



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 96<sup>th</sup> 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 and the High Velocity Hurricane Zone of the Florida Building Code.

**DESCRIPTION: Firestone Modified Bitumen Roof Systems over Wood 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 revises NOA No. 05-0830.10 and consists of pages 1 through 30.  
The submitted documentation was reviewed by Jorge L. Acebo.



NOA No.: 08-0118.07  
Expiration Date: 03/08/11  
Approval Date: 07/10/08  
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## ROOFING SYSTEM APPROVAL

Category: Roofing  
Sub-Category: Modified Bitumen  
Material: APP/SBS  
Deck Type: Wood  
Maximum Design Pressure -52.5 psf

**TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:**  
**TABLE 1**

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
APP 180	39.4" x 32'10"	ASTM D 6222	Polyester reinforced modified bitumen, granule surfaced membrane. Torch applied.
APP 180 FR	39.4" x 32'10"	ASTM D 6222	Polyester reinforced, fire retardant modified bitumen, granule surfaced membrane. Torch applied.
APP 170	39.4" x 33'6"	ASTM D 6222	Polyester reinforced modified bitumen membrane. Torch applied.
APP 160	39.4" x 32'10"	ASTM D 6222	Polyester reinforced modified bitumen membrane. Torch applied.
MB Base Sheet	36" x 108'	ASTM D 4601	Fiberglass reinforced base sheet, asphalt coated on both sides. Applied in hot asphalt or mechanically attached.
MB Base M	39.4" x 98.7' (1 m x 30.1 m)	ASTM D 4601	Fiberglass reinforced base sheet, asphalt coated on both sides. Applied in hot asphalt or mechanically attached.
SBS	39.4" x 33'10"	ASTM D 6164	Granule surfaced, modified bitumen membrane reinforced with non-woven polyester mat.
SBS FR	39.4" x 33'10"	ASTM D 6164	Ceramic granule surface, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Premium	39.4" x 33'10"	ASTM D 6164	Granule surfaced, modified bitumen membrane reinforced with polyester mat. Applied in hot asphalt.
SBS Premium FR	39.4" x 33'10"	ASTM D 6164	Ceramic granule surface, fire rated, modified bitumen membrane reinforced with non-woven polyester mat.
SBS Base Sheet	39.4" x 50'	ASTM D 6163	Fiberglass reinforced SBS base sheet. Applied in hot asphalt or mechanically attached.
SBS Smooth	39.4" x 33'10"	ASTM D 6164	Smooth surfaced, modified bitumen membrane reinforced with non-woven polyester mat. Applied in hot asphalt.
SBS Glass Torch Base	39.4" x 33'10"	ASTM D 6163	Modified bitumen base sheet with a burn-off film and reinforced with non-woven fiberglass mat.



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<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
SBS Premium FR Torch	39.4" x 33'10"	ASTM D 6164	Ceramic granule surface, fire rated, modified bitumen membrane with a burn-off film and reinforced with non-woven polyester mat.
SBS Glass	39.4" x 33'10"	ASTM D 6163	Fiberglass reinforced, granule surfaced, modified bitumen membrane. Applied in hot asphalt.
SBS Glass FR	39.4" x 33'10"	ASTM D 6163	Granular surfaced, fiberglass reinforced, fire retardant, modified bitumen membrane. Applied in hot asphalt.
Rhoflex Base Sheet		ASTM D6509	Asphalt coated glass fiber base sheet
Rhoflex FR Granule		ASTM D6223	Glass/Polyester reinforced modified bitumen cap sheet
Type IV	33" x 180"	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
Type VI	33" x 180"	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
Type IV M	39.4" x 164.5' (1 m x 50.4 m)	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.
Type VI M	39.4" x 164.5' (1 m x 50.1 m)	ASTM D2178	Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt.



