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 46240-3702

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.

DESCRIPTION: Firestone Modified Bitumen Roof Systems over Steel Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA renews NOA # 03-0819.02 and consists of pages 1 through 30.
The submitted documentation was reviewed by Jorge L. Acebo.

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Modified Bitumen
Material:	APP/SBS
Deck Type:	Steel
Maximum Design Pressure	-82.5 psf
Fire Classification:	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product	Dimensions	Test Specification	Product Description
APP 180	39.4" x 32'10"	ASTM D 5147	Polyester reinforced modified bitumen, granule surfaced membrane. Torch applied.
APP 180 FR	39.4" x 32'10"	ASTM D 5147	Polyester reinforced, fire regardant modified bitumen, granule surfaced membrane. Torch applied.
APP 170	39.4" x 33'6"	ASTM D 5147	Polyester reinforced modified bitumen membrane. Torch applied.
APP 160	39.4" x 32'10"	ASTM D 5147	Polyester reinforced modified bitumen membrane. Torch applied.
MB Base Sheet	36" x 108'	ASTM D 5147	Fiberglass reinforced base sheet, asphalt coated on both sides. Applied in hot asphalt or mechanically attached.
SBS	39.4" x 33'10"	ASTM D 5147	Granule surfaced, modified bitumen membrane reinforced with non-woven polyester mat.
SBS FR	39.4" x 33'10"	ASTM D 5147	Ceramic granule surface, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Premium FR	39.4" x 33'10"	ASTM D 5147	Ceramic granule surface, fire rated, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Base Sheet	39.4" x 50'	ASTM D 5147	Fiberglass reinforced SBS base sheet. Applied in hot asphalt or mechanically attached.
SBS Smooth	39.4" x 33'10"	ASTM D 5147	Smooth surfaced, modified bitumen membrane reinforced with non-woven polyester mat. Applied in hot asphalt.
SBS Premium	39.4" x 33'10"	ASTM D 5147	Granule surfaced, modified bitumen membrane reinforced with polyester mat. Applied in hot asphalt.

Product	Dimensions	Test Specification	Product Description
SBS Glass	39.4" x 33'10"	ASTM D 5147	Fiberglass reinforced, granule surfaced, modified bitumen membrane. Applied in hot asphalt.
SBS Glass FR	39.4" x 33'10"	ASTM D 5147	Granular surfaced, fiberglass reinforced, fire regardant, modified bitumen membrane. Applied in hot asphalt.
Type IV	33" x 180"	ASTM D5147	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
Type VI	33" x 180"	ASTM D5147	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Pyrox	Isocyanurate Insulation	Apache
ACFoam I, ACFoam II	Isocyanurate Insulation	Atlas Roofing Corp.
ISO 95+, ISO 95+ GL, 95+ GW	Isocyanurate Insulation	Firestone
ISO 95+ Composite	Isocyanurate Insulation with perlite facer	Firestone
FiberTop Wood Fiber	Regular wood fiber insulation	Firestone
Rhoflex Composite	Polyisocyanurate foam / perlite insulation	Firestone
Dens Deck	Silicon treated gypsum	G-P Products
Iso-Lite E	Polyisocyanurate foam insulation.	International Permalite
ENRGY 2, ENRGY PSI-25, UltraGard Gold II, UltraGard II	Isocyanurate Insulation	Johns Manville
Fiberglas	Fiber glass roof insulation	Johns Manville
Fesco Foam	Isocyanurate Insulation with perlite facer	Johns Manville
High Density Wood Fiberboard	High Density Wood Fiber insulation board.	Generic
Perlite Insulation Board	Perlite Insulation	Generic
Iso-Lite E	Polyisocyanurate foam insulation	International Permalite
Multi-Max FA	Isocyanurate Insulation	Rmax, Inc.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Firestone All-Purpose Fastener	Insulation and membrane fastener	Various	Firestone
2.	Firestone HD Fastener	Insulation and membrane fastener	Various	Firestone
3.	MB Barbed Metal Seam Plate	Metal plates used for membrane securement.	2" dia	Firestone
4.	Hexagonal Plate	Insulation attachment hexagonal plate	3-$^{3}/_{8}$" x 2-$^{7}/_{8}$"	Firestone
5.	Seam Plate	Membrane seam attachment plate.	2-$^{3}/_{8}$" dia	Firestone
6.	Metal Plate	Membrane attachment plate.	2" dia	Firestone
7.	Dekfast Fasteners	Insulation and membrane fastener	Various	Construction Fasteners, Inc.
8.	Dekfast Hex Plate	Insulation and membrane fastener	Various	Construction Fasteners, Inc.
9.	#12 & #14 Roofgrip	Insulation and membrane fastener	Various	ITW Buildex
10.	Metal Plate	Galvalume AZ50 stress plate	3" square 3" round	ITW Buildex
11.	Plastic Plate	Polyethylene stress plate	3.2" round	ITW Buildex
12.	Olympic Fasteners	Insulation and membrane fastener	Various	Olympic Mfg. Group
13.	Olympic Standard	Galvalume AZ55 stress plate	3" round	Olympic Mfg. Group
14.	Olympic	Plastic plates for fasteners.	3" round	Olympic Mfg. Group
15.	Insul-Fixx Fastener	Insulation fastener for use in wood, steel and concrete decks	Various	SFS Stadler, Inc.
16.	Insul-Fixx S	Galvalume AZ55 stress plate	3" round	SFS Stadler, Inc.
17.	Insul-Fixx PG	Polyethylene stress plate	3" round	SFS Stadler, Inc.
18.	Tru-Fast Fasteners	Insulation and membrane fastener	Various	The Tru-Fast Corp.
19.	Tru-Fast MP-3	Galvalume AZ50 steel plate	3.23" round	The Tru-Fast Corp.
20.	Tru-Fast Plastic Plate	Polyethylene stress plate	3" round	The Tru-Fast Corp.

