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)

Firestone Building Products Company
310 East 96th Street
Indianapolis, IN 46240

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: Firestone UltraPly TPO (MD) Single Ply Roof Systems over Steel 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 consists of pages 1 through 22.
The submitted documentation was reviewed by Jorge L. Acebo.

PRODUCT CONTROL ACCEPTED

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply
Material:	TPO
Deck Type:	Steel
Maximum Design Pressure	**-105 psf**

TABLE 1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

Product Name	Dimensions	Test Specifications	Product Description
Firestone UltraPly TPO (MD)	45", 75", 96", 120" or 148" wide x 100' long x 45, 60, 70 or 80 mils thick	TAS 131	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 Metal Batten Strip	1" wide x 0.046" thick x 10 ft. long	TAS 110	Batten bar for mechanical attachment of membrane
Firestone Polymer Batten Strip	1" wide x 0.05" thick x 250' long. Holes pre-punched 6" o.c.	Proprietary	Batten strip for mechanical attachment of membrane
Firestone ISO Twin Pack		Proprietary	Insulation Adhesive

TABLE 2

APPROVED INSULATIONS:

Product	Product Description	Manufacturer (With current NOA)
AC Foam II	Isocyanurate insulation	Atlas Roofing Corp.
ACFoam III	Isocyanurate insulation	Atlas Roofing Corp
AC Foam 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
ENRGY2, ENRGY3	Isocyanurate insulation	Johns Manville
E'NRG'Y 2 Plus	Isocyanurate insulation with wood fiberboard facer	John Manville
Multi-Max FA	Isocyanurate insulation	R-Max, Inc.
Thermaroof Composite	Isocyanurate insulation with perlite facer	R-Max, Inc.
High Density Fiberboard	Wood fiberboard insulation	The Celotex Corp.
DensDeck	Silicon treated gypsum	G-P Gypsum

TABLE 3

APPROVED FASTENERS:

Fastener No.	Product	Product Description	Manufacturer (With current NOA)
1.	SFS Intec Fasteners	Insulation and membrane fasteners	SFS Intec
2.	Olympic Fasteners	Insulation and membrane fasteners	Olympic Manufacturing
3.	Tru-Fast Fasteners	Insulation and membrane fasteners	Tru-Fast Corporation
4.	Firestone Fasteners	Insulation and membrane fasteners	Firestone Building Products

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
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
	3012149	FM 4470	08/28/02
	3015927	FM 4470	01/26/04
	3019052	FM 4470	01/28/05
	3023988	FM 4470	09/29/05
	3025484	FM 4470	05/31/06
	3026594	FM 4470	06/01/06
	3025659	FM 4470	06/02/06
	3027476	FM 4470	08/11/06
	3027946	FM 4470	10/18/06
Exterior Research & Design, LLC.	8054.02.02-1	Physical Properties TAS 131	02/22/02
IRT-ARCON, Inc.	01-012	Wind Uplift, TAS 114, (FMRC 4470)	04/26/01
Momentum Technologies, Inc.	EX30M3B	Physical Properties	06/17/04
Underwriters Laboratories, Inc.	01NK14490	Fire Classification	06/01/01
	96NK22037	TAS 114, (UL 790)	03/10/97
	01NK25823	Wind Uplift, TAS 114, (UL 1897)	07/02/01
	02NK47751	Fire Classification	10/10/03
	04NK04226	Fire Classification	11/12/04

APPROVED ASSEMBLIES:

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18 – 22ga. steel

System Type B: Base Layer of insulation mechanically attached, optional top insulation layer fully adhered with approved asphalt or adhesive.

All General and System Limitations apply.

Insulation for Base Layer	Fastener Density/ft^2	Fastener Type
ACFoam II, H-Shield, ISO 95+GL, ENRGY2, ENRGY3		
Minimum 1.4" thick	1:2	Olympic Std. 3"plates and fasteners

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

Insulation for Top Layer	Fastener Density/ft^2	Fastener Type
(Optional) ACFoam II, H-Shield, ISO 95+GL, ENRGY2, ENRGY3		
Minimum 1.4" thick	N/A	N/A
(Optional) DensDeck, DensDeck Prime		
Minimum ¼" thick	N/A	N/A

Note: Optional top layer of 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 at 30 ft^2/gal (0.7 m^2/L) to both the substrate and the bottom side of the roof cover for a combined rate of 60 ft^2/gal (1.5 m^2/L)

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

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. Steel

System Type C(1): Membrane fully adhered over mechanically fastened insulation.

