



**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 Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

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

DESCRIPTION: Garland Modified Bitumen Roof System over Lightweight Concrete Deck

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. 03-0520.02 and consists of pages 1 through 21.

The submitted documentation was reviewed by Jorge L. Acebo.



**NOA No: 06-1018.07
Expiration Date: 12/02/11
Approval Date: 12/07/06
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ROOFING ASSEMBLY NOTICE OF ACCEPTANCE

Category: Roofing
Sub-Category: Modified Bitumen
Material: SBS/SIS/SEBS/ES
Deck Type: Lightweight Concrete
Maximum Design Pressure -52.5 psf
Fire Classification: See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE I

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
HPR TriBase	36" x 72' 72 lbs.	proprietary	Double asphalt coated, polyester/fiberglass/polyester scrim reinforced base sheet
HPR TriBase Plus	36" x 72' 75 lbs.	proprietary	Double asphalt coated, SBS Modified polyester/fiberglass/polyester scrim reinforced base sheet
HPR GlasBase	36" x 108' 75 lbs.	ASTM D 4601, Type II	Type II, asphalt coated fiberglass base sheet.
HPR Premium GlasBase	36" x 72' 75 lbs.	ASTM D 4601, Type II	Type II, asphalt coated fiberglass base sheet.
HPR TorchBase	39" x 34'8" 76 lbs.	ASTM D 5147	SBS modified, fiberglass reinforced, torch applied base sheet.
HPR Glasfelt	36" x 180' Roll weight: 85 lbs.	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' ; Roll weight: 95 lbs.	ASTM D 2178, Type VI	Type VI asphalt impregnated glass felt for use in conventional and modified bitumen built-up systems.
HPR Polyscrim or HPR Polyscrim Plus	40" x 324' 40 lbs.	ASTM D 5726	Polyester felt for use in conventional and modified bitumen built-up roof systems.
StressPly	39" x 34'8" 80 mil	ASTM D 6163 Type III, Grade S	Smooth surfaced , SBS modified, fiberglass scrim reinforced roofing membrane.
StressPly FR	39" x 34'8" 80 mil	ASTM D 6163 Type III, Grade S	Smooth surfaced, SBS modified, fire retardant, fiberglass scrim membrane.
StressPly Mineral	39" x 26'2" 135 mil	ASTM D 6163 Type III, Grade G	Mineral surfaced, SBS modified, fiberglass scrim reinforced membrane.
StressPly FR Mineral	39" x 26'2" 135 mil	ASTM D 6163 Type III, Grade G	Mineral surfaced, SBS modified, fire retardant, fiberglass scrim membrane.



