



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

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION

11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/building

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 Lightweight Concrete 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. 08-0118.12 and consists of pages I through 50.
The submitted documentation was reviewed by Jorge L. Acebo.



NOA No: 10-1230.07
Expiration Date: 03/08/16
Approval Date: 03/24/11
Page 1 of 50

ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Modified Bitumen
Material: APP/SBS
Deck Type: Lightweight Concrete
Maximum Design Pressure -225 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 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. |
| 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. |
| 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. |



NOA No: 10-1230.07
 Expiration Date: 03/08/16
 Approval Date: 03/24/11
 Page 2 of 50

| | | | |
|--|-------------------------------|-------------|--|
| 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 retardant, modified bitumen membrane. Applied in hot asphalt. |
| Rhoflex FR Granule Ply IV | 33" x 180" | ASTM D6223 | Glass/Polyester reinforced modified bitumen cap sheet |
| Ply VI | 33" x 180" | ASTM D2178 | Fiberglass reinforced, asphalt impregnated, roofing ply. Applied in hot asphalt. |
| Ply 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. |
| Ply 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 I.S.O. Twin Pack Adhesive | 5 gal. | Proprietary | A two-component polyurethane insulation adhesive. |
| Firestone I.S.O. Firestone FIX II Adhesive | 30 lb | Proprietary | A single component polyurethane insulation adhesive. |
| 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. |
| FiberTop Wood Fiber | Regular wood fiber insulation | Firestone |
| Dens Deck, Dens Deck Prime | Silicon treated gypsum | G-P Products |
| 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 |
| Iso-Lite E | Polyisocyanurate foam insulation | International Permalite |
| Multi-Max FA-3 | Isocyanurate Insulation | Rmax, Inc. |
| SECUROCK Gypsum-Fiber Roof Board | Gypsum Coverboard | US Gypsum |

APPROVED FASTENERS:

TABLE 3

| Fastener Number | Product Name | Product Description | Dimensions | Manufacturer (With Current NOA) |
|------------------------|--|--|-------------------|--|
| 1. | FM-30, FM-60, FM-90 Fasteners and Twin-Loc | Base ply fastening systems for lightweight concrete decks. | | ES Products, Inc. |
| 2. | FM-30, FM-60, FM-90 Fasteners and Twin-Loc | Base ply fastening systems for lightweight concrete decks. | | ES Products, Inc. |
| 3. | Olympic CR Base Sheet Fastener and Plate | Base sheet fastening assembly. | | OMG |
| 4. | Olympic CR Base Sheet Fastener | Base sheet fastener. | | OMG |
| 5. | Olympic CR Base Sheet Plate | Base sheet plate. | | OMG |
| 6. | Firestone LWC Fastener | Base sheet fastener | | Firestone Building Products |
| 7. | Firestone HD Fastener | Insulation and membrane fastener | Various | Firestone Building Products |



EVIDENCE SUBMITTED:

| <u>Test Agency</u> | <u>Test Identifier</u> | <u>Description</u> | <u>Date</u> |
|--|------------------------|----------------------------|-------------|
| Factory Mutual Research Corp. | 0Z5A3.AM | Wind Uplift Classification | 03/08/95 |
| | 1D5A8.AM | Wind Uplift Classification | 09/09/98 |
| | 3003597 | Wind Uplift Classification | 07/14/99 |
| | 3004786 | Wind Uplift Classification | 05/16/00 |
| | 3005030 | Wind Uplift Classification | 08/08/00 |
| | 3008978 | FM 4471 | 08/13/04 |
| | 3014031 | FM 4470 | 07/22/02 |
| | 3022502 | FM 4470 | 01/29/07 |
| | 3007328 | FM 4470 | 07/12/02 |
| | 3014692 | FM 4470 | 08/05/03 |
| Underwriters Laboratories | R9516/94NK11625 | UL 790 | 08/08/94 |
| | R9516/95NK2269 | UL 790 | 02/03/95 |
| Trinity ERD. | 4810.01.96-1 | TAS 114(C) & TAS 114(D) | 01/31/96 |
| | 4810.10.96-1 | TAS 114(J) | 10/31/96 |
| | 4674.11.01-1 | TAS 114(J) | 03/21/06 |
| | 02764.09.05 | FM 4470/TAS 114 | 09/09/05 |
| | 02762.03.05 | FM 4470/TAS 114 | 03/30/05 |
| | F8800.01.08 | TAS 114 | 01/17/08 |
| | F11330.10.08 | TAS 114 | 10/20/08 |
| IRT-ARCON, Inc. | 02-010, 02-011 | TAS 114 | 01/28/02 |
| Atlantic & Caribbean Roof Consulting, LLC. | 03-002 | TAS 114 | 03/06/03 |
| 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 4I:** Lightweight Concrete, Insulated
- Deck Description:** Cellular or Aggregate Lightweight Concrete
- System Type A(1):** Anchor sheet mechanically fastened; one or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

