



BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908

NOTICE OF ACCEPTANCE (NOA)

The Garland Company, Inc.
3800 East 91st Street
Cleveland, OH 44105-2197

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 the BCCO and accepted by the Building Code and Product Review Committee 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 BCCO (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. BCCO reserves the right to revoke this acceptance, if it is determined by BCCO 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: Garland Modified Bitumen Roof System Over Wood Deck

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

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

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

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

This NOA revises NOA 06-1018.06 and consists of pages 1 through 29.
The submitted documentation was reviewed by Jorge L. Acebo.



NOA No.: 06-1120.06
Expiration Date: 12/02/11
Approval Date: 05/17/07
Page 1 of 29

ROOFING ASSEMBLY NOTICE OF ACCEPTANCE

Category: Roofing
Sub-Category: Modified Bitumen

Material: SBS/SIS/SEBS
Deck Type: Wood
Maximum Design Pressure -135.0 psf
Fire Classification: See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
HPR Tri-Base Plus, HPR Tri-Base Premium	36" x 72'	proprietary	Double asphalt coated, polyester/fiberglass/polyester scrim reinforced base sheet.
HPR Glasbase	36" x 108'	ASTM D 4601, Type II	Type II, asphalt coated fiberglass base sheet.
HPR Premium Glasbase	36" x 72'	ASTM D 4601, Type II	Type II, asphalt coated fiberglass base sheet.
HPR Torch Base Sheet	39" x 34'8"	ASTM D 5147	SBS modified, fiberglass reinforced, torch applied base sheet.
HPR Glasfelt	36" x 180'	ASTM D 2178, Type IV	Type IV asphalt impregnated glass felt for use in conventional and modified bitumen built-up system.
HPR Premium Glasfelt	36" x 180'	ASTM D 2178, Type VI	Type VI asphalt impregnated glass felt for use in conventional and modified bitumen built-up systems.
HPR Polyscrim Plus	40" x 324'	ASTM D 5726	Polyester felt for use in conventional and modified bitumen built-up roof systems.
BK Glasfelt	36" x 180'	ASTM D 4990, Type I	Coal Tar impregnated glass felt for use in conventional and modified bitumen built-up system.
BK Premium Glasfelt	36" x 180' ;	ASTM D 4990, Type I	Coal Tar impregnated glass felt for use in conventional and modified bitumen built-up systems.
GarMesh	6" x 150' 12" x 150'	ASTM D 1668	SBR coated woven fiberglass reinforcing membrane.
Grip Polyester Firm	10 sq.	ASTM D 1682	Polyester reinforcing fabric for use in cold applied systems.
Grip Polyester Soft	10 sq.	ASTM D 1682	Polyester reinforcing fabric, for use in cold applied systems.
HPR Organic Base Sheet	36" x 72'	ASTM D 2626	Asphalt coated organic base sheet.
StressPly	39" x 34'8"	ASTM D 6163 Grade S	Smooth surfaced , SBS modified, fiberglass scrim reinforced roofing membrane.



NOA No.: 06-1120.06
 Expiration Date: 12/02/11
 Approval Date: 05/17/07
 Page 2 of 29

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
StressPly Mineral	39" x 26'2"	ASTM D 6163 Grade G	Mineral surfaced, SBS modified, fiberglass scrim reinforced membrane.
StressPly FR Mineral	39" x 26'2"	ASTM D 6163 Grade G	Mineral surfaced, SBS modified, fire retardant, fiberglass scrim membrane.
StressPly Plus	39" x 34'8"	ASTM D 6163, Grade S	Smooth surfaced, SBS modified, Quad-Axial fiberglass scrim membrane.
StressPly Plus FR Mineral	39" x 26'2"	ASTM D 6163, Grade G	Mineral surfaced, SBS modified, fire retardant, UV resistant, Quad-Axial fiberglass scrim membrane.
StressPly E	39" x 34'8"	ASTM D 6162, Grade S	Smooth surfaced, SBS/SIS modified, fiberglass/polyester reinforced membrane.
StressPly E Mineral	39" x 26'2"	ASTM D 6162, Grade G	Mineral surfaced, SBS/SIS modified, fiberglass/polyester reinforced membrane.
StressPly E FR Mineral	39" x 26'2"	ASTM D 6162, Grade G	Mineral surfaced, SBS/SIS modified, fire retardant, fiberglass/polyester reinforced membrane.
VersiPly 60	39" x 34'8"	ASTM D 6163, Grade S	Smooth surfaced, SBS modified, fiberglass scrim reinforced roofing membrane.
VersiPly 80	39" x 34'8"	ASTM D 6163, Grade S	Smooth surfaced, SBS modified, fiberglass scrim reinforced roofing membrane.
VersiPly Mineral	39" x 26'2"	ASTM D 6163, Grade G	Mineral surfaced, SBS modified, fiberglass scrim reinforced roofing membrane.
StressPly IV	39" x 26'2"	ASTM D 6163, Grade S	Smooth surfaced, SBS modified, fiberglass reinforced, torch applied cap sheet.
StressPly IV Mineral	39" x 26'2"	ASTM D 6163, Grade G	Mineral surfaced, SBS modified, fiberglass reinforced, torch applied cap sheet.
StressPly IV UV Mineral	39" x 26'2"	ASTM D 6163, Grade G	Mineral surfaced, SBS modified, fiberglass reinforced, torch applied cap sheet.
StressPly EUV Mineral	39" x 26'2"	ASTM D 6162, Grade G	Mineral surfaced, SBS/SIS modified, fiberglass/polyester reinforced membrane.
StressPly EUV FR Mineral	39" x 26'2"	ASTM D 6162, Grade G	Mineral surfaced, SBS/SIS modified, fiberglass/polyester reinforced membrane.
StressPly EUV	39" x 34'8"	ASTM D 6162, Grade S	Smooth surfaced, SBS/SIS modified, fiberglass/polyester reinforced membrane.
Millennium Walkway Pads	30" x 25"		Polymer modified coal tar walking pads.