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<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
StressPly Plus	39" x 34'8" 80 mil	ASTM D 6163, Type III, Grade S	Smooth surfaced, SEBS/SBS modified, fiberglass scrim membrane.
StressPly Plus FR	39" x 34'8" 80 mil	ASTM D 6163 Type III, Grade S	Smooth surfaced, SEBS/SBS modified, fire retardant, UV resistant, fiberglass scrim membrane.
StressPly Plus Mineral	39" x 26'2" 135 mil	ASTM D 6163 Type III, Grade S	Mineral surfaced, SEBS/SBS modified, UV resistant, fiberglass scrim membrane.
StressPly Plus Mineral FR	39" x 26'2" 135 mil	ASTM D 6163 Type III, Grade S	Mineral surfaced, SEBS/SBS modified, fire retardant, UV resistant, Quad-Axial fiberglass scrim membrane.
StressPly E	39" x 34'8" 80 mil	ASTM D 6162, Type III, Grade S	Smooth surfaced, SBS/SIS/ES modified, fiberglass/polyester reinforced membrane.
StressPly E FR	39" x 34'8" 80 mil	ASTM D 6162, Type III, Grade S	Smooth surfaced, SBS/SIS/ES modified, fire retardant, fiberglass/polyester reinforced membrane.
StressPly E Mineral	39" x 26'2" 135 mil	ASTM D 6162, Type III, Grade S	Mineral surfaced, SBS/SIS/ES modified, fiberglass/polyester reinforced membrane.
StressPly E FR Mineral	39" x 26'2" 135 mil	ASTM D 6162, Type III, Grade S	Mineral surfaced, SBS/SIS/ES modified, fire retardant, fiberglass/polyester reinforced membrane.
StressPly EUV	39" x 26'2" 115 mil	ASTM D 6162, Type III, Grade S	Smooth surfaced, SBS/SIS/ES modified, fiberglass/polyester reinforced membrane.
StressPly EUV FR	39" x 26'2" 115 mil	ASTM D 6162, Type III, Grade S	Smooth surfaced, SBS/SIS/ES modified, fire retardant, fiberglass/polyester reinforced membrane.
StressPly EUV Mineral	39" x 26'2" 155 mil	ASTM D 6162, Type III, Grade S	Starburst™ mineral surfaced, SBS/SIS/ES modified, fiberglass/polyester reinforced membrane.
StressPly EUV FR Mineral	39" x 26'2" 155 mil	ASTM D 6162, Type III, Grade S	Starburst™ mineral surfaced, SBS/SIS/ES modified, fire retardant, fiberglass/polyester reinforced membrane.
VersiPly 60	39" x 34'8" 60 mil	ASTM D 6163 Type III, Grade S	Smooth surfaced, SBS modified, fiberglass scrim reinforced roofing membrane.
VersiPly 80	39" x 34'8" 80 mil	ASTM D 6163 Type III, Grade S	Smooth surfaced, SBS modified, fiberglass scrim reinforced roofing membrane.
VersiPly 80 Mineral	39" x 26'2" 135 mil	ASTM D 6163 Type III, Grade S	Mineral surfaced, SBS modified, fiberglass scrim reinforced roofing membrane.



<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
StressPly IV	39" x 26'2" 180 mil	ASTM D 6163 Type III, Grade S	Smooth surfaced, SBS modified, fiberglass reinforced, torch applied cap sheet.
StressPly IV Mineral	39" x 26'2" 195 mil	ASTM D 6163 Type III, Grade S	Mineral surfaced, SBS modified, fiberglass reinforced, torch applied cap sheet.
StressPly IV UV Mineral	39" x 26'2" 195 mil	ASTM D 6163 Type III, Grade S	Starburst™ mineral surfaced, SBS modified, fiberglass reinforced, torch applied cap sheet.
Garla-Bond Asphalt, Garland Flashing Bond, Ultra-Shield Flashing Cement, Ultra-Shield Plastic Roof Cement	5 gallon	ASTM D 4586	Trowel grade, asphalt based roofing mastic for use in repair and patching against leaks in built-up asphalt roofs.
Garla-Flex V.O.C., 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	5, 55 gallon	ASTM D 3019, type III	Cold process roof coating and adhesive.
Weatherking Flashing Adhesive	5, 55 gallon	ASTM D 3019, type III	Cold process roof flashing adhesive.
Ultra-Shield Metal Rust Proofing	5, 55 gallon	ASTM D 3019, type III	Asbestos-free, petroleum compound modified with polymers and corrosion inhibitors.
Weatherking FR Top Coat, Ultra-Shield Built- Up Mastic FR or Weatherscreen	5, 55 gallon	ASTM D 4479, type I	Asbestos-free, heavy-bodied, fiber-reinforced, fire-rated asphalt roof coating
Garla-Brite	5, 55 gallon	ASTM D 2824, type I	Aluminum roof coating.
Energizer K Plus FR or Energizer FR	5, 55 gallon	ASTM D 4479, type I	Multipurpose, rubberized, liquid waterproofing membrane.
GarlaPrime VOC, Ultra- Shield Primer	5, 55 gallon	ASTM D 41	Non-fibered, quick drying asphalt roof primer
Pyramic	5, 55 gallon	ASTM D 6083	White acrylic roof coating.