One or more layers of any of the following insulations:

| 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,UltraGard Gold II Minimum 1.4" thick | N/A | N/A |
| Multi-Max FA-3 Minimum 1.5" thick | N/A | N/A |
| Perlite Minimum ¾" thick | N/A | N/A |
| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft ² |
| Perlite Minimum ¾" thick | N/A | N/A |
| Fiber Top, High Density Wood Fiber Minimum ½" thick | N/A | N/A |

Note: 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 ft². 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 with a 4" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Firestone LWC Fastener or ES FM-90, FM-60 base ply fasteners with FM 30 discs or Olympic C-R base felt fasteners with discs and plates at a 4" side lap 9" o.c. and two rows staggered in the center of the sheet 18" o.c..



- Base Sheet: One ply of Firestone MB Base Sheet, Firestone Ply IV, Ply IV M, Ply VI or Ply VI M ply sheet adhered to the insulation with hot 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, Ply IV, Ply IV M, Ply VI or Ply 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 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, in a flood coat of approved asphalt at an application rate of 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 4I: Lightweight Concrete, Insulated
Deck Description: Cellular or Aggregate Lightweight Concrete
System Type A(2): Anchor sheet mechanically fastened; one or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

One or more layers of any of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| 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 FA-3 Minimum 1.5" thick | N/A | N/A |
| Perlite Minimum ¾" thick | N/A | N/A |
| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
| Perlite Minimum ¾" thick | N/A | N/A |
| Fiber Top, High Density Wood Fiber Minimum ½" thick | 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 ft². 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 SBS, SBS FR, MB Base Sheet, MB Base M mechanically fastened to the lightweight deck as described below:

Fasteners: Firestone LWC Fastener or ES FM-90, FM-60 base ply fasteners with FM 30 discs or Olympic C-R base felt fasteners with discs and plates at a 4" side lap 9" o.c. and two rows staggered in the center of the sheet 18" o.c.

Base Sheet: One ply of Firestone MB, Firestone SBS Base Sheet, Firestone Ply IV, Ply IV M, Ply VI or Ply 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 of SBS Smooth or SBS base sheet or Firestone Ply IV, Ply IV M, Ply VI or Ply 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 4I: Lightweight Concrete, Insulated (See System Limitation)
Deck Description: Cellular or Aggregate Lightweight Insulating Concrete
System Type A(3): Anchor Sheet Mechanically Fastened; One or More 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 | Fastener Density/ft ² |
|----------------------------|----------------------|----------------------------------|
| Perlite | | |
| Minimum ¾" | N/A | N/A |
| FiberTop Wood Fiber | | |
| Minimum ½" | N/A | N/A |
| DensDeck | | |
| Minimum ¼" | 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 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. 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 mechanically fastened to deck as described below.

Fastener: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 7.5" o.c. at the 3" wide side laps and 7.5" o.c. in two equally spaced rows in the field of the base sheet.

Base Sheet: One ply of MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply VI M Ply Sheet adhered to the insulation in a full mopping of an approved asphalt at an application rate of 20-40 lbs./sq. or adhered in a strip or spot mopping of an approved asphalt. (See General Limitation #4.)

Ply Sheet: (Optional) One or more plies of APP 160 or APP 170 heat welded.
 Or
 One or more plies of Firestone MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone APP 160, APP 170, APP 180 or APP 180 FR heat welded.

Surfacing: (Optional) Install one of the following:
 1. Gravel or slag at 400 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
 2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



Membrane Type: SBS
Deck Type 4I: Lightweight Concrete, Insulated (See System Limitation)
Deck Description: Cellular or Aggregate Lightweight Insulating Concrete
System Type A(4): Anchor Sheet Mechanically Fastened; One or More 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 | Fastener Density/ft ² |
|----------------------------|----------------------|----------------------------------|
| Perlite | | |
| Minimum 3/4" | N/A | N/A |
| FiberTop Wood Fiber | | |
| Minimum 1/2" | N/A | N/A |
| DensDeck | | |
| Minimum 1/4" | 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 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. 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 mechanically fastened to deck as described below.

Fastener: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 7.5" o.c. at the 3" wide side laps and 7.5" o.c. in two equally spaced rows in the field of the base sheet.