<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Flashing Bond, Ultra-Shield Flashing Cement, Ultra-Shield Plastic Roof Cement, Silver-Flash, Weatherking Flashing Adhesive	5 gallon	ASTM D 4586	Trowel grade, asphalt based roofing mastic for use in repair and patching against leaks in built-up asphalt roofs.
Black Knight Mastic	5 gallon		Trowel grade, tar based roofing mastic for use in repair and patching.
Garla-Flex ., Ultra-Shield Rubberized Cement	2, 5 gallon pail	ASTM D 4586	Elastomeric, asphaltic compound formulated from a special weather and ozone-resistant thermoplastic rubber, plasticizing oils and bitumen. Asbestos free.
Garla-Shield, Ultra-Shield Fibered Emulsion	5, 55 gallon	ASTM D 1227, Type IV	Asphalt emulsion roof coating.
Weatherking or Weatherking Plus WC	5, 55 gallon	ASTM D 3019, Type III	Cold process roof coating and adhesive.
Ultra-Shield Metal Rust Proofing	5, 55 gallon	ASTM D 3019, Type III	Asbestos-free, petroleum compound modified with polymers and corrosion inhibitors.
Ultra-Shield Built-Up Mastic FR, WeatherScreen	5, 55 gallon	ASTM D 4479, Type I	Asbestos-free, heavy-bodied, fiber-reinforced, fire-rated asphalt roof coating.
Garla-Brite	5 gallon	ASTM D 2824, Type I	Aluminum roof coating.
Pyramic	5, 55 gallon		White acrylic reflective roof coating.
White-Knight	5, 55 gallon		White urethane reflective roof coating.
Energizer K Plus FR or Energizer FR	5, 55 gallon	ASTM D 4479, Type I	Multipurpose, rubberized, liquid waterproofing membrane.
Garla-Prime, Garla-Prime WB, Ultra-Shield Primer	5, 55 gallon	ASTM D 41	Non-fibered, quick drying asphalt roof primer
Silver-Shield	5, 55 gallon	ASTM D 2824, Type III	High solids, aluminized roof coating.
Garlastic KM or Garlastic KM Plus	60 lb. keg	TAS 121	SEBS modified, hot applied asphalt. □
HPR All Temp Asphalt	100 lb. keg	TAS 121	Hot asphalt adhesive for modified bitumen and BUR roof systems.
Black Knight or Black Knight LV Flood Coat	70 lb. keg	Proprietary	Polymer modified coal tar pitch.
Black Knight Cold	5, 55 gallon		Cold applied polymer modified coal tar pitch.
Black Knight WB	5, 55 gallon		Polymer modified coal tar pitch.
Insu-lock II	3 gallon	Proprietary	Polyurethane low rise insulation adhesive



APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Apache Pyrox, Apache White Line, Apache Pyrox PSI-25, Apache White Line PSI-25	Polyisocyanurate foam insulation	Apache Products Company
Apache Millox, Apache Millox-P	Composite polyisocyanurate insulation	Apache Products Company
ACFoam II, ACFoam III	Polyisocyanurate foam insulation	Atlas Energy Products
ACFoam Composite	Composite polyisocyanurate insulation board	Atlas Energy Products
Hytherm AP	Polyisocyanurate foam insulation	Dow
Hytherm Composite	Composite polyisocyanurate insulation	Dow
ISO 95+, ISO 95+ (25psi), ISO 95+GL	Polyisocyanurate foam insulation	Firestone
ISO 95+ Composite	Composite polyisocyanurate insulation board	Firestone
Extruded or Expanded Polystyrene Gypsum	Polystyrene Insulation Gypsum board	generic generic
High Density Wood Fiberboard	Wood fiber insulation board	generic
Perlite Insulation	Perlite insulation board	generic
DensDeck, DensDeck Prime, DensDeck Fireguard, DensDeck Prime Fireguard, DensDeck DuraGuard	Water resistant gypsum board	G-P Gypsum Corp.
H-Shield	Polyisocyanurate foam insulation	Hunter Panels, Inc.
H-Shield CG	Polyisocyanurate foam insulation	Hunter Panels, Inc.
H-Shield-P, H-Shield-WF	Composite Insulation board	Hunter Panels, Inc.
ENRGY-2	Polyisocyanurate foam insulation	Johns Manville
ENRGY-2 Plus, Composite, Fesco Foam	Composite Insulation board	Johns Manville
ENRGY-3	Polyisocyanurate foam insulation	Johns Manville
ENRGY-3 Plus	Composite Insulation board	Johns Manville
Multi-Max FA	Polyisocyanurate foam insulation	RMax
Thermarroof Composite	Composite Insulation board	RMax
UltraMax	Polyisocyanurate foam insulation	RMax
Multi-Max FA-3	Polyisocyanurate foam insulation	RMax
Thermarroof Composite-3	Composite insulation board	RMax
SECUROCK®	Gypsum board	US Gypsum



APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Dekfast Fasteners #12, #14 & #15	Insulation fastener for wood, steel and concrete decks		Construction Fasteners Inc.
2.	Omega	Insulation fastener for wood and steel		Construction Fasteners Inc.
3.	Dekfast Hex Plate	Galvalume hex stress plate.	2 7/8" x 3 1/4"	Construction Fasteners Inc.
4.	Dekfast Lock Plate	Polypropylene locking plate.	3" x 3 1/4"	Construction Fasteners Inc.
5.	#12 Roofgrip Fasteners	Insulation fastener for wood and steel.		ITW Buildex Corp.
6.	Metal Plate	Galvalume stress plate.	3" round 3" square	ITW Buildex Corp.
7.	Gearlok Plastic Plate	Polypropylene round plate	3.2"	ITW Buildex Corp.
8.	Olympic Fastener #12 & #14	Insulation fastener		Olympic Manufacturing Group, Inc.
9.	Olympic Fastener ASAP	Pre-assembled Insulation fastener and plate		Olympic Manufacturing Group, Inc.
10.	Olympic Polypropylene	Polypropylene plastic plate	3.25" round	Olympic Manufacturing Group, Inc.
11.	Olympic G-2	3.5" round galvalume AZ55 steel plate	3.5" round	Olympic Manufacturing Group, Inc.
12.	Olympic Standard	3" round galvalume AZ50 steel plate	3" round	Olympic Manufacturing Group, Inc.
13.	Insul-Fixx Fastener	Insulation fastener for steel and wood decks		SFS Stadler, Inc.
14.	System ES-1	Pre-assembled Insulation fastener and plate		SFS Stadler, Inc.
15.	Insul-Fixx S Plate	3" round galvalume AZ50 steel plate	3" round	SFS Stadler, Inc.
16.	Insul-Fixx P Plate	3" round polyethylene stress plate	3" round	SFS Stadler, Inc.
17.	Tru-Fast	Insulation fastener for steel and wood decks		The Tru-Fast Corp.
18.	Tru-Fast Plates	3" round galvalume AZ55 steel plate	3" round	The Tru-Fast Corp.
19.	Tru-Fast Plates	Polyethylene plastic plate	3" round	The Tru-Fast Corp.



EVIDENCE SUBMITTED

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Dynatech Engineering Corporation	#4530.05.95-1	Wind Uplift Classification	5/31/95
Factory Mutual Research Corporation	J.I. IVOA7.AM	FM 4470	02/21/95
	J.I. 1B4A7.AM	FM 4470	12/15/97
	J.I. 4B4A9.AM	FM 4470	12/31/97
	J.I. 0Y5A6.AM	FM 4470	09/08/97
	J.I. 3D3A5.AM	FM 4470	09/15/98
	J.I. 3004392	FM 4470	09/21/99
	3000637	FM 4470	4/26/00
	J.I. 0D9A0.AM	FM 4470	05/02/00
	J.I. 3004907	FM 4470	05/16/00
	J.I. 3009117	FM 4470	12/21/00
	3010113	FM 4470	11/18/02
	3019046	FM 4470	03/04/05
	3021718	FM 4470	04/11/05
Trinity Engineering, Inc.	#4532.12.95-1	Wind Uplift Classification (6" x 6" Adhesion Testing)	21/31/95
Momentum Technologies, Inc.	TX21G5A	Physical Properties ASTM D5147	4/25/06
PRI Asphalt Technologies, Inc.	GRD-03-02-01	Physical Properties	01/07/98
	GRD-05-02-01	ASTM D 5147	12/18/97
	GRD-06-02-01		01/09/98
Exterior Research & Design, LLC. TRINITY ERD	#4533.05.98-1	TAS 114(J)	05/15/98
	4544.11.06	TAS 114	11/02/06