**APPROVED INSULATIONS:**

**TABLE 2**

<b>Product Name</b>	<b>Product Description</b>	<b>Manufacturer (With Current NOA)</b>
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
Fiber Top	Regular wood fiber insulation	Firestone
Rhoflex Composite	Polyisocyanurate foam / perlite insulation	Firestone
Dens Deck	Silicon treated gypsum	G-P Products
ENRGY 3, ENRGY PSI-25, UltraGard Gold II, UltraGard II	Isocyanurate 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:**

<b>Fastener Number</b>	<b>Product Name</b>	<b>TABLE 3 Product Description</b>	<b>Dimensions</b>	<b>Manufacturer (With Current NOA)</b>
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- <sup>3</sup> / <sub>8</sub> " x 2- <sup>7</sup> / <sub>8</sub> "	Firestone
5.	Seam Plate	Membrane seam attachment plate.	2- <sup>3</sup> / <sub>8</sub> " dia	Firestone
6.	Metal Plate	Membrane attachment plate.	2" dia	Firestone
7.	Dekfast Fasteners	Insulation and membrane fastener	Various	SFS Intec
8.	Dekfast Hex Plate	Insulation and membrane fastener	Various	SFS Intec
9.	#12 & #14 Roofgrip	Insulation and membrane fastener	Various	OMG
10.	Metal Plate	Galvalume AZ50 stress plate	3" square 3" round	OMG
11.	Plastic Plate	3.2" round polyethylene stress plate	3.2" round	OMG
12.	Olympic Fasteners	Insulation and membrane fastener	Various	OMG
13.	Olympic Standard	3" round Galvalume AZ55 stress plate	3" round	OMG
14.	Olympic	Plastic plates for fasteners.	3" round	OMG
15.	Insul-Fixx Fastener	Insulation fastener for use in wood, steel and concrete decks	Various	SFS Intec
16.	Insul-Fixx S	Galvalume AZ55 stress plate	3" round	SFS Intec
17.	Insul-Fixx PG	Polyethylene stress plate	3" round	SFS Intec
18.	Tru-Fast Fasteners	Insulation and membrane fastener	Various	The Tru-Fast Corp.
19.	Tru-Fast MP-3	3.23" round Galvalume AZ50 steel plate	3.23" round	The Tru-Fast Corp.
20.	Tru-Fast Plastic Plate	3" round polyethylene stress plate	3" round	The Tru-Fast Corp.



**EVIDENCE SUBMITTED:**

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Factory Mutual Research Corp.	1D5A8.AM	FM 4470	09/09/98
	3003597	FM 4470	07/14/99
	3004786	FM 4470	05/16/00
	3005030	FM 4470	08/08/00
	3007328	FM 4470	07/12/02
Trinity   ERD	4810.01.96-1	PA 114(C) & PA 114(D)	01/31/96
	4810.10.96-1	PA 114(J)	10/31/96
	F10370.05.08	ASTM C 1289	05/08/08
Atlantic & Caribbean Roof Consulting, LLC.	ACRC 03-001	TAS 114	03/06/03
	ACRC 03-007	TAS 114	05/01/03
PRI Asphalt Technologies	FBP-018-02-01	ASTM D 6163	09/07/04
	FBP-011-02-01	ASTM D 6164	09/02/04
	FBP-008-02-01	ASTM D 6222	09/10/04
	FBP-009-02-01	ASTM D 6222	08/31/04
	FBP-010-02-01	ASTM D 6164	09/04/04
	FBP-014-02-01	ASTM D 6164	09/02/04
	FBP-015-02-01	ASTM D 6509	09/02/04
	FBP-016-02-01	ASTM D 6509	09/02/04
	FBP-017-02-01	ASTM D 6163	09/13/04
	FBP-019-02-01	ASTM D 4601	09/14/04
	FBP-023-02-01	ASTM D 6223	09/01/04
	FBP-007-02-01	ASTM D 6222	09/14/04
	FBP-020-02-01	ASTM D 2178	09/14/04



**APPROVED ASSEMBLIES**

- Membrane Type:** APP
- Deck Type II:** Wood, Insulated
- Deck Description:** 1<sup>9</sup>/<sub>32</sub>" or greater plywood or wood plank
- System Type A(1):** Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