All General and System Limitations apply.

Insulation Base Layer (Optional)	Fastener Density ft^2	Fastener Type
One of the following covered with the boards listed in Base or Top Layer.		
AC Foam 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
AC Foam Composite (flat or tapered), Multi-Max FA, Thermaroof Composite		
Minimum: 1.5" thick	N/A	N/A
H-Shield-WF		
Minimum: 1.9" thick	N/A	N/A
High Density Fiberboard		
Minimum: ½" thick	N/A	N/A

Insulation Top Layer	Fastener Density ft^2	Fastener Type
AC Foam 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: ¼" thick	1:1.8	See approved fasteners in Table 3

Note: All layers shall be simultaneously fastened: see top 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 at 30 ft^2/gal (0.7 m^2/L) to both the substrate and the bottom side of the roof cover for a combined rate of 60 ft^2/gal (1.5 m^2/L)

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

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. Steel

System Type C(2): Membrane fully adhered over mechanically fastened insulation.

All General and System Limitations apply.

One of the following insulations.

Insulation Bottom Layer	Fastener Density ft^2	Fastener Type
Any approved insulation Minimum: 0.25" thick	N/A	N/A

Insulation Top Layer	Fastener Density ft^2	Fastener Type
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 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 ft^2/gal (1.6 m^2/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, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(1): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 33 or Grade 80 steel deck (see fastening options for specific steel grade)

Barrier: (Optional) Minimum 5/8" gypsum board or ¼" DensDeck, loose laid

Insulation Base or Top Layer	Fastener Density ft^2	Fastener Type
AC Foam 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
AC Foam Composite (flat or tapered), Multi-Max FA, Thermaroof Composite		
Minimum: 1.5" thick	N/A	N/A
H-Shield-WF		
Minimum: 1.9" thick	N/A	N/A
High Density Fiberboard		
Minimum: ½" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Fastening #1: Firestone 2" Metal Plates and Firestone AP Fasteners or Firestone 2" Metal Seam Plates and Firestone AP Fasteners or Olympic # 14 Heavy Duty Screws, spaced at a max. 6 in o.c. within minimum 4.5 in (114 mm) wide laps, which are spaced at a max 70.5 in. (1791mm) o.c. and sealed with a minimum 1.5 in (38 mm) heat weld. Minimum Grade 33 steel deck.

Fastening #2: SFS Intec Extra Load Fastener screws spaced at a max 12 in. (305 mm) o.c. through Firestone Metal Batten Strips which are placed within the minimum 4.5 in (114mm) wide laps, which are spaced at a max 70 in (1778mm) o.c., and sealed with a min. 1.5 in wide heat weld placed on both sides of the batten bar. Minimum grade 80 steel deck.

Fastening #3: Firestone TPO Plates and Firestone HD Fasteners or Olympic XHD 2-3/8" in. barbed plates and Olympic XHD screws spaced at 12 in. (305mm) o.c. within the minimum 4.5 in. (114mm) wide laps, which are spaced at 70 in (1778mm) o.c. and sealed with a minimum 1.5 in (38mm) heat weld. Minimum grade 80 steel deck.

Fastening #4:	Firestone HD Fasteners and Firestone HD Seam Plates or Firestone HDuty Fasteners and Firestone TPO Plates or Olympic XHD screws and XHD plates spaced at a maximum 12in (352 mm) o.c. within the minimum 6in (150 mm) wide laps, which are spaced at a maximum 90 in (2285 mm) o.c. and sealed with a minimum 1.75 in (45 mm) heat weld placed on the outside edge of the lap. Minimum grade 80 steel deck.
Fastening #5:	Firestone HD Fasteners and Firestone HD Seam Plates or Firestone HD Fasteners and Firestone TPO Plates or Olympic XHD screws and XHD plates spaced at a maximum 6 in (150mm) o.c. within the minimum 6 in (150 mm) wide laps, which are spaced at a maximum 114 in (2895 mm) o.c. and sealed with a minimum 1.75in (45mm) heat weld placed on the outside edge of the lap. Minimum grade 33 steel deck.
Fastening #6:	Firestone HD Fasteners and Firestone HD Seam Plates or Olympic XHD screws and XHD plates spaced at 12 in. (305 mm) o.c. within the minimum 5 in (127 mm) wide laps, which are spaced at 70 in (1778 mm) o.c. and sealed with a minimum 2 in (51 mm) wide heat weld placed on the outside edge of the lap. Minimum grade 80 steel deck.
Fastening #7:	Firestone HD Fasteners and Firestone Polymer Batten Strips. Screws are spaced at maximum 12 in (305 mm) o.c. within the minimum 4.5 in (114 mm) wide laps, which are spaced at maximum 140.5 in (3,568 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 and a minimum 1.0in (25 mm) wide heat weld placed on the inside edge of the batten strip. Minimum grade 33 steel deck.
Maximum Design Pressure:	**-45 psf** (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(2): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 80 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6ft o.c. with Buildex Teks 4 or Teks 5 fasteners spaced max. 6 in o.c.