Base Sheet: One ply of MB Base Sheet, SBS Base Sheet, Ply IV, Ply IV M, Ply VI or Ply VI M Ply Sheet adhered to the insulation in a full mopping of an approved asphalt at an application rate of 20-40 lbs./sq. or adhered in a strip or spot mopping of an approved asphalt. (See General Limitation #4.)

Ply Sheet: (Optional) One or more plies of SBS Base Sheet, SBS Smooth, MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone SBS, SBS FR, SBS Premium, SBS Premium FR or SBS Smooth 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 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
 2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



Membrane Type: APP
Deck Type 4I: Lightweight Concrete, Insulated (See System Limitation)
Deck Description: Cellular or Aggregate Lightweight Insulating Concrete
System Type A(5): Anchor Sheet Mechanically Fastened; One or More 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 | Fastener Density/ft ² |
|-------------------------------------|----------------------|----------------------------------|
| ACFoam II Minimum 1-3/4" | N/A | N/A |
| ISO 95+ GL Minimum 1.4" | N/A | N/A |
| Perlite Minimum 3/4" | N/A | N/A |
| FiberTop Wood Fiber Minimum 1/2" | N/A | N/A |
| DensDeck Minimum 1/4" | 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 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. 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 mechanically fastened to deck as described below.

Fastener: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 9" o.c. at the 2" wide side laps and 9" o.c. in two equally spaced rows in the field of the base sheet.
 Or
 ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 12" o.c. at the 2" wide side laps and 12" o.c. in three equally spaced rows in the field of the base sheet.

Base Sheet: One ply of MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply VI M Ply Sheet adhered to the insulation in a full mopping of an approved asphalt at an application rate of 20-40 lbs./sq. (See General Limitation #4.)

Ply Sheet: (Optional) One or more plies of APP 160 or APP 170 heat welded.
 Or
 One or more plies of Firestone MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone APP 160, APP 170, APP 180 or APP 180 FR heat welded.

Surfacing: (Optional) Install one of the following:
 1. Gravel or slag at 400 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
 2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



Membrane Type: SBS
Deck Type 4I: Lightweight Concrete, Insulated (See System Limitation)
Deck Description: Cellular or Aggregate Lightweight Insulating Concrete
System Type A(6): Anchor Sheet Mechanically Fastened; One or More 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 | Fastener Density/ft ² |
|--|----------------------|----------------------------------|
| ACFoam II Minimum 1-3/4" | N/A | N/A |
| ISO 95+ GL Minimum 1.4" | N/A | N/A |
| Perlite Minimum 3/4" | N/A | N/A |
| FiberTop Wood Fiber Minimum 1/2" | N/A | N/A |
| DensDeck Minimum 1/4" | 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 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. 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 mechanically fastened to deck as described below.

Fastener: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 9" o.c. at the 2" wide side laps and 9" o.c. in two equally spaced rows in the field of the base sheet.
 Or
 ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 12" o.c. at the 2" wide side laps and 12" o.c. in three equally spaced rows in the field of the base sheet.

Base Sheet: One ply of MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply VI M Ply Sheet adhered to the insulation in a full mopping of an approved asphalt at an application rate of 20-40 lbs./sq. (See General Limitation #4.)

Ply Sheet: (Optional) One or more plies of SBS Base Sheet, SBS Smooth, MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone SBS, SBS FR, SBS Premium, SBS Premium FR or SBS Smooth 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 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
 2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell

System Type A(7): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with OlyBond 500 Adhesive in 3/4" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

System 1:

Base Sheet: One or more plies of Firestone SBS Base, SBS Smooth Base, or SBS Premium base sheet fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Membrane: One ply of Firestone SBS, SBS FR, SBS Smooth, 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.

System 2:

Base Sheet: One or more plies of Firestone APP 80 Glass Base COOL, MB Base M, SBS Base, or SBS Premium base sheet fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive applied at 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 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: -67.5 psf (See General Limitation #9)



- Membrane Type:** APP/SBS
- Deck Type 4I:** Lightweight Concrete, Insulated
- Deck Description:** Lightweight Insulating Concrete, minimum 200 psi Elastizell, Celcore or Mearlcrete
- System Type A(8):** One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft ² |
|---|-----------------------------------|-------------------------------------|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

System 1:

Base Sheet: One or more plies of Firestone SBS Base, SBS Smooth Base, or SBS Premium base sheet fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Membrane: One ply of Firestone SBS, SBS FR, SBS Smooth, 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.