**All General and System Limitations apply.**

One or more layers of any of the following insulations:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft <sup>2</sup>
<b>ACFoam-II, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick</b>	N/A	N/A
<b>ISO 95+ GL, GW, Composite, ENRGY 3, PSI-25 Minimum 1.4" thick</b>	N/A	N/A
<b>Multi-Max Minimum 1.5" thick</b>	N/A	N/A
<b>Perlite Minimum 3/4" thick</b>	N/A	N/A

**Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft<sup>2</sup>. 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.**

- Anchor Sheet:** One ply of Firestone MB Base Sheet, MB Base M, Celotex Vaporbar GB, Manville GlasBase, or Perma-Ply 28 mechanically fastened to the wood deck as described below:
- Fastening:** Anchor sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 9" o.c. at the lap and two rows staggered in the center of the sheet 18" o.c..
- Base Sheet:** One ply of Firestone MB Base Sheet, Manville GlasBase, Perma-Ply Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M 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 Firestone MB Base Sheet, Type IV, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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. 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:

-45 psf (See General Limitation #9)



**Membrane Type:** SBS

**Deck Type II:** Wood, Insulated

**Deck Description:** 1<sup>9</sup>/<sub>32</sub>" or greater plywood or wood plank

**System Type A(2):** Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

**All General and System Limitations apply.**

One or more layers of any of the following insulations:

<b>Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>ACFoam-II, Minimum 1.3" thick</b>	N/A	N/A
<b>ISO 95+ GL, GW, Composite Minimum 1.4" thick</b>	N/A	N/A
<b>Multi-Max FA, UltraGard II Minimum 1.5" thick</b>	N/A	N/A
<b>Perlite Minimum 3/4" thick</b>	N/A	N/A
<b>Fiber Top, High Density Wood Fiber Minimum 1/2" thick</b>	N/A	N/A

**Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft<sup>2</sup>. 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.**

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

**Fastening:** Anchor sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 9" o.c. at the lap and two rows staggered in the center of the sheet 18" o.c.

**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, Type IV M, Type VI or Type VI M 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, Type IV M, Type VI or Type VI M 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 II:** Wood, Insulated

**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with # 8 x 2½" wood screws at a maximum spacing of 6" o.c.

**System Type A(3):** Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

**All General and System Limitations apply.**

<b>Base Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>ISO 95+ GL or Approved Polyisocyanurate Minimum 1.5" thick</b>	N/A	N/A
<b>Top Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>FiberTop, High Density Wood Fiberboard Minimum ½" thick</b>	N/A	N/A
<b>Perlite Minimum ¾" thick</b>	N/A	N/A

**Note:** All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft<sup>2</sup>. 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.

**Anchor Sheet:** One ply of Firestone MB Base Sheet or MB Base M lapped 4" and fastened with approved corrosion resistant roofing nails and tin caps 9" o.c. at the lap and two rows staggered in the center of the sheet 18" o.c.

**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, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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. 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 1I:** Wood, Insulated  
**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with # 8 x 2½" wood screws at a maximum spacing of 6" o.c.  
**System Type A(4):** Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

**All General and System Limitations apply.**

<b>Base Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>ISO 95+ GL or Approved Polyisocyanurate Minimum 1.5" thick</b>	N/A	N/A
<b>Top Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>FiberTop, High Density Wood Fiberboard Minimum ½" thick</b>	N/A	N/A
<b>Perlite Minimum ¾" thick</b>	N/A	N/A

**Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft<sup>2</sup>. 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.**

**Anchor Sheet:** One ply of Firestone MB Base Sheet or MB Base M lapped 4" and fastened with approved corrosion resistant roofing nails and tin caps 9" o.c. at the lap and two rows staggered in the center of the sheet 18" o.c.