<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
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	70 lb. keg	Proprietary	Polymer modified coal tar pitch.
Black Knight Cold	5, 55 gallon	Proprietary	Polymer modified cold applied coal tar coating.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
PYROX, Millox, Whiteline	Polyisocyanurate foam insulation	Apache Products Co.
ACFoam I, II	Polyisocyanurate foam insulation	Atlas Energy Products
ISO 95+	Polyisocyanurate foam insulation	Firestone Building Products, Inc.
ISO 95+ Composite	Polyisocyanurate/perlite ridged insulation	Firestone Building Products, Inc.
EnergyGuard	Polyisocyanurate foam insulation	GAF Materials Corp.
High Density Wood Fiberboard	Wood fiber insulation board	generic
Perlite Insulation	Perlite insulation board	generic
Dens Deck	Water resistant gypsum board	G-P Gypsum Corp.
ENRGY 2, Plus, PSI-25	Polyisocyanurate foam insulation	Johns Manville
FiberGlass Roof Insulation	Glass fiber/Mineral fiber insulation	Johns Manville



APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions (With Current NOA)	Manufacturer
1.	FM-30, FM-60, FM-90 Fasteners and Twin-Loc	Base ply fastening systems for lightweight concrete decks.		ES Products, Inc.
2.	Olympic CR Base Sheet Fastener and Plate	Base sheet fastening assembly.		Olympic Mfg. Group, Inc.
3.	Base-Lok Fastener	Nylon base sheet fastener.		Simplex Nails & Fasteners

EVIDENCE SUBMITTED

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Exterior Research & Design, LLC	#4533.05.98-1	TAS 114(J)	05/15/98
Factory Mutual Research Corporation	J.I. 1B4A7.AM	Class I Fire: I-60 and I-90 Windstorm Classification	12/15/97
	J.I. 4B4A9.AM		12/31/97
	J.I. 0Y5A6.AM		09/08/97
	J.I. 3D3A5.AM		09/15/98
	J.I. 3004392		09/21/99
	J.I. 0D9A0.AM		05/02/00
	J.I. 3004907		05/16/00
	J.I. 3009117		12/21/00
PRI Asphalt Technologies, Inc.	GRD-03-02-01	Physical Properties ASTM D 5147	01/07/98
	GRD-05-02-01		12/18/97
	GRD-06-02-01		01/09/98



APPROVED ASSEMBLIES:

- Deck Type 4I:** Lightweight Concrete, Insulated
- Deck Description:** Mearlcrete, Celcore or Elastizell cellular lightweight concrete, min. 200 psi, over steel or concrete deck
- System Type A(1):** Anchor sheet mechanically fastened; one or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Deck: 2500 psi structural concrete or concrete plank
 Or
 22 ga., type B, galvanized, slotted steel decking attached to supports spaced maximum 5 ft. o.c. with 5/8" puddle welds spaced 6" o.c. (every bottom flute). Steel deck side laps attached 18" o.c. between each 5 ft. span with Traxx/1 fasteners

Anchor Sheet: *(Option #1.)* One ply of HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, Vaporbar GB, HydroStop, GAFGLAS #75, GAFGLAS Stratavent, JM PermaPly R, JM Dynabase, JM Ventsulation, or Tamko Vapor-Chan mechanically attached using Olympic CR Base Ply Fasteners or ES Products FM-90 Fasteners spaced 7" o.c. in a 4" side lap and 7" o.c. in two staggered rows in the center of the sheet.

(Option #2.) One ply of Garland HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Ventsulation, JM DynaBase, Intec Bondable Base, Intec Permavent, Intec FlexBase 30, Intec Ultrabase, or Malarkey #501 mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 9" o.c. in two staggered rows in the center of the sheet.

Insulation Layer	Insulation Fasteners	Fastener Density/ft²
Pyrox, WhiteLine, Millox, ACFoam II, EnergyGuard, ENRGY 2, PSI-25, 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, Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber, GAFTEMP Permalite, Fesco Board, GAFTEMP Recover Board, Retrofit Board Minimum 1/2" thick	N/A	N/A
Fiber Glass Roof Insulation (Standard or Wide Flute) Minimum 15/16" thick	N/A	N/A
Dens Deck 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 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.

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim, HPR Polyscrim Plus, GAFGLAS #75, GAFGLAS Ply 4, Vaporbar GB, PermaPly R, GlasPly IV, PermaPly 28, or other Approved ASTM D 2178, type IV or VI ply 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.)