Barrier: (Optional) Minimum 5/8" gypsum board or ¼" DensDeck, loose laid

Insulation Base Layer	Fastener Density ft^2	Fastener Type
One or more layers of any of the following insulation under those listed Top layer:		
AC Foam 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
AC Foam Composite (flat or tapered), Multi-Max FA, Thermaroof Composite		
Minimum: 1.5" thick	N/A	N/A
H-Shield-WF		
Minimum: 1.9" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Fastening #1: Firestone HD Fasteners spaced max. 6 in. (152 mm) o.c. through Firestone Metal Batten Strip. The batten strips and fasteners are placed within min. 4.5 in. (114 mm) wide laps, which are spaced at max 70.25 in. (1784 mm) o.c. and sealed with a min. 0.75 in. (19 mm) wide heat weld on the inside of the lap and a min 1 in. (25 mm) wide heat weld on the outside of the lap.

Maximum Design Pressure: -75 psf.

Fastening #2: Firestone HD Fasteners spaced max 12 in. (305 mm) o.c. through Firestone Metal Batten Strip. The batten strip and fasteners are placed within min. 4.5 in (114 mm) wide laps, which are spaced at max 70.25 in. (1784 mm) o.c. and sealed with a min. 0.75 in. (19 mm) wide heat weld on the inside of the lap and a min. 1 in. (25 mm) wide heat weld on the outside of the lap.

Maximum Design Pressure: -52.5 psf.

Fastening #3:	Firestone HD Fasteners spaced max 6 in. (152 mm) o.c. through Firestone Metal Batten Strip. The batten strip and fasteners are placed within min. 4.5 in. (114 mm) wide laps, which are spaced at max. 142.5 in. (3620 mm) o.c. and sealed with a min. 1 in. (25 mm) wide heat weld on the inside of the lap and a min. 1 in. (25 mm) wide heat weld on the outside of the lap. **Maximum Design Pressure: -52.5 psf.**
Fastening #4:	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 1.0 in. wide heat weld on inside of lap and a minimum 1.5 in. (40 mm) wide heat weld placed on the outside edge of the batten strip. **Maximum Design Pressure: -52.5 psf.**
Maximum Design Pressure:	**See Membrane Fastening Options above.** (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(3): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 80 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 5.5 ft o.c. with Buildex Teks 4 or Teks 5 fasteners spaced max. 6 in o.c.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

Insulation Base Layer	Fastener Density ft^2	Fastener Type
One or more layers of any of the following insulation:		
AC Foam 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
AC Foam Composite (flat or tapered), Multi-Max FA, Thermaroof Composite		
Minimum: 1.5" thick	N/A	N/A
H-Shield-WF		
Minimum: 1.9" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Fastening: Firestone HD Fasteners spaced max. 6 in. (152 mm) o.c. through Firestone Metal Batten Strip. The batten strip and fasteners are placed within min. 4.5 in. (114 mm) wide laps, which are spaced at max 142.5 in. (3620 mm) o.c. and sealed with a min. 1 in. (25 mm) wide heat weld on the inside of the lap and a min 1 in. (25 mm) wide heat weld on the outside of the lap.

Maximum Design Pressure: **-60 psf** (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. Steel

System Type D(4): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 80 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6 ft o.c. with Buildex Teks 4 or Teks 5 fasteners spaced max. 6 in o.c.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved Polyisocyanurate		
Minimum: 1.0" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Fastening #1: Firestone HD Seam Plates and Firestone HD Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide lap. Laps are spaced at maximum 144 in. o.c. and sealed with minimum 1.75 in. wide heat weld on the outside edge of the lap.

