MIAMI-DADE COUNTY

BUILDING AND NEIGHBORHOOD COMPLIANCE DEPARTMENT (BNC)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
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NOTICE OF ACCEPTANCE (NOA)

Firestone Building Products Company, LLC
250 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 Section 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 Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code and the High Velocity Hurricane Zone of the Florida Building Code.

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 No. 08-0118.08 and consists of pages 1 through 34.
The submitted documentation was reviewed by Jorge L. Acebo.

MIAMI-DADE COUNTY APPROVED

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Modified Bitumen
Material:	APP/SBS
Deck Type:	Steel
Maximum Design Pressure	-172.5 psf

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 6222	Polyester reinforced modified bitumen, granule surfaced membrane. Torch applied.
APP 180 FR	39.4" x 32'10"	ASTM D 6222	Polyester reinforced, fire regardant 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.
APP 80 Glass Base COOL	39.4" x 65'4"	ASTM D 6222	Fiberglass reinforced modified bitumen, smooth surfaced membrane.
APP 180 COOL	39.4" x 32'10"	ASTM D 6222	Polyester reinforced modified bitumen, smooth surfaced membrane.
APP 180 FR COOL	39.4" x 32'10"	ASTM D 6222	Polyester reinforced, fire retardant modified bitumen, smooth surfaced membrane. Torch applied.
APP 170 COOL	39.6" x 33'6"	ASTM D 6222	Polyester reinforced modified bitumen, smooth surfaced membrane.
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 FR	39.4" x 33'10"	ASTM D 6164	Ceramic granule surface, fire rated, modified bitumen membrane reinforced with non-woven polyester mat.

Product	Dimensions	Test Specification	Product Description
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 Premium	39.4" x 33'10"	ASTM D 6164	Granule surfaced, modified bitumen membrane reinforced with 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.
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 regardant, modified bitumen membrane. Applied in hot asphalt.
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.
Firestone Multi-Purpose MB Cold Adhesive	55 gal.	Proprietary	An asphalt based adhesive.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
ACFoam II	Isocyanurate Insulation	Atlas Roofing Corp.
ISO 95+ GL	Isocyanurate Insulation	Firestone
Dens Deck, Dens Deck Prime	Silicon treated gypsum	G-P Products
Iso-Lite E	Polyisocyanurate foam insulation.	International Permalite
ENRGY 3, PSI-25, UltraGard Gold II	Isocyanurate Insulation	Johns Manville
High Density Wood Fiberboard	High Density Wood Fiber insulation board.	Generic
Perlite Insulation Board	Perlite Insulation	Generic
Multi-Max-3, Multi-Max FA-3	Isocyanurate Insulation	Rmax, Inc.
SECUROCK Gypsum-Fiber Roof Board	Gypsum Board	US Gypsum

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	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	Polyethylene stress plate	3.2" round	OMG
12.	Olympic Fasteners	Insulation and membrane fastener	Various	OMG
13.	Olympic Standard	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 HD Fastener	Insulation and membrane fastener	Various	The Tru-Fast Corp.
20.	Tru-Fast MP-3	Galvalume AZ50 steel plate	3.23" round	The Tru-Fast Corp.
21.	Tru-Fast Plastic Plate	Polyethylene stress plate	3" round	The Tru-Fast Corp.
22.	Firestone Batten Strips	Membrane attachment batten bar	10' x 1"	Firestone
23.	Insulation Fastening Plate	Insulation plate for use with Firestone Fasteners	3" round	Firestone
24.	OMG HD #14 Fasteners	Insulation and membrane fastener	Various	OMG
25.	TPR Fastener	Lightweight insulating concrete deck fastener	Various	Creative Construction Components