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
Factory Mutual Research Corp.	J.I. 1D5A8.AM	Wind Uplift Classification	09/09/98
Factory Mutual Research Corp.	J.I. 3003597	Wind Uplift Classification	07/14/99
Factory Mutual Research Corp.	J.I. 3004786	Wind Uplift Classification	05/16/00
Factory Mutual Research Corp.	J.I. 3005030	Wind Uplift Classification	08/08/00
Trinity Engineering, Inc.	4810.01.96-1	Uplift Resistance PA 114(C) and PA 114(D)	01/31/96
Exterior Research & Design, LLC	4810.10.96-1	Uplift Resistance PA 114(J)	10/31/96

APPROVED ASSEMBLIES

Membrane Type: APP

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type B: Base layer of insulation mechanically attached, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ACFoam-II, ACFoam-I, ENRGY 2, PSI-25, Iso 95+ GL, GW, Composite, Rhoflex Composite, ISO-Lite E, Multi-Max, UltraGard Gold II Minimum 1.3" thick	**1, 2, 7, 9, 12, 15 or 18**	**1:2.4 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer (Optional)	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Optional top layer of insulation shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Base Sheet: One ply of Firestone MB Base Sheet, Manville GlasBase or Perma Ply 28 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.

Ply Sheet: (Optional) One or more plies of Firestone MB Base Sheet, Type IV or VI ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.; or one ply Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR applied by torch parallel to the base ply, with the overlaps staggered 12".

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF or No. 169, Henry 520 aluminum, MB aluminum coating or APOC #212 at an application rate of 1½ gal./sq.

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

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type B: Base layer of insulation mechanically fastened, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ACFoam I, II, Pyrox Minimum 1.3" thick	**7, 12, 15 or 18**	**1:2 ft^2**
ISO-Lite E, Multi-Max, UltraGard Gold II Minimum 1.3" thick	**1, 2, 7, 9, 12, 15 or 18**	**1:2.4 ft^2**
Iso 95+ GL, GW, Composite Minimum 1.4" thick	**7, 12, 15 or 18**	**1:2 ft^2**
Multi Max FA Minimum 1.5" thick	**7, 12, 15 or 18**	**1:2 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Apply top layer of insulation in a full mopping of any approved mopping hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. 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. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: One ply of Firestone MB, Firestone SBS Base Sheet, Celotex Vaporbar GB, Manville GlasBase, GAF GAFglas, Perma Ply 28 or Firestone Type IV or Type VI ply sheet 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.

