UL or FM approved asphaltic vapor retarder may be installed over the deck or the base layer of insulation

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -127.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(12): 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:

<u>Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ACFoam II, ACFoam III, ISO 95+GL, Multi-Max FA-3 Minimum 1.5” thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 0.5” thick	N/A	N/A

Note: All insulation shall be adhered to the deck in 3” – 3.5” wide ribbons of TITASET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20, spaced 12” o.c. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -202.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(13): 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:

<u>Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ACFoam II, ACFoam III, ISO 95+GL Minimum 1.5" thick	N/A	N/A

Note: All insulation shall be adhered to the deck in 3" – 3.5" wide ribbons of TITSEET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20, spaced 12" o.c. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -202.5 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type A(14): 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:

<u>Base Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ACFoam II, ACFoam III, ISO 95+GL, Multi-Max FA-3 Minimum 1.5” thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 0.5” thick	N/A	N/A
<u>Top Insulation Layer</u>	<u>Fastener Density/ft²</u>	<u>Fastener Type</u>
ACFoam II, ACFoam III, ISO 95+GL, Multi-Max FA-3 Tapered	N/A	N/A

Note: All insulation shall be adhered to the deck in 3” – 3.5” wide ribbons of TITSEET Roofing Adhesive or 3M Polyurethane Foam Insulation Adhesive CR-20, spaced 12” o.c. 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)

Maximum Design Pressure: -45 psf (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I Concrete, Insulated
Deck Description Min. 2,500 psi structural concrete
System Type C(1): Membrane fully adhered over mechanically fastened insulation.

All General and System Limitations apply.

<u>Insulation Base Layer (Optional)</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
ACFoam II (flat or tapered)		
Minimum: 1.3" thick	N/A	N/A
H-Shield (flat or tapered)		
Minimum: 1.4" thick	N/A	N/A
ACFoam Composite (flat or tapered), Multi-Max FA-3, Therमारoof Composite-3		
Minimum: 1.5" thick	N/A	N/A
H-Shield-WF		
Minimum: 1.9" thick	N/A	N/A
Structodek High Density Fiberboard Roof Insulation		
Minimum: 1/2" thick	N/A	N/A

<u>Insulation Top Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
ACFoam II		
Minimum: 1.5" thick	1:2	See approved fasteners in Table 3
Minimum: 2.0" thick	1:4	See approved fasteners in Table 3
DensDeck, DensDeck Prime		
Minimum: 1/4" thick	1:1.8	See approved fasteners in Table 3

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied at 30 ft²/gal (0.7 m²/L) to both the substrate and the bottom side of the roof cover for a combined rate of 60 ft²/gal (1.5 m²/L)

Maximum Design Pressure: -45 psf; (See General Limitation #9)



Membrane Type: Single Ply, TPO
Deck Type 3I: Concrete, Insulated
Deck Description: Min. 2500 psi structural concrete or concrete plank
System Type C(2): Membrane fully adhered over mechanically fastened insulation.

**All General and System Limitations apply.
 One of the following insulations.**

<u>Insulation Base Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
Any approved insulation listed in Table 2		
Minimum: 0.25" thick	N/A	N/A
<u>Insulation Top Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
ACFoam II		
Minimum: 1.5" thick	1:1.78	Firestone Steel Insulation Plate; Firestone AP Fastener
ACFoam II		
Minimum: 2.0" thick	1:1.78	Firestone Steel Insulation Plate; Firestone AP Fastener

Note: All layers shall be simultaneously fastened; see top or base layer 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.

Membrane: UltraPly TPO (MD) adhered to insulation using UltraPly Bonding Adhesive (MD) applied to both the substrate and the bottom side of the roof cover for a combined rate of 65 ft²/gal (1.6 m²/L)
Maximum Design Pressure: -52.5 psf; {for 1.5" insulation} (See General Limitation #7)
 -60 psf; {for 2" insulation} (See General Limitation #7)



Membrane Type: Single Ply, TPO
Deck Type 3I Concrete, Insulated,
Deck Description Min. 2,500 psi structural concrete
System Type D: Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

<u>Insulation Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
ACFoam II (flat or tapered) Minimum: 1.3" thick	N/A	N/A
H-Shield (flat or tapered) Minimum: 1.4" thick	N/A	N/A
ACFoam Composite (flat or tapered), Multi-Max FA-3, Therमारroof Composite-3 Minimum: 1.5" thick	N/A	N/A
H-Shield-WF Minimum: 1.9" thick	N/A	N/A
Structodek High Density Fiberboard Minimum: 1/2" thick	N/A	N/A

Note: All insulation shall have preliminary attachment prior to installation of the roofing membrane at a minimum application of two fasteners per board for insulation boards having no dimension greater than 4 ft, and four fasteners for any insulation having no dimension greater than 8 ft.

Membrane: UltraPly TPO (MD) attached to deck as follows. A 7/32 in. (5.6 mm) diameter pilot hole is drilled in the deck to provide for minimum 1 in. (25 mm) deep fastener embedment. The pilot hole must be 0.5 in (13 mm) deeper than the embedded fastener.

Fastening #1: Firestone Heavy Duty Fasteners and Firestone Polymer Batten Strip. Screws are spaced at maximum 12 in (305 mm) o.c. within minimum 4.5 in (114 mm) wide laps, which are spaced at maximum 144 in (3,658 mm) o.c. and sealed with a minimum 1.25 in (32 mm) wide heat weld placed on each side of the batten strip.

Maximum Design: -45 psf.

Fastening #2: Firestone HD Fasteners and Firestone Polymer Batten Strip. Screws are spaced at maximum 6 in (152 mm) o.c. within minimum 5 in (127 mm) wide laps, which are spaced at maximum 144 in (3,658 mm) o.c. and sealed with a minimum 1.5 in (40 mm) wide heat weld placed on the outside edge of the batten strip.

Maximum Design Pressure: -60 psf.

Maximum Design Pressure: See membrane fastening options above.(See General Limitation #7)



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 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.

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 9N-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE



NOA No.: 12-0326.18
Expiration Date: 07/17/13
Approval Date: 06/28/12
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