Membrane: One ply of StressPly E, StressPly E FR, StressPly E Mineral, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR, StressPly EUV Mineral, StressPly EUV FR Mineral, StressPly, StressPly Mineral, StressPly FR, StressPly FR Mineral, StressPly Plus, StressPly Plus Mineral, StressPly Plus FR, StressPly Plus Mineral FR, 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.

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes.

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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb/sq. or in Black Knight Cold at 4-5 gal/sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

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



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- Deck Type 4I:** Lightweight Concrete, Insulated
- Deck Description:** Mearlcrete, Celcore or Elastizell cellular lightweight concrete, min. 200 psi, over steel or concrete deck
- System Type A(2):** Anchor sheet mechanically fastened; one or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Deck: 2500 psi structural concrete or concrete plank
 Or
 22 ga., type B, galvanized, slotted steel decking attached to supports spaced maximum 5 ft. o.c. with 5/8" puddle welds spaced 6" o.c. (every bottom flute). Steel deck side laps attached 18" o.c. between each 5 ft. span with Traxx/1 fasteners

Anchor Sheet: *(Option #1.)* One ply of HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, Vaporbar GB, HydroStop, GAFGLAS #75, GAFGLAS Stratavent, JM PermaPly R, JM Dynabase, JM Ventsulation, or Tamko Vapor-Chan mechanically attached using Olympic CR Base Ply Fasteners or ES Products FM-90 Fasteners spaced 7" o.c. in a 4" side lap and 7" o.c. in two staggered rows in the center of the sheet.

(Option #2.) One ply of Garland HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Ventsulation, JM DynaBase, Intec Bondable Base, Intec Permavent, Intec FlexBase 30, Intec Ultrabase or Malarkey #501 mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 9" o.c. in two staggered rows in the center of the sheet.

Insulation Layer	Insulation Fasteners	Fastener Density/ft²
Pyrox, WhiteLine, Millox, ACFoam II, EnergyGuard, ENRGY 2, 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, Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber, GAFTEMP Permalite, Fesco Board, GAFTEMP Recover Board, Retrofit Board Minimum 1/2" thick	N/A	N/A
Fiber Glass Roof Insulation (Standard or Wide Flute) Minimum 15/16" thick	N/A	N/A
Dens Deck 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 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.

Base/Ply Sheet: One more plies of HPR GlasBase, HPR Premium GlasBase, HPR TriBase, HPR TriBase Plus, HPR Glasfelt, HPR Premium Glasfelt or other Approved ASTM D 2178, type IV or VI ply 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 TorchBase, torch applied to Structodek or Dens Deck.

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

Surfacing: Optional for Stress Ply IV Mineral or StressPly IV UV Mineral. Required for StressPly IV.

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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb./sq. or in Black Knight Cold at 4-5 gal./sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-45 psf (See General Limitation #7.)



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Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Mearlcrete cellular lightweight concrete, min. 300 psi, over steel or concrete deck

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

All General and System Limitations apply.

Deck: 2500 psi structural concrete or concrete plank
 Or
 22 ga., type B, galvanized, slotted steel decking attached to supports spaced maximum 5 ft. o.c. with 5/8" puddle welds spaced 6" o.c. (every bottom flute). Steel deck side laps attached 18" o.c. between each 5 ft. span with Traxx/1 fasteners

Anchor Sheet: *(Option #1.)* One ply of HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Dynabase, Intec Bondable Base, or Intec Permavent mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 12" o.c. in two staggered rows in the center of the sheet.

(Option #2.) Garland HPR Glasbase, HPR Premium Glasbase, HPR Tribase or HPR TriBase Plus, is mechanically fastened with Olympic CR Base Felt Fasteners at 7 in. (178 mm) o.c. in the 4 in. (102 mm) wide lap and in two rows spaced equally between the overlaps and staggered in the field of the sheet

Insulation Layer	Insulation Fasteners	Fastener Density/ft ²
Pyrox, WhiteLine, Millox, ACFoam II, EnergyGuard, ENRGY 2, PSI-25, 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, Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber, GAFTEMP Permalite, Fesco Board, GAFTEMP Recover Board, Retrofit Board Minimum 1/2" thick	N/A	N/A
Fiber Glass Roof Insulation (Standard or Wide Flute) Minimum 15/16" thick	N/A	N/A
Dens Deck 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 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.