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
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
	3009613	FM 4470	08/26/02
	3012095	FM 4470	06/30/04
	3017121	FM 4470	06/12/03
	3022502	FM 4470	01/29/07
	3030227	FM 4470	06/18/07
	3007328	FM 4470	07/12/02
	3030107	FM 4470	05/18/07
	3026520	FM 4470	12/14/06
Trinity | ERD	4810.01.96-1	PA 114(C) & PA 114(D)	01/31/96
	F8800.01.08	TAS 114	01/17/08
	4810.10.96-1	PA 114(J)	10/31/96
	F10370.05.08	ASTM C 1289	05/08/08
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 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

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**
ACFoam-II, ENRGY 3, PSI-25, ISO 95+ GL, ISO-Lite E, Multi-Max-3, 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**
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 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(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**
ACFoam II		
Minimum 1.3" thick	**7, 12, 15 or 18**	**1:2 ft^2**
ISO-Lite E, Multi-Max-3, UltraGard Gold II		
Minimum 1.3" thick	**1, 2, 7, 9, 12, 15 or 18**	**1:2.4 ft^2**
ISO 95+ GL		
Minimum 1.4" thick	**7, 12, 15 or 18**	**1:2 ft^2**
Multi Max FA-3		
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**
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 Base, Firestone SBS Base Sheet, 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 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(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**	**1:2 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**
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, 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 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.

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(4): 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**
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, 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.

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(5): 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. Insulatiou 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**
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, 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 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.

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(6): 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**
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, 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.

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(7): 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 Miuimum ¾" thick	**N/A**	**N/A**
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, 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 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.

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(8): 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**
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, 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.

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(1): 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, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick	**N/A**	**N/A**
ENRGY 3, PSI-25, ISO 95+ GL Minimum 1.4" thick	**N/A**	**N/A**
Multi-Max-3 Minimum 1.5" 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, ENRGY 3, PSI-25, ISO 95+ GL, ISO-Lite E, Multi-Max-3, 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**
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 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(2): 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, ISO-Lite E, UltraGard Gold II Minimum 1.3" thick	**N/A**	**N/A**
ENRGY 3, PSI-25, ISO 95+ GL Minimum 1.4" thick	**N/A**	**N/A**
Multi-Max-3 Minimum 1.5" 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, ENRGY 3, PSI-25, ISO 95+ GL, ISO-Lite E, Multi-Max-3, 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**
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, 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/SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type C(3): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ISO 95+ GL Minimum 1.5" thick	**1, 2, 7, 19**	**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 or more plies of Firestone SBS Base, SBS Premium Base or APP 80 Glass Base Cool fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

Membrane: One ply of Firestone APP 170 COOL, APP 180 COOL or APP 180 FR COOL fully adhered to the base sheet with Firestone Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

(Not with APP 80 Glass Base Cool) One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch adhered to the base sheet or one ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium or SBS Premium FR fully adhered to the base sheet with Firestone Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at 1-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 1½ gal/sq.

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

Membrane Type: APP/SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type C(4): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ISO 95+ GL Minimum 2" thick	**1 or 2**	**1:1.33 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 or more plies of Firestone SBS Base, SBS Smooth, SBS Premium Base or APP 80 Glass Base Cool fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

Membrane: (Not with SBS Smooth) One ply of Firestone APP 170 COOL, APP 180 COOL or APP 180 FR COOL fully adhered to the base sheet with Firestone Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

OR

(Not with SBS Smooth or APP 80 Glass Base Cool) One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch adhered to the base sheet or one ply of Firestone SBS Torch, SBS Torch FR, SBS Smooth Torch, SBS Premium Torch, or SBS Premium Torch FR torch adhered to the base sheet.

OR

(Not with APP 80 Glass Base Cool) One ply of Firestone SBS, SBS FR, SBS Smooth, SBS Premium or SBS Premium FR fully adhered to the base sheet with Firestone Multi-Purpose MB Cold Adhesive at a rate of 1½ - 2 gal/sq.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at 1-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 1½ gal/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 6 ft. o.c. using ITW Buildex Traxx 5 fasteners and ¾" washers spaced 6" o.c. (two fasteners and washers installed at each bearing attachment point), and with side laps attachment 12" o.c.