System 2:

Base Sheet: One or more plies of Firestone APP 80 Glass Base COOL, MB Base M, SBS Base, or SBS Premium base sheet fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive applied at 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 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 Fibrated Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure:

-67.5 psf (See General Limitation #9)



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell

System Type A(9): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with OlyBond 500 Adhesive in ¾" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone APP 80 Glass Base COOL, Ply IV, Ply IV M, Ply VI or Ply VI M Felt, MB Base M, SBS Base, or SBS Premium base sheet fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Membrane: (Not with APP 80 Glass Base COOL) One ply of Firestone SBS, SBS FR, SBS Smooth, 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.

OR

(Not with Ply IV, Ply IV M, Ply VI or Ply VI M Felt) 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.

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: -67.5 psf (See General Limitation #9)



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Elastizell, Celcore or Mearlcrete

System Type A(10): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone APP 80 Glass Base COOL, Ply IV, Ply IV M, Ply VI or Ply VI M Felt, MB Base M, SBS Base, or SBS Premium base sheet fully adhered to the insulation with Firestone Multi-Purpose MB Cold Adhesive applied at 1½ - 2 gal/sq.

Membrane: (Not with APP 80 Glass Base COOL) One ply of Firestone SBS, SBS FR, SBS Smooth, 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.
OR

(Not with Ply IV, Ply IV M, Ply VI or Ply VI M Felt) 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.

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 Fibrated Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -67.5 psf (See General Limitation #9)



Membrane Type: APP

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell

System Type A(11): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with OlyBond 500 Adhesive in 3/4" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|---|---|--|
| FiberTop Wood Fiber Board Minimum 1/2" thick | N/A | N/A |

Note: Top insulation layer shall be adhered to the base layer in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV, Ply VI, Ply IV M, or Ply VI M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR 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 1 1/2 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 1 1/2 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 Fibrated Aluminum Coating at 1 1/2 gal/sq.

Maximum Design Pressure: -97.5 psf (See General Limitation #9)



Membrane Type: APP

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Elastizell, Celcore or Mearlcrete

System Type A(12): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|---|---|--|
| FiberTop Wood Fiber Board Minimum ½" thick | N/A | N/A |

Note: Top insulation layer shall be adhered to the base layer in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV, Ply VI, Ply IV M, or Ply VI M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR 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 Fibrated Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -97.5 psf (See General Limitation #9)



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell

System Type A(13): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with OlyBond 500 Adhesive in 3/4" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV, Ply VI, Ply IV M, or Ply VI M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS Premium FR Torch, Rhoflex FR Granule, APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base sheet or one ply of Firestone SBS adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

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 (See General Limitation #9)



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Elastizell, Celcore or Mearlcrete

System Type A(14): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV, Ply VI, Ply IV M, or Ply VI M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS Premium FR Torch, Rhoflex FR Granule, APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base sheet or one ply of Firestone SBS adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

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 (See General Limitation #9)



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell

System Type A(15): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with OlyBond 500 Adhesive in 3/4" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV, Ply VI, Ply IV M, or Ply VI M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS Premium FR Torch, Rhoflex FR Granule, APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base sheet or one ply of Firestone SBS adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

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: -210 psf (See General Limitation #9)



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Elastizell

System Type A(16): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV, Ply VI, Ply IV M, or Ply VI M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS Premium FR Torch, Rhoflex FR Granule, APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base sheet or one ply of Firestone SBS adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

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: -180 psf (See General Limitation #9)



Membrane Type: APP/SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Celcore or Mearlcrete

System Type A(17): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: All insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: One or more plies of Firestone Ply IV, Ply VI, Ply IV M, or Ply VI M felt fully adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS Premium FR Torch, Rhoflex FR Granule, APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base sheet or one ply of Firestone SBS adhered in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

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: -210 psf (See General Limitation #9)



Membrane Type: SBS
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell
System Type A(18): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: Insulation shall be adhered to the deck with OlyBond 500 Adhesive in 3/4" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| SECUROCK Gypsum-Fiber Roof Board Minimum 1/4" thick | N/A | N/A |

Note: Top insulation layer shall be adhered in full mopping of approved asphalt within the EVT range and at a rate of 25 lbs/100 ft² or with OlyBond at a rate of 1 gal/sq. or Insta-Stik, OlyBond 500, Firestone I.S.O. FIX II, Firestone I.S.O. Twin Pack or Polyfoam Tite-Set in ribbons 12" o.c. 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 1 1/2 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 1 1/2 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 Fibrated Aluminum Coating at 1 1/2 gal/sq.