Ply Sheet: (Optional) One or more plies of SBS Smooth or SBS Base sheet or Firestone Type IV or Type VI ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Membrane:	One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium, Premium FR, SBS Glass or SBS Glass FR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq..
Surfacing:	(Optional) Install one of the following: 1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq.. 2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.
Maximum Design Pressure:	-45 psf (See General Limitation #9)

Membrane Type: APP

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga., type B steel decking attached to steel supports spaced 5 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type B(1): Base layer of insulation mechanically attached, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL or any Approved Polyisocyanurate Minimum 1.5" thick	**1 or 2**	**1:2 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer of insulation shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Ply Sheet: One or more plies in any combination of the following: Firestone MB Base Sheet, Manville GlasBase, Perma-Ply 28 or Firestone Type IV or Type VI ply sheet bonded to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs/sq. or one ply Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR applied by torch parallel to the base ply, with the overlaps staggered 12".

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1½ gal./sq..
3. Fields F900 emulsion, Gilsonite Durakote # 151, Gibson Homans #6192-900 applied at 6 gal./sq. with 60 lbs. of roofing granules set in the wet coating.
4. Owens Corning Fiberglass Cap sheet GAF Mineral Surface Capsheet or Manville Glaskap in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq..

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

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga.., type B steel decking attached to steel supports spaced 5 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type B(1): Base layer of insulation mechanically fastened, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer

	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ISO 95+ GL or any Approved Polyisocyanurate Minimum 1.5" thick	**1 or 2**	**1:2 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer

	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer of insulation shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Ply Sheet: One or more plies in any combination of the following: Firestone MB Base Sheet, SBS Base, Celotex Vaporbar GB, Manville GlasBase, Perma-Ply 28, Firestone Type IV or Type VI ply sheet bonded to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs/sq.

Membrane: One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium, Premium FR, SBS Glass or SBS Glass FR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

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

Membrane Type: APP

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga., type B steel decking attached to steel supports spaced 6 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type B(2): Base layer of insulation mechanically attached, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL or any Approved Polyisocyanurate Minimum 1.5" thick	**1 or 2**	**1:2 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer of insulation shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Ply Sheet: One or more plies in any combination of the following: Firestone MB Base Sheet, Manville GlasBase, Perma-Ply 28 or Firestone Type IV or Type VI ply sheet bonded to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs/sq. or one ply Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR applied by torch parallel to the base ply, with the overlaps staggered 12".

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1½ gal./sq..
3. Fields F900 emulsion, Gilsonite Durakote # 151, Gibson Homans #6192-900 applied at 6 gal./sq. with 60 lbs. of roofing granules set in the wet coating.
4. Owens Corning Fiberglass Cap sheet GAF Mineral Surface Capsheet or Manville Glaskap in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq..

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

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga.., type B steel decking attached to steel supports spaced 6 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type B(2): Base layer of insulation mechanically fastened, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer

	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ISO 95+ GL or any Approved Polyisocyanurate Minimum 1.5" thick	**1 or 2**	**1:2 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer

	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer of insulation shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Ply Sheet: One or more plies in any combination of the following: Firestone MB Base Sheet, SBS Base, Celotex Vaporbar GB, Manville GlasBase, Perma-Ply 28, Firestone Type IV or Type VI ply sheet bonded to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs/sq.

Membrane: One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium, Premium FR, SBS Glass or SBS Glass FR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

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

Membrane Type: APP

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga., type B steel decking attached to steel supports spaced 6 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type B(3): Base layer of insulation mechanically attached, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL or any Approved Polyisocyanurate Minimum 1.5" thick	**1 or 2**	**1:1.6 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer of insulation shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Ply Sheet: Two or more plies in any combination of the following: Firestone MB Base Sheet, Manville GlasBase, Perma-Ply 28 or Firestone Type IV or Type VI ply sheet bonded to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs/sq. or Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR applied by torch parallel to the base ply, with the overlaps staggered 12".

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1½ gal./sq..
3. Fields F900 emulsion, Gilsonite Durakote # 151, Gibson Homans #6192-900 applied at 6 gal./sq. with 60 lbs. of roofing granules set in the wet coating.
4. Owens Corning Fiberglass Cap sheet GAF Mineral Surface Capsheet or Manville Glaskap in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq..

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

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga.., type B steel decking attached to steel supports spaced 6 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type B(3): Base layer of insulation mechanically fastened, top layer adhered with approved asphalt.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL or any Approved Polyisocyanurate Minimum 1.5" thick	**1 or 2**	**1:1.6 ft^2**

Note: Base layer shall be mechanically attached with fasteners and density described above. 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).