APPROVED ASSEMBLIES:

Deck Type 1I: Wood, Insulated

Deck Description: 1 9/32" or greater plywood attached to min. 2" x 4" supports spaced max. 24" with wood screws spaced 6" o.c. at intermediate supports and panel edges or wood plank

System Type A(1): Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Anchor Sheet: One ply of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, GAFGLAS Stratavent, GS Flex-I-Glas Base, Malarkey #501, Tamko Glass-Base, Vapor-Chan or Base-N-Ply fastened to the deck as described below:

Fastening: Attach anchor sheet using SFS #12 or HD Insulfixx S, Olympic #12 or HD with Olympic Standard Plates, or Buildex Accutrak Fasteners and Plates spaced 9" o.c. in a 4" lap and 9" o.c. in two staggered rows in the center of the sheet.

One or more layers of any of the following insulations.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
Pyrox, WhiteLine, Millox, AC Foam II, Isotherm R, E'NRG'Y-2, ENRGY 3, PSI-25, UltraGard, ISO-95+GL Minimum 1" thick	N/A	N/A
BP High Strength, FM-90 Traffic Top/High Density, GAFTEMP Fiberboard, GAFTEMP High Density, Roof Insulation Board, High Density Fiberboard, Fiber Base HD1, HD6, Structodek, Armor Board Regular, Esgard, Huebert Fiberboard, Kop-R Wood Fiber, ConPerl, GAFTEMP Permalite, Fesco Board, GAFTEMP Recover Board, Retrofit Board Minimum 1/2" thick	N/A	N/A
Standard or Wide Flute Fiberglass Roof Insulation, Standard or Wide Flute Fiber Glass Roof Insulation, Fiber Glass Roof Insulation (Standard or Wide Flute) Minimum 1 5/16" thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 1/4" thick	N/A	N/A

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs/100 ft². Refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.



Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim Plus, or other Approved ASTM D 2178, type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)

Or

One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium or approved ASTM D 4601, Type II ply sheet adhered with Weatherking or Weatherking Plus WC applied at 2½ gal./sq.

Membrane: One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly, Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80, or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. or with Weatherking or Weatherking Plus WC applied at 2½ gal./sq. (Note: VersiPly 60 is not compatible with Weatherking or Weatherking Plus WC.)

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb./sq. or BlackKnight Cold or BlackKnight WB at 5 gal./sq. (asphalt applied systems only, Not compatible with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal./sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal./sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal./sq with minimum two coats of Garla-Brite applied at min 0.5 gal./sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal./sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal./sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal./sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design

Pressure: -60 psf. (for insulations and membranes in hot asphalt, **See General Limitation #7.**)

-45 psf (for membranes in Weatherking or Weatherking Plus WC, **See General Limitation #9.**)



- Deck Type II:** Wood, Insulated
- Deck Description:** ¹⁹/₃₂" or greater plywood attached to min. 2" x 4" supports spaced max. 24 with wood screws spaced 6" o.c. at intermediate supports and panel edges or wood plank
- System Type A(2):** Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Anchor Sheet: One ply of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Premium TriBase, GAFGLAS Stratavent, GS Flex-I-Glas Base, Malarkey #501, Tamko Glass-Base, Vapor-Chan or Base-N-Ply fastened to the deck as described below:

Fastening: Attach anchor sheet using SFS #12 or HD Insulfixx S, Olympic #12 or HD with Olympic Standard Plates, or Buildex Accutrax Fasteners and Plates spaced 9" o.c. in a 4" lap and 9" o.c. in two staggered rows in the center of the sheet.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
Pyrox, WhiteLine, Millox, AC Foam II, Isotherm R, E'NRG'Y-2, ENRGY 3, PSI-25, UltraGard, ISO-95+GL Minimum 1.5" thick	N/A	N/A
BP High Strength, FM-90 Traffic Top/High Density, GAFTEMP High Density, Roof Insulaiton Board, High Density Fiberboard, Sturdi-Top, Fiber Base HD1, HD6, Structodek FS Minimum 1/2" thick	N/A	N/A
JM Fiber Glass Roof Insulation (Standard or Wide Flute), Owens Corning Standard or Wide Flute Fiberglas Roof Insulation Minimum ¹⁵ / ₁₆ " thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 1/4" thick	N/A	N/A

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs/100 ft². Refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt or other Approved ASTM D 2178, type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq.