- Base/Ply Sheet:** One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR Tribase, HPR Tribase Plus, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim, HPR Polyscrim Plus, GAFGLAS #75, GAFGLAS Ply 4, Vaporbar GB, PermaPly R, GlasPly IV, PermaPly 28, or other Approved ASTM D 2178, type IV or VI ply 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.)
- Membrane:** One ply of StressPly E, StressPly E FR, StressPly E Mineral, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR, StressPly EUV Mineral, StressPly EUV FR Mineral, StressPly, StressPly Mineral, StressPly FR, StressPly FR Mineral, StressPly Plus, StressPly Plus Mineral, StressPly Plus FR, StressPly Plus Mineral FR, 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.
- Surfacing:** Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes.
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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb/sq. or in Black Knight Cold at 4-5 gal/sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
 2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
 3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
 4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
 5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
 6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.
- Maximum Design Pressure:** -52.5 psf. (See General Limitation #7.)



Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Mearlcrete cellular lightweight concrete, min. 300 psi, over steel or concrete deck

System Type A(4): Anchor sheet mechanically fastened; one or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Deck: 2500 psi structural concrete or concrete plank
Or
22 ga., type B, galvanized, slotted steel decking attached to supports spaced maximum 5 ft. o.c. with 5/8" puddle welds spaced 6" o.c. (every bottom flute). Steel deck side laps attached 18" o.c. between each 5 ft. span with Traxx/1 fasteners

Anchor Sheet: *(Option #1.)* One ply of HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Dynabase, Intec Bondable Base, or Intec Permavent mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 12" o.c. in two staggered rows in the center of the sheet.

(Option #2.) Garland HPR Glasbase, HPR Premium Glasbase, HPR Tribase or HPR TriBase Plus is mechanically fastened with Olympic CR Base Felt Fasteners at 7 in. (178 mm) o.c. in the 4 in. (102 mm) wide lap and in two rows spaced equally between the overlaps and staggered in the field of the sheet

Insulation Layer	Insulation Fasteners	Fastener Density/ft ²
Pyrox, WhiteLine, Millox, ACFoam II, EnergyGuard, ENRGY 2, PSI-25, 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, Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber, GAFTEMP Permalite, Fesco Board, GAFTEMP Recover Board, Retrofit Board Minimum 1/2" thick	N/A	N/A
Fiber Glass Roof Insulation (Standard or Wide Flute) Minimum 15/16" thick	N/A	N/A
Dens Deck 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 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.



Base/Ply Sheet: One more plies of HPR GlasBase, HPR Premium GlasBase, HPR TriBase, HPR TriBase Plus, HPR Glasfelt, HPR Premium Glasfelt or other Approved ASTM D 2178, type IV or VI ply 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 TorchBase, torch applied to Structodek or Dens Deck.

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

Surfacing: Optional for Stress Ply IV Mineral or StressPly IV UV Mineral. Required for StressPly IV.

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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb/sq. or in Black Knight Cold at 4-5 gal/sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-52.5 psf. (See General Limitation #7.)



Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Mearlcrete, Celcore or Elastizell cellular lightweight concrete, min. 200 psi, over steel or concrete deck

System Type E(1): Base sheet mechanically fastened.

All General and System Limitations apply.

Base Sheet: *(Option #1.)* One ply of HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, Vaporbar GB, HydroStop, GAFGLAS #75, GAFGLAS Stratavent, JM PermaPly R, JM Dynabase, JM Ventsulation, or Tamko Vapor-Chan mechanically attached using Olympic CR Base Ply Fasteners or ES Products FM-90 Fasteners spaced 7" o.c. in a 4" side lap and 7" o.c. in two staggered rows in the center of the sheet.

(Option #2.) One ply of Garland HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Ventsulation, JM DynaBase, Intec Bondable Base, Intec Permavent, Intec FlexBase 30, Intec Ultrabase, or Malarkey #501 mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side 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 TriBase, HPR TriBase Plus, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim, HPR Polyscrim Plus, GAFGLAS #75, GAFGLAS Ply 4, Vaporbar GB, PermaPly R, GlasPly IV, PermaPly 28, or other Approved ASTM D 2178, type IV or VI ply 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.)