Maximum Design Pressure: -225 psf (See General Limitation #9)



Membrane Type: SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Elastizell

System Type A(19): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: Insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| SECUROCK Gypsum-Fiber Roof Board Minimum ¼" thick | N/A | N/A |

Note: Top insulation layer shall be adhered in full mopping of approved asphalt within the EVT range and at a rate of 25 lbs/100 ft² or with OlyBond at a rate of 1 gal/sq. or Insta-Stik, OlyBond 500, Firestone I.S.O. FIX II, Firestone I.S.O. Twin Pack or Polyfoam Tite-Set in ribbons 12" o.c. 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 Fibrated Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -180 psf (See General Limitation #9)



Membrane Type: SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Celcore

System Type A(20): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: Insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| SECUROCK Gypsum-Fiber Roof Board Minimum ¼" thick | N/A | N/A |

Note: Top insulation layer shall be adhered in full mopping of approved asphalt within the EVT range and at a rate of 25 lbs/100 ft² or with OlyBond at a rate of 1 gal/sq. or Insta-Stik, OlyBond 500, Firestone I.S.O. FIX II, Firestone I.S.O. Twin Pack or Polyfoam Tite-Set in ribbons 12" o.c. 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 Fibrated Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -222.5 psf (See General Limitation #9)



Membrane Type: SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Lightweight Insulating Concrete, min. 200 psi Mearlcrete

System Type A(21): One or more layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| ISO 95+ GL Minimum 1.5" thick | N/A | N/A |

Note: Insulation shall be adhered to the deck with Tite-Set Insulation Adhesive applied in 2½-3½" ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

| Top Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| SECUROCK Gypsum-Fiber Roof Board Minimum ¼" thick | N/A | N/A |

Note: Top insulation layer shall be adhered in full mopping of approved asphalt within the EVT range and at a rate of 25 lbs/100 ft² or with OlyBond at a rate of 1 gal/sq. or Insta-Stik, OlyBond 500, Firestone I.S.O. FIX II, Firestone I.S.O. Twin Pack or Polyfoam Tite-Set in ribbons 12" o.c. 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 Fibrated Aluminum Coating at 1½ gal/sq.

Maximum Design Pressure: -225 psf (See General Limitation #9)



Membrane Type: APP/SBS
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: Lightweight Insulating Concrete, min. 250 psi
System Type D: All layers of insulation and base sheet simultaneously attached over a vapor barrier.

All General and System Limitations apply.

Deck: Min. 22 ga., 1.5" type B, vented steel deck shall be attached to steel channel-framing joists. The joists are to be spaced 6' o.c. The metal deck shall be fastened with 5/8" puddle welds at 6" o.c. along the perimeter of the test frame, one 5/8" weld in each flute of the metal deck along the joist in the field of the test frame and at 6" o.c. along the side laps with #10 self drilling screws.

A 1/4" thick slurry of lightweight insulating concrete shall be placed over the deck. A layer of Dyplast EPS board with a minimum density of 1.0 pcf shall be firmly pressed over the slurry followed by an additional layer of lightweight insulating concrete to a minimum thickness of 2".

Vapor Barrier: A BUR System is installed over 2" minimum thickness of lightweight insulating concrete.

One or more layers of the following insulations:

| Base Insulation Layer | Insulation Fasteners (Table 3) | Fastener Density/ft² |
|--|---|--|
| DensDeck Prime Minimum 1/2" thick | N/A | N/A |

Note: 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 with a 2" side lap mechanically fastened through the DensDeck and the lightweight concrete to the steel deck as described below:

Fastening: Firestone HD Fasteners and 3" insulation plates at the side lap 9" o.c. and two rows staggered in the center of the sheet 9" o.c.

Ply Sheet: One or more plies of Firestone SBS Base adhered to the base sheet in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

Membrane: One ply of Firestone SBS FR adhered to the ply sheet in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft².

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 1 1/2 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 1 1/2 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 1 1/2 gal/sq.

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



Membrane Type: APP
Deck Type 4: Lightweight Concrete, Non-insulated
Deck Description: Cellular or Aggregate Lightweight Concrete
System Type E(1): Base sheet mechanically fastened.

All General and System Limitations apply.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M with a 4" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Firestone LWC Fastener or ES FM-90, FM-60 base ply fasteners with FM 30 discs or Olympic C-R base felt fasteners with discs and plates at a 4" side lap 9" o.c. and two rows staggered in the center of the sheet 18" o.c.

Ply Sheet: None.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base ply.

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 1½-3 gal./sq.

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



Membrane Type: SBS
Deck Type 4: Lightweight Concrete, Non-insulated
Deck Description: Cellular or Aggregate Lightweight Concrete
System Type E(2): Base sheet mechanically fastened.

All General and System Limitations apply.