Or

One ply of HPR Torch Base Sheet, torch applied to coverboard



- Membrane:** One ply of StressPly IV, StressPly IV UV Mineral or StressPly IV Mineral, torch applied.
- Surfacing:** Optional for StressPly IV Mineral or StressPly IV UV Mineral. Required for StressPly. Apply one of the below or any approved coating.
1. Minimum two or more coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat
 2. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or BlackKnight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq.
- Maximum Design Pressure:** -60 psf (See General Limitation #7.)



- Deck Type II:** Wood, Insulated
- Deck Description:** ¹⁹/₃₂" or greater plywood or wood plank secured to supports spaced 24" o.c. with #8 wood screws spaced 6" o.c.
- System Type A(3):** Anchor sheet mechanically fastened; all layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Anchor Sheet: One ply of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium fastened to the deck as described below:

Fastening: Tru-Fast MP3 plates with Tru-Fast HD fasteners, OMG Standard Metal Plates with OMG Heavy Duty fasteners, ITW Buildex Flat Bottom Plates with #14 Rofgrip fasteners or SFS Intec Dekfast Hex plates with Dekfast #14 fasteners spaced 6" o.c. within 4" wide lap and 6" o.c. within three equally spaced staggered rows in the field.

<u>Insulation Base Layer (Optional)</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
ACFoam II, ENRGY 3, H-Shield, Multi-Max FA3 Minimum 1.5" thick	N/A	N/A
<u>Insulation Top Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
DensDeck Prime Minimum ¼" thick	N/A	N/A

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 25 lbs/100 ft². Refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt or other approved ASTM D2178 Type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet, adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 25 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)

Or

One ply of HPR Torch Base Sheet, torch applied to coverboard



Membrane:

One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80 or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 25 lbs./sq.

Or

One ply of StressPly IV, StressPly IV UV Mineral or StressPly IV Mineral, torch applied.

Surfacing:

Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq. (asphalt applied systems only, Not compatible with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal/sq with minimum two coats of Garla-Brite applied at min 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-135.0 psf (See General Limitation #7.)



Deck Type II: Wood, Insulated
Deck Description: ¹⁹/₃₂" or greater plywood or wood plank
System Type A(4): Anchor sheet mechanically fastened; all layers of insulation adhered with approved adhesive.

All General and System Limitations apply.

Anchor Sheet: One ply of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium fastened to the deck as described below:

Fastening: Tru-Fast MP3 plates with Tru-Fast HD fasteners, OMG Standard Metal Plates with OMG Heavy Duty fasteners, ITW Buildex Flat Bottom Plates with #14 Rofgrip fasteners or SFS Intec Dekfast Hex plates with Dekfast #14 fasteners spaced 6" o.c. within 4" wide lap and 6" o.c. within three equally spaced staggered rows in the field.

<u>Insulation Base Layer (Optional)</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
ACFoam II, ENRGY 3, H-Shield, Multi-Max FA3 Minimum 1.5" thick	N/A	N/A
<u>Insulation Top Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
DensDeck Prime Minimum ¼" thick	N/A	N/A

Note: All insulation shall be adhered to the anchor sheet in Insul-Lock II or Weathertite Pourable Foam Insulation Adhesive applied in ¾"- 1" wide ribbons atop the anchor sheet fastener rows (approximately 8.8" o.c.) . Refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt or other approved ASTM D2178 Type IV or VI ply sheet, or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 25 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)

Or

One ply of HPR Torch Base Sheet, torch applied to coverboard



Membrane:

One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80 or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 25 lbs./sq.

Or

One ply of StressPly IV, StressPly IV UV Mineral or StressPly IV Mineral, torch applied.

Surfacing:

Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq. (asphalt applied systems only, Not compatible with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal/sq with minimum two coats of Garla-Brite applied at min 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-52.5 psf (See General Limitation #7.)



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

All General and System Limitations apply.

<u>Base Insulation Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
Pyrox, WhiteLine, Millox, ACFoam II, Isotherm R, E'NRG'Y-2, ENRGY 3, PSI-25, UltraGard, ISO-95+GL Minimum 1.8" thick	1, 5, 8, 13, 14 & 17	1:3 ft ²
ConPerl, GAFTEMP Permalite, Fesco Board Minimum 1.5" thick	1, 5, 8, 13, 14 & 17	1:2 ft ²

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

<u>Middle Insulation Layer (Optional)</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
UltraGard, Pyrox, E'NRG'Y-2, ENRGY 3, PSI-25, WhiteLine, Millox, ACFoam II, Isotherm R, UltraGard, ISO-95+GL Minimum 1.5" thick	N/A	N/A

<u>Top Insulation Layer (Optional)</u>	<u>Insulation Fasteners</u> <u>(Table 2)</u>	<u>Fastener</u> <u>Density/ft²</u>
BP High Strength, FM-90 Traffic Top/High Density, GAFTEMP High Density, Roof Insulation Board, High Density Fiberboard, Fiber Base HD1, HD6, Structodek Minimum ½" thick	N/A	N/A
DensDeck, DensDeck Prime Minimum ¼" thick	N/A	N/A

Note: Apply optional middle and/or top layer of insulation shall be adhered with approved hot asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs/100 ft² or in Insta-Stik Roofing Adhesive applied in continuous ¾ to 1 inch wide beads spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulations listed as the base layer shall only be used as the base layer 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 face down.



Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim Plus, or other Approved ASTM D 2178, type IV or VI ply sheet or other ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)

Or

Two or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium or approved ASTM D 4601, Type II ply sheet adhered with Weatherking or Weatherking Plus WC applied at 2½ gal./sq.

Membrane: One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80, or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. or with Weatherking or Weatherking Plus WC applied at 2½ gal./sq. (Note: VersiPly 60 is not compatible with Weatherking or Weatherking Plus WC.)

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq. (asphalt applied systems only, Not compatible with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal/sq with minimum two coats of Garla-Brite applied at min 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design

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



Deck Type 1I: Wood, Insulated
Deck Description: Min. 19/32" or greater, plywood or wood plank
System Type B(2): Base layer of insulation mechanically fastened, top layer adhered with approved asphalt or adhesive.

All General and System Limitations apply.

<u>Base Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
Any approved non-foil faced polyisocyanurate insulation Minimum 1.5" thick	Any fastener from Table 3	1:2.67 ft ²

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

<u>Middle Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
(Optional) Any approved non-foil faced polyisocyanurate insulation Minimum 1.5" thick	N/A	N/A

<u>Top Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
High Density Wood Fiber Minimum ½" thick	N/A	N/A
Perlite Minimum ½" thick	N/A	N/A
DensDeck, DensDeck Prime Minimum ½" thick	N/A	N/A

Note: Apply optional middle and/or top layer of insulation shall be adhered with Insul-Lock II applied in ¾"- 1" wide ribbons spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulations listed as the base layer shall only be used as the base layer 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 face down.

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus Sheet, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim Plus or other Approved ASTM D 2178, type IV or VI ply sheet or other ASTM D 4601 Type II base sheet, adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)
 Or
 Two or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium or approved ASTM D 4601, Type II ply sheet adhered with Weatherking or Weatherking Plus WC applied at 2½ gal./sq.



Membrane: One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80, or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. or with Weatherking or Weatherking Plus WC applied at 2½ gal./sq. (Note: VersiPly 60 is not compatible with Weatherking or Weatherking Plus WC.)

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb./sq. or BlackKnight Cold or BlackKnight WB at 5 gal./sq. (asphalt applied systems only, Not compatible with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal/sq with minimum two coats of Garla-Brite applied at min 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

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



Deck Type 11: Wood, Insulated

Deck Description: Min. 19/32" or greater, plywood or wood plank

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

All General and System Limitations apply.

<u>Base Insulation Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
ACFoam II, ACFoam III, Isotherm R, E'NRG'Y 2, ENRGY 3, PSI 25, HyTherm AP, HyTherm SP, UltraGard, ISO 95+GL, HyTherm Composite Minimum 1.8" thick	Any fastener from Table 3	1:3 ft ²

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

<u>Top Insulation Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
High Density Wood Fiber Minimum 1/2" thick	N/A	N/A
Perlite Minimum 3/4" thick	N/A	N/A
DensDeck, DensDeck Prime Minimum 1/4" thick	N/A	N/A

Note: Top layer of insulation shall be adhered with approved hot asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs/100 ft² or in Insta-Stik Roofing Adhesive applied in continuous 3/4 to 1 inch wide beads spaced 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulations listed as the base layer shall only be used as the base layer 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 face down.

Base/Ply Sheet: Minimum Two plies of HPR Polyscrim Plus
Or
Minimum Two plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq.

Membrane: One ply of HPR Polyscrim Plus adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq.

Surfacing: 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 40 lb./sq. or in BlackKnight Flood Coat or BlackKnight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq.

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



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

All General and System Limitations apply.