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer of insulation shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Ply Sheet: Two or more plies in any combination of the following: Firestone MB Base Sheet, SBS Base, Manville GlasBase, Perma-Ply 28, Firestone Type IV or Type VI ply sheet bonded to the insulation in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs/sq.

Membrane: One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium, Premium FR, SBS Glass or SBS Glass FR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

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

Membrane Type: APP

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type C: All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ACFoam-II, ACFoam-I, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick	N/A	N/A
ENRGY 2, PSI-25, Iso 95+ GL, GW, Composite Minimum 1.4" thick	N/A	N/A
Multi-Max Minimum 1.5" thick	N/A	N/A
Fiberglas Minimum $^{15}/_{16}$" thick	N/A	N/A
Perlite Minimum ¾" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ACFoam-II, ACFoam-I, ENRGY 2, PSI-25, Iso 95+ GL, GW, Composite, ISO-Lite E, Multi-Max, UltraGard Gold II Minimum 1.3" thick	1, 2, 7, 9, 12, 15 or 18	1:2.4 ft^2
Perlite Minimum ¾" thick	7, 12, 15 or 18	1:3 ft^2
Fiber Top, High Density Wood Fiber Minimum ½" thick	7, 12, 15 or 18	1:2 ft^2

Note: 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.

Base Sheet: One ply of Firestone MB Base Sheet, Manville GlasBase or Perma Ply 28 adhered to the insulation with approved asphalt adhesive applied within the EVT range and at a rate of 20-40 lbs./sq.

Ply Sheet:	(Optional) One or more plies of Firestone MB Base Sheet, Type IV or VI ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.; or one ply Firestone APP 160 or APP 170 torch applied.
Membrane:	One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR applied by torch parallel to the base ply, with the overlaps staggered 12".
Surfacing:	(Optional) Install one of the following: 1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq.. 2. Karnak No. 97, No. 97 AF or No. 169, Henry 520 aluminum, MB aluminum coating or APOC #212 at an application rate of 1½ gal./sq.
Maximum Design Pressure:	–45 psf (See General Limitation #9)

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type C: All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ACFoam-II, ACFoam-I, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick	N/A	N/A
ENRGY 2, PSI-25, Iso 95+ GL, GW, Composite Minimum 1.4" thick	N/A	N/A
Multi-Max Minimum 1.5" thick	N/A	N/A
Fiberglas Minimum $^{15}/_{16}$" thick	N/A	N/A
Perlite Minimum ¾" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ACFoam-II, ACFoam-I, ENRGY 2, PSI-25, Iso 95+ GL, GW, Composite, ISO-Lite E, Multi-Max, UltraGard Gold II Minimum 1.3" thick	1, 2, 7, 9, 12, 15 or 18	1:2.4 ft^2
Perlite Minimum ¾" thick	7, 12, 15 or 18	1:3 ft^2
Fiber Top, High Density Wood Fiber Minimum ½" thick	7, 12, 15 or 18	1:2 ft^2

Note: 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.

Base Sheet: One ply of Firestone MB, Firestone SBS Base Sheet, Celotex Vaporbar GB, Manville GlasBase, GAF GAFglas, Perma Ply 28 or Firestone Type IV or Type VI ply sheet 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.

Ply Sheet: (Optional) One or more plies of SBS Smooth or SBS base sheet or Firestone

Type IV or Type VI ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq..

Membrane: One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium, Premium FR, SBS Glass or SBS Glass FR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq..

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq..

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

Membrane Type: APP

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D: All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ACFoam-II, ACFoam-I, ISO-Lite E Minimum 1.3" thick	**N/A**	**N/A**
ENRGY 2, PSI-25, Iso 95+ GL, GW, Composite Minimum 1.4" thick	**N/A**	**N/A**
Multi-Max Minimum 1.5" thick	**N/A**	**N/A**
Fiberglas Minimum $^{15}/_{16}$" thick	**N/A**	**N/A**

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum 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. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone MB Base Sheet, Celotex Vaporbar GB, Manville GlasBase or Perma Ply 28 with a 4" side lap mechanically fastened through the insulation to the deck as described below:

Fastening: Approved Dekfast, Firestone, Olympic, Tru-Fast, Roofgrip, or Insulfixx screws with metal plates, TPR fasteners with Olympic metal plates or Iron-Lok and Strap Toggle at the side lap 18" o.c. and two rows staggered in the center of the sheet 36" o.c.