Base Sheet: One ply of Firestone SBS Smooth, SBS Base Sheet, MB Base Sheet or MB Base M mechanically fastened to the lightweight deck as described below:

Fasteners: Firestone LWC Fastener or ES FM-90, FM-60 base ply fasteners with FM 30 discs or Olympic C-R base felt fasteners with discs and plates at a 4" side lap 9" o.c. and two rows staggered in the center of the sheet 18" o.c.

Ply Sheet: (Optional) One of SBS Smooth or SBS base sheet or Firestone Ply IV, Ply IV M, Ply VI or Ply 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 4: Lightweight Concrete, Non-insulated
Deck Description: Celcore Cellular Lightweight Concrete (Min. 300 psi)
System Type E(3): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 5/8" puddle welds and washers. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Celcore Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Celcore Cellular insulating concrete. Cured with Celcore PVA Curing Compound applied at a rate of 300ft²/gal.

Base Sheet: One ply of Firestone MB Base Sheet, MB Base M or APP 160 with a 3" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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. or one ply of Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base ply.

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 1½-3 gal./sq..

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



Membrane Type: SBS
Deck Type 4: Lightweight Concrete, Non-insulated
Deck Description: Celcore Cellular Lightweight Concrete (Min. 300 psi)
System Type E(4): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 5/8" puddle welds and washers. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Celcore Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Celcore Cellular insulating concrete. Cured with Celcore PVA Curing Compound applied at a rate of 300ft²/gal.

Base Sheet: One ply of Firestone SBS Smooth, SBS Base Sheet, MB Base Sheet or MB Base M mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One layer of MB Base Sheet, SBS Smooth or SBS base sheet or one or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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 #7.)



Membrane Type: APP

Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Mearlcrete Cellular Lightweight Concrete (Min. 300 psi)

System Type E(5): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 5/8" puddle welds and washers. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Mearlcrete Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Mearlcrete Cellular insulating concrete.

Base Sheet: One ply of Firestone MB Base Sheet, MB Base M with a 4" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 4" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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. or one ply of Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base ply.

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 1½-3 gal./sq.

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



Membrane Type: SBS
Deck Type 4: Lightweight Concrete, Non-insulated
Deck Description: Mearlcrete Cellular Lightweight Concrete (Min. 300 psi)
System Type E(6): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 5/8" puddle welds and washers. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Mearlcrete Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Mearlcrete Cellular insulating concrete.

Base Sheet: One ply of Firestone SBS Smooth, SBS Base Sheet, MB Base Sheet or MB Base M mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 4" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: One layer of MB Base Sheet, SBS Smooth or SBS base sheet or two or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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 4: Lightweight Concrete, Non-insulated, New Construction
Deck Description: Concrecel Cellular Lightweight Concrete (Min. 300 psi)
System Type E(7): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 5/8" puddle welds and washers. A Bonding Agent is applied to deck at a rate of 600ft²/gal. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/4" slurry-coat of Concrecel Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2 1/4" topcoat cast of Concrecel Cellular insulating concrete. Cured with Concrecel Curing Compound applied at a rate of 600ft²/gal.

Base Sheet: One ply of Firestone MB Base Sheet, MB Base M or APP 160 with a 3" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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. or one ply of Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base ply.

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 1½-3 gal./sq..

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



Membrane Type: SBS
Deck Type 4: Lightweight Concrete, Non-insulated
Deck Description: Concrecel Cellular Lightweight Concrete (Min. 300 psi)
System Type E(8): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 5/8" puddle welds and washers. A Bonding Agent is applied to deck at a rate of 600ft²/gal. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/4" slurry-coat of Concrecel Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2 1/4" topcoat cast of Concrecel Cellular insulating concrete. Cured with Concrecel Curing Compound applied at a rate of 600ft²/gal.

Base Sheet: One ply of Firestone SBS Smooth, SBS Base Sheet, MB Base Sheet or MB Base M mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One layer of MB Base, SBS Smooth or SBS base sheet or one or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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: -82.5 psf (See General Limitation #7.)



Membrane Type: APP
Deck Type 4: Lightweight Concrete, Non-insulated
Deck Description: Celcore Cellular Lightweight Concrete (Min. 300 psi)
System Type E(9): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: Structural Concrete deck. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Celcore Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Celcore Cellular insulating concrete. Cured with Celcore PVA Curing Compound applied at a rate of 300ft²/gal.

Base Sheet: One ply of Firestone MB Base Sheet, MB Base M or APP 160 with a 3" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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. or one ply of Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base ply.

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 1½-3 gal./sq..