<u>Base Insulation Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
Pyrox, WhiteLine, Millox, ACFoam II, Isotherm R, E'NRG'Y-2, ENRGY 3, PSI-25, UltraGard, ISO-95+GL Minimum 1" thick	N/A	N/A

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

<u>Top Insulation Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
BP High Strength, FM-90 Traffic Top/High Density, GAFTEMP Fiberboard, GAFTEMP High Density, Roof Insulation Board, High Density Fiberboard, Fiber Base HD1, HD6, Structodek, Armor Board Regular, Esgard, Celotex Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber, ConPerl, GAFTEMP Permalite, Fesco Board, GAFTEMP Recover Board, Retrofit Board Minimum 1/2" thick	1, 5, 8, 13, 14 & 17	1:3 ft ²
DensDeck, DensDeck Prime Minimum 1/2" thick	1, 5, 8, 13, 14 & 17	1:3 ft ²
Standard or Wide Flute Fiberglass Roof Insulation, Standard or Wide Flute Fiber Glass Roof Insulation, Fiber Glass Roof Insulation (Standard or Wide Flute) Minimum 15/16" thick	1, 5, 8, 13, 14 & 17	1:3 ft ²

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Insulation fasteners shall be tested for withdrawal resistance in compliance with Testing Application Standard TAS 105 to confirm compliance with the wind load requirements. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim Plus, or other Approved ASTM D 2178, type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet, adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)

Or

Two or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium or approved ASTM D 4601, Type II base sheet adhered with Weatherking or Weatherking Plus WC applied at 2 1/2 gal./sq.



Membrane: One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80, or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. or with Weatherking or Weatherking Plus WC applied at 2½ gal./sq. (Note: VersiPly 60 is not compatible with Weatherking or Weatherking Plus WC.)

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq. (asphalt applied systems only, Not compatible with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal/sq with minimum two coats of Garla-Brite applied at min 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-45 psf (See General Limitation #9.)



Deck Type II: Wood, Insulated
Deck Description: ¹⁹/₃₂" or greater plywood or wood plank
System Type C(2): All layers of insulation simultaneously attached.
 All General and System Limitations apply.

<u>Base Insulation Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
Pyrox, WhiteLine, Millox, AC Foam II, Isotherm R, E'NRG'Y-2, ENRGY 3, PSI-25, UltraGard, ISO-95+GL Minimum 1.5" thick	N/A	N/A
JM Fiber Glass Roof Insulation (Standard or Wide Flute), Owens Corning Standard or Wide Flute Fiberglas Roof Insulation Minimum ¹⁵ / ₁₆ " thick	N/A	N/A

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

<u>Top Insulation Layer</u>	<u>Insulation Fasteners</u> <u>(Table 3)</u>	<u>Fastener</u> <u>Density/ft²</u>
BP High Strength, FM-90 Traffic Top/High Density, GAFTEMP High Density, Roof Insulaiton Board, High Density Fiberboard, Sturdi-Top, Fiber Base HD1, HD6, Structodek FS Minimum 1/2" thick	1, 2, 5, 8, 13, 14 & 17	1:2.67 ft ²
DensDeck, DensDeck Prime Minimum 1/2" thick	1, 2, 5, 8, 13, 14 & 17	1:2.67 ft ²
JM Fiber Glass Roof Insulation (Standard or Wide Flute), Owens Corning Standard or Wide Flute Fiberglas Roof Insulation Minimum ¹⁵ / ₁₆ " thick	1	1:2 ft ²

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Insulation fasteners shall be tested for withdrawal resistance in compliance with Testing Application Standard TAS 105 to confirm compliance with the wind load requirements. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt or other Approved ASTM D 2178, type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq.

Or

One ply of HPR Torch Base Sheet, torch applied to coverboard

Membrane: One ply of StressPly IV, Stress Ply IV UV Mineral or StressPly IV Mineral, torch applied.



Surfacing:

Optional for Stress Ply IV Mineral or StressPly IV UV Mineral. Required for StressPly IV. Apply one of the below or any approved coating.

1. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat
2. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or BlackKnight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq.

Maximum Design Pressure:

-45 psf (See General Limitation #9.)



Deck Type 1I: Wood, Non-Insulated
Deck Description: ¹⁹/₃₂" or greater plywood or wood plank
System Type E(1): Base sheet mechanically fastened

All General and System Limitations apply.

Base Sheet: One ply of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, GAFGLAS Stratavent, GS Flex-I-Glas Base, Malarkey #501, Tamko Glass-Base, Vapor-Chan or Base-N-Plyfastened to the deck as described below:

Fastening: Attach anchor sheet using SFS #12 or HD Insulfixx S, Olympic #12 or HD with Olympic Standard Plates, or Buildex Accutrak Fasteners and Plates spaced 9" o.c. in a 4" lap and 9" o.c. in two staggered rows in the center of the sheet.

Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscric Plus, or other Approved ASTM D 2178, type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)

Or

Two or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium or approved ASTM D 4601, Type II base sheet adhered with Weatherking or Weatherking Plus WC applied at 2½ gal./sq.

Membrane: One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80, or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq. or with Weatherking or Weatherking Plus WC applied at 2½ gal./sq. (Note: VersiPly 60 is not compatible with Weatherking or Weatherking Plus WC.)