System Type C(5): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL Minimum 1.5" 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**
DensDeck Prime Minimum ½" thick	**1 or 2**	**See Below**

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 or more plies of Firestone SBS Glass Torch Base base sheet is torch adhered to the coverboard.

Membrane: One ply of Firestone SBS Premium FR Torch cap sheet torch adhered to the base sheet with the 3" sidelaps heat fused with a torch.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at 1-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -97.5 psf at a fastener density of 1:1.33 ft^2 (See General Limitation #7)

-127.5 psf at a fastener density of 1:1 ft^2 (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 and ¾" washers spaced 6" o.c. (two fasteners and washers installed at each bearing attachment point), and with side laps attachment 12" o.c. with Traxx 1 fasteners.

System Type C(6): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL Minimum 2.2" 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**
DensDeck Prime Minimum ½" thick	**19**	**See Below**

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.

System 1:

Base Sheet: One ply of Firestone SBS Base, SBS Premium Base or MB Base M fully adhered to the coverboard with hot asphalt applied at a rate of 20-25 lb/sq.

Ply Sheet: One or more plies of Firestone Type IV M or Type VI M Ply Felt, SBS Smooth or SBS Base fully adhered with hot asphalt applied at a rate of 20-25 lb/sq.

Membrane: One ply of Firestone SBS Cap, SBS Smooth, SBS Premium, SBS Glass FR, SBS Glass, SBS FR Cap or SBS Premium FR cap sheet fully adhered with hot asphalt at a rate of 20-25 lb/sq.

System 2:

Base Sheet: Two or three of Firestone Type IV M or Type VI M Ply Felt fully adhered to the coverboard with hot asphalt applied to each ply at a rate of 20-25 lb/sq.

Membrane: One ply of Firestone SBS Cap, SBS Smooth, SBS Premium, SBS Glass FR, SBS Glass, SBS FR Cap or SBS Premium FR cap sheet fully adhered with hot asphalt at a rate of 20-25 lb/sq.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at 1-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -112.5 psf at a fastener density of 1:1.33 ft^2 (See General Limitation #7)

-157.5 psf at a fastener density of 1:1 ft^2 (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 and ¾" washers spaced 6" o.c. (two fasteners and washers installed at each bearing attachment point), and with side laps attachment 12" o.c. with Traxx 1 fasteners.

System Type C(7): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ISO 95+ GL Minimum 2.2" 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**
SECUROCK Gypsum-Fiber Roof Board Minimum ½" thick	**19**	**See Below**

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.

System 1:

Base Sheet: One ply of Firestone SBS Base, SBS Premium Base or MB Base M fully adhered to the coverboard with hot asphalt applied at a rate of 20-25 lb/sq.

Ply Sheet: One or more plies of Firestone Type IV M or Type VI M Ply Felt, SBS Smooth or SBS Base fully adhered with hot asphalt applied at a rate of 20-25 lb/sq.

Membrane: One ply of Firestone SBS Cap, SBS Smooth, SBS Premium, SBS Glass FR, SBS Glass, SBS FR Cap or SBS Premium FR cap sheet fully adhered with hot asphalt at a rate of 20-25 lb/sq.

System 2:

Base Sheet: Two or three plies of Firestone Type IV M or Type VI M Ply Felt fully adhered to the coverboard with hot asphalt applied to each ply at a rate of 20-25 lb/sq.

Membrane: One ply of Firestone SBS Cap, SBS Smooth, SBS Premium, SBS Glass FR, SBS Glass, SBS FR Cap or SBS Premium FR cap sheet fully adhered with hot asphalt at a rate of 20-25 lb/sq.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at 1-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -157.5 psf at a fastener density of 1:1.33 ft^2 (See General Limitation #7)

-172.5 psf at a fastener density of 1:1 ft^2 (See General Limitation #7)

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga., grade 33 steel

System Type C(8): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Any approved polyisocyanurate Minimum 1.5" 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**
SECUROCK Gypsum-Fiber Roof Board Minimum ¼" thick	**1**	**1:4 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.