**Ply Sheet:** One or more plies in any combination of the following: Firestone MB Base Sheet, SBS Base, Manville GlasBase, Perma-Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M ply sheet bonded to the insulation in a full mopping of ASTM D 312, 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:** -52.5 psf (See General Limitation #7)



**Membrane Type:** APP  
**Deck Type II:** Wood, Insulated  
**Deck Description:** 19/32" or greater plywood or wood plank  
**System Type B(1):** Base layer of insulation mechanically attached, top layer adhered with approved asphalt.

**All General and System Limitations apply.**

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

**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).**

<b>Top Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>Perlite</b>		
<b>Minimum 3/4" thick</b>	<b>N/A</b>	<b>N/A</b>
<b>Fiber Top, High Density Wood Fiber</b>		
<b>Minimum 1/2" thick</b>	<b>N/A</b>	<b>N/A</b>

**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<sup>2</sup>. 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, Celotex Vaporbar GB, Manville GlasBase, Perma Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M 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 Firestone MB Base Sheet, Type IV, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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. 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:** -45 psf (See General Limitation #9)



**Membrane Type:** SBS  
**Deck Type 1I:** Wood, Insulated  
**Deck Description:** 1<sup>9</sup>/<sub>32</sub>" or greater plywood or wood plank  
**System Type B(2):** Base layer of insulation mechanically attached, top layer adhered with approved asphalt.

**All General and System Limitations apply.**

<b>Base or Top Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>ACFoam II Minimum 1.3" thick</b>	7, 12, 15 or 18	1:2 ft <sup>2</sup>
<b>ISO 95+ GL, GW, Composite Minimum 1.4" thick</b>	7, 12, 15 or 18	1:2 ft <sup>2</sup>
<b>UltraGard II, Multi Max FA Minimum 1.5" thick</b>	7, 12, 15 or 18	1:2 ft <sup>2</sup>
<b>Perlite Minimum 3/4" thick</b>	7, 12, 15 or 18	1:3 ft <sup>2</sup>
<b>Fiber Top, High Density Wood Fiber Minimum 1/2" thick</b>	7, 12, 15 or 18	1:3 ft <sup>2</sup>

**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).

<b>Top Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>Perlite Minimum 3/4" thick</b>	N/A	N/A
<b>Fiber Top, High Density Wood Fiber Minimum 1/2" thick</b>	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<sup>2</sup>. 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, Manville GlasBase, GAF GAFglas, Perma Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M 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 plies of SBS Smooth or SBS base sheet or Firestone Type IV, Type IV M, Type VI or Type VI M ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq..



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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 1I:** Wood, Insulated
- Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with # 8 x 2½" wood screws at a maximum spacing of 6" o.c.
- System Type B(3):** Base layer of insulation mechanically attached, top layer adhered with approved asphalt.

**All General and System Limitations apply.**

<b>Base Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>ISO 95+ GI or Approved Polyisocyanurate Minimum 1.5" thick</b>	<b>1 or 2</b>	<b>1:2 ft<sup>2</sup></b>

**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).**

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

**Note: Apply 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<sup>2</sup>. 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 or more plies in any combination of the following: Firestone MB Base Sheet, Manville GlasBase, Perma-Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M 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.
- Ply Sheet:** (Optional) One or more plies of Firestone MB Base Sheet, Type IV, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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. 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 II:** Wood, Insulated
- Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with # 8 x 2½" wood screws at a maximum spacing of 6" o.c.
- System Type B(4):** 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 <sup>2</sup>
ISO 95+ GI or Approved Polyisocyanurate Minimum 1.5" thick	1 or 2	1:2 ft <sup>2</sup>

**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 <sup>2</sup>
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 shall be adhered with approved hot asphalt within the EVT range and at a rate of 20-40 lbs/100 ft<sup>2</sup>. 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 or more plies in any combination of the following: Firestone MB Base Sheet, SBS Base, Celotex Vaporbar GB, Manville GlasBase, Perma-Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M 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.
- Ply Sheet:** (Optional) One or more plies of SBS Smooth or SBS base sheet or Firestone Type IV, Type IV M, Type VI or Type VI M 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:** -52.5 psf (See General Limitation #7)



**Membrane Type:** APP  
**Deck Type 1I:** Wood, Insulated  
**Deck Description:** 19/32" or greater plywood or wood plank  
**System Type C(1):** All layers of insulation simultaneously attached.