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



Membrane Type: SBS
Deck Type 4: Lightweight Concrete, Non-insulated
Deck Description: Celcore Cellular Lightweight Concrete (Min. 300 psi)
System Type E(10): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: Structural Concrete deck. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Celcore Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Celcore Cellular insulating concrete. Cured with Celcore PVA Curing Compound applied at a rate of 300ft²/gal.

Base Sheet: One ply of Firestone SBS Smooth, SBS Base Sheet, MB Base Sheet or MB Base M mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One layer of MB Base Sheet, SBS Smooth or SBS base sheet or one or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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 #7.)



Membrane Type: APP

Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Mearlcrete Cellular Lightweight Concrete (Min. 300 psi)

System Type E(11): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: Structural Concrete deck. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Mearlcrete Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Mearlcrete Cellular insulating concrete.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M with a 4" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 4" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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. or one ply of Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base ply.

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 1½-3 gal./sq.

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



Membrane Type: SBS

Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Mearlcrete Cellular Lightweight Concrete (Min. 300 psi)

System Type E(12): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: Structural Concrete deck. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum 1/8" slurry-coat of Mearlcrete Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Mearlcrete Cellular insulating concrete.

Base Sheet: One ply of Firestone SBS Smooth, SBS Base Sheet, MB Base Sheet or MB Base M mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 4" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: One layer of MB Base Sheet, SBS Smooth or SBS base sheet or two or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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 4: Lightweight Concrete, Non-insulated, New Construction
Deck Description: Concrecel Cellular Lightweight Concrete (Min. 300 psi)
System Type E(13): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: Structural Concrete deck. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum ¼" slurry-coat of Concrecel Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2 ¼" topcoat cast of Concrecel Cellular insulating concrete. Cured with Concrecel Curing Compound applied at a rate of 600ft²/gal.

Base Sheet: One ply of Firestone MB Base Sheet, MB Base M, APP 160 with a 3" side lap mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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. or one ply of Firestone APP 160 or APP 170 torch applied.

Membrane: One ply of Firestone APP 160, APP 170, APP 180 or APP 180 FR torch applied to the base ply.

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 1½-3 gal./sq..

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



Membrane Type: SBS

Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Concrecel Cellular Lightweight Concrete (Min. 300 psi)

System Type E(14): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: Structural Concrete deck. Minimum 1" Apache Holey Board Polystyrene Insulation panels shall be placed in a minimum ¼" slurry-coat of Concrecel Cellular concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2 ¼" topcoat cast of Concrecel Cellular insulating concrete. Cured with Concrecel Curing Compound applied at a rate of 600ft²/gal.

Base Sheet: One ply of Firestone SBS Smooth, SBS Base Sheet, MB Base Sheet or MB Base M mechanically fastened to the lightweight deck as described below:

Fastening: Olympic CR base felt fasteners and discs or C-R Assembled Base Sheet Fasteners at a 3" side lap 7" o.c. and two rows staggered in the center of the sheet 7" o.c.

Ply Sheet: (Optional) One layer of MB Base, SBS Smooth or SBS base sheet or one or more plies of Firestone Ply IV, Ply IV M, Ply VI or Ply 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: -82.5 psf (See General Limitation #7.)



Membrane Type: APP
Deck Type 4: Lightweight Concrete, Non-Insulated (See System Limitation)
Deck Description: Cellular or Aggregate Lightweight Insulating Concrete
System Type E(15): Base Sheet Mechanically Fastened

All General and System Limitations Apply.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M mechanically fastened as described below.

Fastening Options #1: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 9" o.c. at the 2" wide side laps and 9" o.c. in two equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -45, See General Limitation #7.)

Fastening Options #2: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 12" o.c. at the 2" wide side laps and 9" o.c. in three equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -45, See General Limitation #7.)

Fastening Options #3: ES Products Twin Loc-Nail at a fastener spacing of 9" o.c. at the 4" wide side laps and 9" o.c. in two equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -60, See General Limitation #7.)

Fastening Options #4: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fasteners spacing of 7.5" o.c. at the 3" wide side laps and 7.5" o.c. in two equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -75, See General Limitation #7.)

Ply Sheet: (Optional) One or more plies of APP I60 or APP 170 heat welded.
 Or
 One or more plies of Firestone MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone APP 160, APP 170, APP 180 or APP 180 FR heat welded.

Surfacing: (Optional) Install one of the following:
 1. Gravel or slag at 400 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
 2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

Maximum Design Pressure: See Fastening Options Above.



Membrane Type: SBS
Deck Type 4: Lightweight Concrete, Non-Insulated (See System Limitation)
Deck Description: Cellular or Aggregate Lightweight Insulating Concrete
System Type E(16): Base Sheet Mechanically Fastened

All General and System Limitations Apply.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M mechanically fastened as described below.