Note: (Optional) SECUROCK Gypsum-Fiber Roof Board may be primed with ASTM D41 asphalt primer and allowed to dry prior to application of base sheet.

Base Sheet: One or more plies of Firestone SBS Glass Torch Base torch applied.

Membrane: One ply of Firestone SBS Premium FR Torch torch applied.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at I-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -45.0 psf (See General Limitation #9)

Membrane Type: SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga., grade 33 steel attached 6" o.c. to steel supports spaced 6 ft. o.c.

System Type C(9): All layers of insulation simultaneously attached.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Any approved polyisocyanurate Minimum 1.5" 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**
SECUROCK Gypsum-Fiber Roof Board Minimum ½" thick	**24**	**1:1.78 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.

Note: (Optional) SECUROCK Gypsum-Fiber Roof Board may be primed with ASTM D41 asphalt primer and allowed to dry prior to application of base sheet.

Base Sheet: One or more plies of Firestone SBS Glass Torch Base torch applied.

Membrane: One ply of Firestone SBS Premium FR Torch torch applied.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at 1-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 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 D(1): 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, ISO-Lite E Minimum 1.3" thick	**N/A**	**N/A**
ENRGY 3, PSI-25, ISO 95+ GL Minimum 1.4" thick	**N/A**	**N/A**
Multi-Max-3 Minimum 1.5" thick	**N/A**	**N/A**

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
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 or MB Base M 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 approved base sheet 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(2): 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, ISO-Lite E Minimum 1.3" thick	**N/A**	**N/A**
ENRGY 3, PSI-25, ISO 95+ GL Minimum 1.4" thick	**N/A**	**N/A**
Multi-Max-3 Minimum 1.5" thick	**N/A**	**N/A**

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
Perlite Minimum ¾" thick	**N/A**	**N/A**
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 miuimum 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 or Firestone SBS Base Sheet 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, 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/SBS

Deck Type 2I: Steel, Insulated

Deck Description: 18-22 ga. steel

System Type D(3): 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**
ISO 95+ GL 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 M mechanically fastened to the deck through the insulation with Firestone All-Purpose or Heavy Duty Fasteners and Insulation Fastening Plates applied 12" o.c. through the 4" wide base sheet overlaps and 12" o.c. in 2 rows equally spaced and staggered in the field of the base sheet.

Membrane: One ply of Firestone APP 170 COOL, APP 180 COOL or APP 180 FR COOL fully adhered to the base sheet with Firestone Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

OR

One ply of Firestone SBS, SBS FR, SBS Premium or SBS Premium FR cap sheet fully adhered to the base sheet with Firestone Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Surfacing: (Optional) Install one of the following to obtain required fire classification.

1. Gravel or slag at 400 lbs/sq or 300 lbs/sq, respectively, in a flood coat of approved asphalt at 60 lbs/sq.
2. Karnak 97 Fibrated Aluminum Asphalt Roof Coating or Asbestos Free Aluminum Roof Coating at 1½ gal/sq.
3. Kokem Products Sunguard Acrylic Roof Coating at 1 gal/sq.
4. Monsey Endure Aluminum Roof Coating, Weather Check or Pro-Grade Aluminum Roof Coating at 1½ gal/sq.
5. Grundy al MB Aluminum Roof Coating at 1-2 gal/sq.
6. Fields F350 Heat Shield Aluminum Coating or F630 Heat Shield Fibered Aluminum Coating at 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(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^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 or MB Base M 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(5): 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 or MB Base M 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, Type IV M, Type VI or Type VI M 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 equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117, 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. 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