Maximum Design Pressure: -45 psf (See General Limitation #7)

Fastening #2: Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 12 in. o.c. within minimum 6 in. wide laps. Laps are spaced maximum 114 in. o.c. and sealed with minimum 1.75 in. wide heat weld on the outside edge of the lap.

Maximum Design Pressure: -45 psf (See General Limitation #7)

Maximum Design Pressure: **See Membrane Fastening Options Above**

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(5): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved Polyisocyanurate		
Minimum: 1.0" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Fastening #1: Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide laps. Laps are spaced maximum 144 in. o.c. and sealed with a minimum 1.75 in. wide heat weld located on the outside edge of the lap.

Maximum Design Pressure: -45 psf (See General Limitation #7)

Fastening #2: Firestone 2-3/8" SXHD Plates and Firestone SXHD Plus Fasteners spaced 6 in. o.c. within minimum 6 in. wide lap. Laps are spaced at maximum 144 in. o.c. and sealed with minimum 1.75 in. wide heat weld on the outside edge of the lap.

Maximum Design Pressure: -45 psf (See General Limitation #7)

Fastening #3: Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 12 in. o.c. within minimum 6 in. wide laps. Laps are spaced maximum 90 in. o.c. and sealed with a minimum 1.75 in. wide heat weld located on the outside edge of the lap.

Maximum Design Pressure: -45 psf (See General Limitation #7)

Maximum Design Pressure: **See Membrane Fastening Options Above**

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(6): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 80 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6 ft o.c. with Buildex Teks 4 or Teks 5 fasteners spaced max. 6 in o.c.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved Polyisocyanurate		
Minimum: 1.0" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Fastening #1: Firestone Polymer Batten Strip and Firestone HD Fasteners spaced maximum 6 in. o.c. within minimum 4.5 in. wide laps. Laps are spaced maximum 69.5 in. o.c. and sealed with a min 1.0 in. wide inside edge heat weld and a min. 1.25 in. wide outside edge heat weld.

Maximum Design Pressure: -90 psf (See General Limitation #7)

Fastening #2: Firestone Polymer Batten Strip and Firestone HD Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide laps. Laps are spaced maximum 114 in. o.c. and sealed with a min 1.0 in. wide inside edge heat weld and a min. 1.25 in. wide outside edge heat weld.

Maximum Design Pressure: -60 psf (See General Limitation #7)

Maximum Design Pressure: **See Membrane Fastening Options Above**

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(7): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved insulation		
Minimum: 0.25" thick	N/A	N/A

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

Membrane: Min. 0.070 in. thick UltraPly TPO (MD) attached to deck as follows:

Fastening #1: Firestone Polymer Batten Strip and Firestone HD Fasteners spaced maximum 6 in. o.c. within min. 6 in. wide laps. Laps are spaced at maximum 69 in. o.c. and sealed with a minimum 1.0 in. wide inside edge heat weld and a minimum 1.5 in. wide outside edge heat weld.

Maximum Design Pressure: -75 psf (See General Limitation #7)

Fastening #2: Firestone HD Seam Plates and Firestone HD Fastener spaced maximum 6 in. o.c. within minimum 6 in. wide lap. Laps are spaced at maximum 90 in. o.c. and sealed with minimum 1.5 in. wide heat weld on the outside edge of the lap. An intermediate row Firestone Polymer Batten Strip and Firestone HD Fasteners spaced maximum 6 in. o.c. Intermediate row is centered between lap rows and covered with a 5 in. wide cover strip with minimum 1.5 in. wide heat welds on each side.

Maximum Design Pressure: -97.5 psf (See General Limitation #7)

Fastening #3: Firestone HD Seam Plates and Firestone HD Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide lap. Laps are spaced at maximum 69 in. o.c. and sealed with minimum 1.5 in. wide heat weld on the outside edge of the lap.

Maximum Design Pressure: -82.5 psf (See General Limitation #7)

Maximum Design Pressure: **See Membrane Fastening Options Above**

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(8): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved insulation		
Minimum: 0.25" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Fastening : Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 6 in. o.c. within min. 6 in. wide laps. Laps are spaced at maximum 90 in. o.c. and sealed with a minimum 1.5 in. wide heat weld on outside edge.