Fasten base sheet over an additional ply of Perma Ply 28 with Rawl #12 or #14 screws or Speed-Lock Toggles, with Rawl Stress Plates in the lap 18" o.c. and one row centered on the sheet 18" o.c..

Ply Sheet:	(Optional) One or more plies of Firestone MB Base Sheet, Type IV or VI ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.; or one ply Firestone APP 160 or APP 170 torch applied.
Membrane:	One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR applied by torch parallel to the base ply, with the overlaps staggered 12".
Surfacing:	(Optional) Install one of the following: 1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq.. 2. Karnak No. 97, No. 97 AF or No. 169, Henry 520 aluminum, MB aluminum coating or APOC #212 at an application rate of 1½ gal./sq.
Maximum Design Pressure:	–45 psf (See General Limitation #9)

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D: All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ACFoam-II, ACFoam-I, ISO-Lite E Minimum 1.3" thick	**N/A**	**N/A**
ENRGY 2, PSI-25, Iso 95+ GL, GW, Composite Minimum 1.4" thick	**N/A**	**N/A**
Multi-Max Minimum 1.5" thick	**N/A**	**N/A**
Fiberglas Minimum $^{15}/_{16}$" thick	**N/A**	**N/A**

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
Fiber Top, High Density Wood Fiber Minimum ½" thick	**N/A**	**N/A**

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum 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. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone MB, Firestone SBS Base Sheet, Celotex Vaporbar GB, Manville GlasBase, GAF GAFglas or Perma Ply 28 with a 4" side lap mechanically fastened to the deck through the insulation as described below:

Fastening: Approved Dekfast, Insulfixx, Olympic or Tru-Fast screws and metal or plastic plates or with TPR fasteners and Olympic plates, at a 4" side lap 18" o.c. and two rows staggered in the center of the sheet 36" o.c..

Ply Sheet: (Optional) One or more plies of SBS Smooth or SBS base sheet or Firestone Type IV or Type VI ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Membrane:	One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium, Premium FR, SBS Glass or SBS Glass FR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq.. 2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq..
Maximum Design Pressure:	–45 psf (See General Limitation #9)

Membrane Type: APP

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga., type B steel decking attached to steel supports spaced 5 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type D(2): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL or any other Approved polyisocyanurate Minimum 1.5" thick	**N/A**	**N/A**

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum 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. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone MB Base Sheet with a 4" side lap mechanically fastened through the insulation to the deck with Firestone AP or HD fasteners and plates at a spacing of 12" o.c. in the 4" side lap and two rows staggered in the center of the sheet, 12" o.c.

Ply Sheet: (Optional) One or more plies of Firestone MB Base Sheet, Type IV or VI ply sheet or other listed base sheet applied in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.; or one ply Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR applied by torch parallel to the base ply, with the overlaps staggered 12".

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1½ gal./sq..
3. Fields F900 emulsion, Gilsonite Durakote # 151, Gibson Homans #6192-900 applied at 6 gal./sq. with 60 lbs. of roofing granules set in the wet coating.
4. Owens Corning Fiberglass Cap sheet GAF Mineral Surface Capsheet or Manville Glaskap in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

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

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga., type B steel decking attached to steel supports spaced 5 ft. o.c. using ITW Buildex Traxx/5 fasteners spaced 6" o.c. (at the bottom flute), and with side laps attachment 30" o.c.

System Type D(2): All layers of insulation and base sheet simultaneously attached.

All General and System Limitations apply.

Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL or any other Approved polyisocyanurate Minimum 1.5" thick	**N/A**	**N/A**

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum 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. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Firestone MB Base Sheet with a 4" side lap mechanically fastened through the insulation to the deck with Firestone AP or HD fasteners and plates at a spacing of 12" o.c. in the 4" side lap and two rows staggered in the center of the sheet, 12" o.c.

Ply Sheet: (Optional) One or more plies of Firestone MB base sheet, SBS Base, Type IV or Type VI ply sheet or other listed base or ply sheet hot mopped in Type III or IV asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Membrane: One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium, Premium FR, SBS Glass or SBS Glass FR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: (Optional) Install one of the following:

1. Gravel or slag at 400 lb. and 300 lb., respectively, set in a flood coat of type III or IV asphalt at 60 lb./sq..
2. Karnak No. 97, No. 97 AF at an application rate of 1½ gal./sq.

Maximum Design Pressure: –82.5 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 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 Engineer, 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 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