Membrane: One ply of StressPly E, StressPly E FR, StressPly E Mineral, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR, StressPly EUV Mineral, StressPly EUV FR Mineral, StressPly, StressPly Mineral, StressPly FR, StressPly FR Mineral, StressPly Plus, StressPly Plus Mineral, StressPly Plus FR, StressPly Plus Mineral FR, 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.

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes.

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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb./sq. or in Black Knight Cold at 4-5 gal./sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design

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



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Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Mearlcrete, Celcore or Elastizell cellular lightweight concrete, min. 200 psi, over steel or concrete deck

System Type E(2): Base sheet mechanically fastened.

All General and System Limitations apply.

Deck: 2500 psi structural concrete or concrete plank
Or
22 ga., type B, galvanized, slotted steel decking attached to supports spaced maximum 5 ft. o.c. with 5/8" puddle welds spaced 6" o.c. (every bottom flute). Steel deck side laps attached 18" o.c. between each 5 ft. span with Traxx/1 fasteners

Base Sheet: *(Option #1.)* One ply of HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, Vaporbar GB, HydroStop, GAFGLAS #75, GAFGLAS Stratavent, JM PermaPly R, JM Dynabase, JM Ventsulation, or Tamko Vapor-Chan mechanically attached using Olympic CR Base Ply Fasteners or ES Products FM-90 Fasteners spaced 7" o.c. in a 4" side lap and 7" o.c. in two staggered rows in the center of the sheet.

(Option #2.) One ply of Garland HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Ventsulation, JM DynaBase, Intec Bondable Base, Intec Permavent, Intec FlexBase 30, Intec Ultrabase, or Malarkey #501 mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 9" o.c. in two staggered rows in the center of the sheet.

Ply Sheet: One more plies of HPR GlasBase, HPR Premium GlasBase, HPR TriBase, HPR TriBase Plus, HPR Glasfelt, HPR Premium Glasfelt or other Approved ASTM D 2178, type IV or VI ply 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 TorchBase, torch applied to Base Sheet.

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



Surfacing:

Optional for Stress Ply IV Mineral or StressPly IV UV Mineral. Required for StressPly IV.

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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb./sq. or in Black Knight Cold at 4-5 gal./sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design
Pressure:

-45 psf. (See General Limitation #7.)



Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Mearlcrete cellular lightweight concrete, min. 200 psi, over steel or concrete deck

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

All General and System Limitations apply.

Base Sheet: *(Option #1.)* One ply of HPR TriBase, HPR Tribase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Dynabase, Intec Bondable Base, or Intec Permavent mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 12" o.c. in two staggered rows in the center of the sheet.

(Option #2.) Garland HPR Glasbase, HPR Premium Glasbase HPR Tribase or HPR Tribase Plus is mechanically fastened with Olympic CR Base Felt Fasteners at 7 in. (178 mm) o.c. in the 4 in. (102 mm) wide lap and in two rows spaced equally between the overlaps and staggered in the field of the sheet

Base/Ply Sheet: One or more plies of HPR Glasbase, HPR Premium Glasbase, HPR TriBase, HPR Tribase Plus, HPR Glasfelt, HPR Premium Glasfelt, HPR Polyscrim, HPR Polyscrim Plus, GAFGLAS #75, GAFGLAS Ply 4, Vaporbar GB, PermaPly R, GlasPly IV, PermaPly 28, or other Approved ASTM D 2178, type IV or VI ply 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.)

Membrane: One ply of StressPly E, StressPly E FR, StressPly E Mineral, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR, StressPly EUV Mineral, StressPly EUV FR Mineral, StressPly, StressPly Mineral, StressPly FR, StressPly FR Mineral, StressPly Plus, StressPly Plus Mineral, StressPly Plus FR, StressPly Plus Mineral FR, 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.

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes.

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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb./sq. or in Black Knight Cold at 4-5 gal./sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design
Pressure:

-52.5 psf. (See General Limitation #7.)