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

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(9): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 80 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6 ft o.c. with Buildex Teks 4 or Teks 5 fasteners spaced max. 6 in o.c.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved insulation		
Minimum: 0.25" thick	N/A	N/A

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

Membrane: Min. 0.070 in. thick UltraPly TPO (MD) attached to deck as follows:

Fastening #1: Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 12 in. o.c. within minimum 6 in. wide lap. Laps are spaced maximum 69.75 in. o.c. and sealed with a minimum 1.5 in. wide heat weld on outside edge of lap.

Maximum Design Pressure: -52.5 psf (See General Limitation #7)

Fastening #2: Firestone HD Seam Plates and Firestone HD Fasteners or Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide laps. Laps are spaced maximum 69.75 in. o.c. and sealed with minimum 1.5 in. heat weld on outside edge of lap.

Maximum Design Pressure: -75 psf (See General Limitation #7)

Fastening #3: Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide laps. Laps are spaced maximum 90 in. o.c. and sealed with minimum 1.5 in. heat weld on outside edge of lap.

Maximum Design Pressure: -82.5 psf (See General Limitation #7)

Maximum Design Pressure: **See Membrane Fastening Options Above**

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(10): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 80 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6 ft o.c. with Buildex Teks 4 or Teks 5 fasteners spaced max. 6 in o.c.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved insulation		
Minimum: 0.25" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Firestone 3" HD Plus Seam Plates and Firestone HD Plus Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide lap. Laps are spaced maximum 90 in. o.c. and sealed with a minimum 1.5 in. wide heat weld on outside edge of lap.

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

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(11): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653/A653M-01 Grade 33 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6 ft o.c. with ITW Buildex ICH Traxx/5 fasteners spaced max. 6 in o.c. Side laps secured with ITW Buildex ICH Traxx/1 fasteners spaced max 24 in o.c.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved Polyisocyanurate		
Minimum: 1.5" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Firestone HD Seam Plates and Firestone HD Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide lap. Laps are spaced maximum 90 in. o.c. and sealed with a minimum 1.5 in. wide heat weld on outside edge of lap.

Maximum Design Pressure: **-60 psf** (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(12): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653/A653M-01 Grade 33 steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6 ft o.c. with two ITW Buildex ICH Traxx/5 fasteners spaced max. 6 in o.c. Side laps secured with ITW Buildex ICH Traxx/1 fasteners spaced max 12 in o.c.

Barrier: (Optional) Minimum $^5/_8$" gypsum board or ¼" DensDeck, loose laid

One or more layers of any of the following insulation:

Insulation Layer	Fastener Density ft^2	Fastener Type
Any approved Polyisocyanurate		
Minimum: 1.5" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions 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:

Firestone HD Seam Plates and Firestone HD Fasteners spaced maximum 6 in. o.c. within minimum 6 in. wide lap. Laps are spaced maximum 90 in. o.c. and sealed with a minimum 1.5 in. wide heat weld on outside edge of lap. An intermediate row of attachment is provided by Firestone ¾" Polymer Batten Strip installed with Firestone HD Fasteners spaced minimum 6 in o.c. between each lap. Batten Strip covered with TPO coverstrip minimum 5 in. wide and minimum 1½" wide heat welds on both edges.

Maximum Design Pressure: **-105 psf** (See General Limitation #7)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 2I:	Steel, Insulated
Deck Description:	Cellular lightweight concrete over 18-22 ga. Steel deck
System Type E:	Mechanically attached roof cover

All General and System Limitations apply.

Deck:	18-22. Type B [1.5" deep (38 mm)] vented steel deck secured to 0.25 in (6 mm) structural supports spaced maximum 5 ft (1.8 m) o.c. with weld-washers and 5/8" puddle welds at every bottom flute. Steel deck side laps are attached 24" (610 mm) o.c. with #10 TEK screws.
Lightweight Concrete:	Approved cellular lightweight concrete cast to a minimum thickness of 2 inches, with or without polystyrene insulation.
Membrane:	UltraPly TPO (MD) mechanically attached through the lightweight concrete to the underlying steel deck as follows:
Fastening:	Fasteners installed through lightweight concrete to steel deck. UltraPly TPO* membrane secured with Firestone HD Fasteners spaced max 6" o.c. through the Firestone Polymer Batten Strip. The batten strip and fasteners are placed within min. 4.5" wide laps are spaced at a max 143.5" o.c. and sealed with a min. 0.75" wide heat weld on the inside of the lap and a min. 1" wide heat weld on the outside of the lap.
Maximum Design Pressure:	**-90 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.

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. 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.)**

END OF THIS ACCEPTANCE