Fastening Options #1: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 9" o.c. at the 2" wide side laps and 9" o.c. in two equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -45, See General Limitation #7.)

Fastening Options #2: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 12" o.c. at the 2" wide side laps and 9" o.c. in three equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -45, See General Limitation #7.)

Fastening Options #3: ES Products Twin Loc-Nail at a fastener spacing of 9" o.c. at the 4" wide side laps and 9" o.c. in two equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -60, See General Limitation #7.)

Fastening Options #4: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fasteners spacing of 7.5" o.c. at the 3" wide side laps and 7.5" o.c. in two equally spaced rows in the field of the base sheet.
(Maximum Design Pressure -75, See General Limitation #7.)

Ply Sheet: (Optional) One or more plies of SBS Base Sheet, SBS Smooth, MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone SBS, SBS FR, SBS Premium, SBS Premium FR or SBS Smooth 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 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
 2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

Maximum Design Pressure: See Fastening Options Above.



Membrane Type: APP
Deck Type 4: Lightweight Concrete, New Construction or Reroof
Deck Description: Cellular or Aggregate Lightweight Concrete, 300 psi, Min.
System Type E(17): Base Sheet Mechanically Fastened

All General and System Limitations Apply.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M fastened to deck as described below.

Fastening: Attach base sheet using ES Products Twin Loc-Nails spaced 9" o.c. in the 4" side lap area and 9" o.c. in two staggered rows in the field of the base sheet.

Ply Sheet: (Optional) One ply of APP 160 or APP 170 heat welded.
Or
One ply of Firestone MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone APP 160, APP 170, APP 180 or APP 180 FR heat welded.

Surfacing: (Optional) Install one of the following:
1. Gravel or slag at 400 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



Membrane Type: SBS
Deck Type 4: Lightweight Concrete, New Construction or Reroof
Deck Description: Cellular or Aggregate Lightweight Concrete, 300 psi, Min.
System Type E(18): Base Sheet Mechanically Fastened

All General and System Limitations Apply.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M fastened to deck as described below.

Fastening: Attach base sheet using ES Products Twin Loc-Nails spaced 9" o.c. in the 4" side lap area and 9" o.c. in two staggered rows in the field of the base sheet.

Ply Sheet: (Optional) One ply of SBS Base Sheet, SBS Smooth, MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone SBS, SBS FR, SBS Premium, SBS Premium FR or SBS Smooth 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 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



Membrane Type: APP
Deck Type: Lightweight Concrete, Non-Insulated (See System Limitation)
Deck Description: Mearlcrete Cellular Lightweight Insulating Concrete
System Type E(19): Base Sheet Mechanically Fastened

All General and System Limitations Apply.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M mechanically fastened as described below.

Fasteners: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 7" o.c. at the 3" wide side laps and 7" o.c. in two equally spaced rows in the field of the base sheet.

Ply Sheet: (Optional) One or more plies of APP 160 or APP 170 heat welded.
Or
One or more plies of Firestone MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone APP 160, APP 170, APP 180 or APP 180 FR heat welded.

Surfacing: (Optional) Install one of the following:
1. Gravel or slag at 400 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



Membrane Type: SBS
Deck Type: Lightweight Concrete, Non-Insulated (See System Limitation)
Deck Description: Mearlcrete Cellular Lightweight Insulating Concrete
System Type E(20): Base Sheet Mechanically Fastened

All General and System Limitations Apply.

Base Sheet: One ply of Firestone MB Base Sheet or MB Base M mechanically fastened as described below.

Fasteners: Firestone LWC Fastener or ES Products FM-90 fasteners, FM-60 fasteners with FM-30 disks at a fastener spacing of 9" o.c. at the 2" wide side laps and 9" o.c. in two equally spaced rows in the field of the base sheet.

Ply Sheet: (Optional) One or more plies of SBS Base Sheet, SBS Smooth, MB Base Sheet, Ply IV, Ply IV M, Ply VI or Ply 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: Firestone SBS, SBS FR, SBS Premium, SBS Premium FR or SBS Smooth 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 lbs. and 300 lbs. respectively, set in a flood coat of Type III or IV asphalt at 60 lbs./sq.
2. Karnak No. 97, No. 97 AF or No. 169 at an application rate of 1-1/2 to 3 gal./sq.

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



LIGHTWEIGHT CONCRETE DECK SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117, 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.
3. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

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



NOA No: 10-1230.07
Expiration Date: 03/08/16
Approval Date: 03/24/11
Page 50 of 50