**All General and System Limitations apply.**

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft <sup>2</sup>
ACFoam-II, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick	N/A	N/A
ENRGY 3, 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
Perlite Minimum 3/4" thick	N/A	N/A

**Note: All insulation layers shall be simultaneously fastened; see top layer below for fasteners and density.**

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

**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, Celotex Vaporbar GB, Manville GlasBase, Perma Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M 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 Firestone MB Base Sheet, Type IV, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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. 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:** -45 psf (See General Limitation #9)



**Membrane Type:** SBS  
**Deck Type 1I:** Wood, Insulated  
**Deck Description:** 1 9/32" or greater plywood or wood plank  
**System Type C(2):** All layers of insulation simultaneously attached.

**All General and System Limitations apply.**

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft <sup>2</sup>
ACFoam-II, Minimum 1.3" thick	N/A	N/A
ISO 95+ GL, GW, Composite Minimum 1.4" thick	N/A	N/A
Multi-Max FA, UltraGard II Minimum 1.5" thick	N/A	N/A
Perlite Minimum 3/4" thick	N/A	N/A
Fiber Top, High Density Wood Fiber Minimum 1/2" thick	N/A	N/A

**Note: All insulation layers shall be simultaneously fastened; see top layer below for fasteners and density.**

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft <sup>2</sup>
Perlite Minimum 3/4" thick	7, 12, 15 or 18	1:3 ft <sup>2</sup>
Fiber Top, High Density Wood Fiber Minimum 1/2" thick	7, 12, 15 or 18	1:3 ft <sup>2</sup>

**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, Manville GlasBase, GAF GAFglas, Perma Ply 28 or Firestone Type IV, Type IV M, Type VI or Type VI M 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 Type IV, Type IV M, Type VI or Type VI M 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 1 1/2 gal./sq..

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



**Membrane Type:** APP  
**Deck Type II:** Wood, Insulated  
**Deck Description:** 1<sup>9</sup>/<sub>32</sub>" or greater plywood or wood plank.  
**System Type D(1):** All layers of insulation and base sheet simultaneously attached.

**All General and System Limitations apply.**

<b>Insulation Layer</b>	<b>Insulation Fasteners (Table 3)</b>	<b>Fastener Density/ft<sup>2</sup></b>
<b>ACFoam-II, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick</b>	N/A	N/A
<b>ENRGY 3, PSI-25, ISO 95+ GL, GW, Composite Minimum 1.4" thick</b>	N/A	N/A
<b>Multi-Max Minimum 1.5" thick</b>	N/A	N/A
<b>Perlite Minimum ¾" thick</b>	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 or MB Base M, Manville GlasBase or Perma Ply 28 with a 4" side lap mechanically fastened through the insulation to the wood deck as described below:

**Fastening:** Fasten base sheet with approved Dekfast, Firestone, Olympic, Tru-Fast, Roofgrip, or Insulfixx screws with metal plates or TPR fasteners with Olympic metal plates at the 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 Firestone MB Base Sheet, Type IV, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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. 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:** -45 psf (See General Limitation #9)



**Membrane Type:** SBS  
**Deck Type II:** Wood, Insulated  
**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank.  
**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 <sup>2</sup>
ACFoam-II, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick	N/A	N/A
ENRGY 3, 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
Perlite Minimum <sup>3</sup> / <sub>4</sub> " 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, 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:** Fasten base sheet with Dekfast, Insulfixx, Olympic or Tru-Fast screws and metal or plastic plates or with TPR 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, Type IV M, Type VI or Type VI M 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 II:** Wood, Insulated

**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with # 8 x 2½" wood screws at a maximum spacing of 6" o.c.

**System Type D(3):** All layers of insulation and base sheet simultaneously attached.

**All General and System Limitations apply.**

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft <sup>2</sup>
ISO 95+ GL or 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 or MB Base M with a 4" side lap mechanically fastened through the insulation to the deck as described below:

**Fastening:** Fasten base sheet 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, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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. 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 II:** Wood, Insulated

**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with # 8 x 2½" wood screws at a maximum spacing of 6" o.c.

**System Type D(4):** All layers of insulation and base sheet simultaneously attached.

**All General and System Limitations apply.**

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft <sup>2</sup>
ISO 95+ GL or 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 or MB Base M with a 4" side lap mechanically fastened through the insulation to the deck as described below:

**Fastening:** Fasten base sheet 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, Type IV M, Type VI or Type VI M ply sheet or other listed base or ply sheet hot mopped in 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 II:** Wood, Non-insulated  
**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank decks  
**System Type E(1):** Base sheet mechanically fastened.

**All General and System Limitations apply.**

**Base Sheet:** One ply of Firestone MB Base Sheet, MB Base M, Manville GlasBase or Perma Ply 28 mechanically fastened to the wood deck as described below:

**Fastening:** Anchor sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 9" o.c. at the lap and two rows staggered in the center of the sheet 18" o.c.

**Ply Sheet:** None.

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

**Surfacing:** 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..

APP 180 FR does not require 1, 2, 3 or 4 above to achieve a UL Class A fire rating.

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



**Membrane Type:** SBS  
**Deck Type 1I:** Wood, Non-insulated  
**Deck Description:** 1<sup>9</sup>/<sub>32</sub>" or greater plywood or wood plank decks  
**System Type E(2):** Base sheet mechanically fastened.

**All General and System Limitations apply.**

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

**Fastening:** Base sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 9" o.c. in the lap and two rows staggered in the center of the sheet 18" o.c.

**Ply Sheet:** (Optional) One or more plies of SBS Smooth or SBS Base sheet or Firestone Type IV, Type IV M, Type VI or Type VI M 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 1I:** Wood, Non-insulated

**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with #8 x 1-5/8" wood screws at a maximum spacing of 6" o.c.

**System Type E(3):** Base sheet mechanically fastened.

**All General and System Limitations apply.**

**Base Sheet:** One ply of Firestone MB Base or MB Base M mechanically fastened to the wood deck as described below:

**Fastening #1:** Base sheet shall be lapped 4" and fastened with Firestone #14 AP fasteners 3" Round Metal Plates 12" o.c. in the lap and two rows staggered in the center of the sheet 12" o.c.

**Fastening #2:** Base sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 6" o.c. at the lap and two rows staggered in the center of the sheet 6" o.c.

**Ply Sheet:** (Optional) One or more plies of Firestone MB Base Sheet, Type IV, Type IV M, Type VI or Type VI M 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 APP 160, APP 170, APP 180 or APP 180 FR torch applied parallel to the base ply, with 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 II:** Wood, Non-insulated

**Deck Description:** <sup>19</sup>/<sub>32</sub>" or greater plywood or wood plank fasten to supports with #8 x 1-5/8" wood screws at a maximum spacing of 6" o.c.

**System Type E(4):** Base sheet mechanically fastened.

**All General and System Limitations apply.**

**Base Sheet:** One ply of Firestone MB Base or MB Base M mechanically fastened to the wood deck as described below:

**Fastening #1:** Base sheet shall be lapped 4" and fastened with Firestone #14 AP fasteners 3" Round Metal Plates 12" o.c. in the lap and two rows staggered in the center of the sheet 12" o.c.

**Fastening #2:** Base sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 6" o.c. at the lap and two rows staggered in the center of the sheet 6" o.c.

**Ply Sheet:** One or more plies of SBS Smooth or SBS Base sheet or Firestone Type IV, Type IV M, Type VI or Type VI M 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:** -52.5 psf (See General Limitation #7)



## WOOD DECK SYSTEM LIMITATIONS:

1. A slip sheet is required with Ply 4 and Ply 6 when used as a mechanically fastened base or anchor sheet.

## GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq.

**Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**

5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant. **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
10. All 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**