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Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Mearlcrete, Celcore or Elastizell cellular lightweight concrete, min. 200 psi, over steel or concrete deck

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

All General and System Limitations apply.

Base Sheet: *(Option #1.)* One ply of HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Dynabase, Intec Bondable Base, or Intec Permavent mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 12" o.c. in two staggered rows in the center of the sheet.

(Option #2.) Garland HPR Glasbase, HPR Premium Glasbase HPR Tribase or HPR TriBase Plus is mechanically fastened with Olympic CR Base Felt Fasteners at 7 in. (178 mm) o.c. in the 4 in. (102 mm) wide lap and in two rows spaced equally between the overlaps and staggered in the field of the sheet

Ply Sheet: One more plies of HPR GlasBase, HPR Premium GlasBase, HPR TriBase, HPR TriBase Plus, HPR Glasfelt, HPR Premium Glasfelt or other Approved ASTM D 2178, type IV or VI ply 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 TorchBase, torch applied to Base Sheet.

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

Surfacing: Optional for Stress Ply IV Mineral or StressPly IV UV Mineral. Required for StressPly IV.

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 Black Knight Flood Coat or Black Knight LV Flood Coat at 70 lb./sq. or in Black Knight Cold at 4-5 gal./sq. or in Garlastic KM or KM Plus at 60 lbs./sq.
2. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
3. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
4. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
6. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design Pressure:

-52.5 psf. (See General Limitation #7.)



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Deck Type 4: Lightweight Concrete, Non-insulated

Deck Description: Cellular lightweight concrete, min. 200 psi, over steel or concrete deck

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

All General and System Limitations apply.

Deck: 2500 psi structural concrete or concrete plank
Or
22 ga., type B, galvanized, slotted steel deck attached to supports spaced maximum 5 ft. o.c. with 5/8" puddle welds spaced 6" o.c. (every bottom flute). Steel deck side laps attached 18" o.c. between each 5 ft. span with Traxx/1 fasteners

Base Sheet: *(Option #2.)* One ply of HPR TriBase, HPR TriBase Plus, GAFGLAS #75, GAFGLAS Stratavent, JM GlasBase, JM Ventsulation, JM DynaBase, Intec Bondable Base, Intec Permavent mechanically attached using Simplex Base-Lok Fasteners spaced 9" o.c. in a 4" side lap and 12" o.c. in two staggered rows in the center of the sheet.

(Option #1.) One ply of HPR Glasbase, HPR Premium Glasbase, HPR TriBase or HPR TriBase Plus mechanically attached using Olympic CR 1.7" Base Ply Fasteners spaced 7" o.c. in a 4" side lap and 7" 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 TriBase, HPR TriBase Plus, GAFGLAS #75 or other Garland approved ASTM D 4601, type II ply sheet adhered with Weatherking or Weatherking Plus Adhesive at a rate of 2½ gal/sq.

Membrane: One ply of StressPly E, StressPly E FR, StressPly E Mineral, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR, StressPly EUV Mineral, StressPly EUV FR Mineral, StressPly, StressPly Mineral, StressPly FR, StressPly FR Mineral, StressPly Plus, StressPly Plus Mineral, StressPly Plus FR, StressPly Plus Mineral FR, VersiPly 80 or VersiPly Mineral adhered with Weatherking or Weatherking Plus Adhesive at a rate of 2½ gal/sq.

Surfacing: Optional for FR or mineral surfaced Membranes. Required for non-FR or smooth surfaced membranes.

1. GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
2. Energizer FR or K Plus FR applied at 3 gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal. per square.
3. Weatherking FR Top Coat or WeatherScreen applied at 2½ gal./sq. with GarlaBrite applied at 1 gal. per 150 ft² or Pyramic applied at 1½ gal./sq.
4. Weatherking FR Top Coat or WeatherScreen applied at 3 gal./sq. with #11 roofing granules at 60 lb./sq.
5. Weatherking FR Top Coat or WeatherScreen applied at applied at 4-5 gal./sq. with roofing gravel applied at 400 lb./sq.

Maximum Design

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



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LIGHTWEIGHT INSULATING CONCRETE 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 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered 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 250 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. **(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



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