Surfacing:

Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb/sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq. (asphalt applied systems only, Not compatable with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal/sq with minimum two coats of Garla-Brite applied at min 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-60 psf. (for membranes in hot asphalt, See **General Limitation #7.**)

-45 psf (for membranes in Weatherking Mastic or Weatherking Plus Mastic, See **General Limitation #9.**)



Deck Type II: Wood, Non-Insulated
Deck Description: ¹⁹/₃₂" or greater plywood or wood plank
System Type E(2): Base sheet mechanically fastened

All General and System Limitations apply.

Base Sheet: One ply of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, GAFGLAS Stratavent, GS Flex-I-Glas Base, Malarkey #501, Tamko Glass-Base, Vapor-Chan or Base-N-Ply fastened to the deck as described below:

Fastening: Attach anchor sheet using SFS #12 or HD Insulfixx S, Olympic #12 or HD with Olympic Standard Plates, or Buildex Accutrak Fasteners and Plates spaced 9" o.c. in a 4" lap and 9" o.c. in two staggered rows in the center of the sheet.

Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium, HPR Glasfelt, HPR Premium Glasfelt or other Approved ASTM D 2178, type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 20-40 lbs./sq.

Membrane: One ply of StressPly IV, StressPly IV UV Mineral or StressPly IV Mineral, torch applied.

Surfacing: Optional for Stress Ply IV Mineral or StressPly IV UV Mineral. Required for StressPly IV. Apply one of the below or any approved coating.

1. Minimum two coats of Garla-Brite applied at min. 0.5 gal/sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal/sq/coat
2. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or BlackKnight LV Flood Coat at 70 lb./sq. or BlackKnight Cold or BlackKnight WB at 5 gal/sq.

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



Deck Type 1: Wood, Non-Insulated
Deck Description: ¹⁹/₃₂" or greater plywood or wood plank secured to supports spaced 24" o.c. with #8 wood screws spaced 6" o.c.
System Type E(3): Base sheet mechanically fastened

All General and System Limitations apply.

Base Sheet: One ply of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium fastened to the deck as described below:

Fastening: Tru-Fast MP3 plates with Tru-Fast HD fasteners, OMG Standard Metal Plates with OMG Heavy Duty fasteners, ITW Buildex Flat Bottom Plates with #14 Rofgrip fasteners or SFS Intec Dekfast Hex plates with Dekfast #14 fasteners spaced 6" o.c. within 4" wide lap and 6" o.c. within three equally spaced staggered rows in the field.

Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, HPR Tri-Base Premium or other approved ASTM D 2178 Type IV or VI ply sheet or other approved ASTM D 4601 Type II base sheet adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 25 lbs./sq. (Note: Minimum two plies of ASTM D 2178, type VI or three plies of type IV is required for VersiPly 60 applications.)

Membrane: One ply of StressPly E, StressPly E Mineral, StressPly E FR Mineral, StressPly, StressPly Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly EUV, StressPly EUV Mineral, StressPly EUV FR Mineral, VersiPly 60, VersiPly 80, or VersiPly Mineral adhered with a full mopping of approved asphalt, HPR All Temp, Garlastic KM, or Garlastic KM Plus within the EVT range and at a rate of 25 lbs./sq.

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes. Apply one of the below or any approved coatings:

1. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved mopping asphalt at an application rate of 60 lb./sq. or in BlackKnight Flood Coat or Black-Knight LV Flood Coat at 70 lb./sq. or BlackKnight Cold or BlackKnight WB at 5 gal./sq. (asphalt applied systems only, Not compatible with Weatherking and Weatherking Plus WC applied systems)
2. Minimum two coats of Garla-Brite applied at min. 0.5 gal./sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal./sq/coat.
3. Energizer FR applied at 3 gal./sq. or Energizer K Plus FR applied at 3.5 gal./sq with minimum two coats of Garla-Brite applied at min 0.5 gal./sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal./sq/coat.
4. WeatherScreen applied at min. 4 gal./sq. with minimum two coats of GarlaBrite applied at min. 0.5 gal./sq/coat or minimum two coats of Pyramic applied at min. 1.0 gal./sq/coat .
5. WeatherScreen applied at min. 4 gal./sq. with #11 roofing granules at 60 lb./sq.
6. WeatherScreen applied at applied at min. 4 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-135.0 psf (See General Limitation #7)



NOA No.: 06-1120.06
Expiration Date: 12/02/11
Approval Date: 05/17/07
Page 28 of 29

WOOD DECK SYSTEM LIMITATIONS:

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

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform 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.)**

END OF THIS ACCEPTANCE



NOA No.: 06-1120.06
Expiration Date: 12/02/11
Approval Date: 05/17/07
Page 29 of 29