



Product Evaluation

RC45 | 1017

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-45

Effective Date: October 1, 2017

Re-evaluation Date: November 2021

Product Name: Garland Modified Bitumen Roofing Systems

Manufacturer: The Garland Company, Inc.
3800 East 91 Street
Cleveland, OH 44105
(216) 430-3516

Anchor Ply Sheets:

- HPR Glasbase is a 55-mil thick (1.40 mm) asphalt-coated fiberglass base sheet.
- HPR Premium Glasbase is a 55-mil thick (1.40 mm) asphalt-coated fiberglass base sheet.
- HPR Tri-Base Plus is a 60-mil thick (1.52 mm) SBS polymer modified base sheet, reinforced with a polyester/fiberglass/polyester scrim.
- HPR Tri-Base Premium is a 60-mil thick (1.52 mm) SBS polymer modified base sheet, reinforced with a polyester/fiberglass/polyester scrim.
- StressBase 80 is an 80-mil thick (2.03 mm) base sheet consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture.
- StressBase 120 is a 120-mil thick (3.05 mm) base sheet consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture.
- FlexBase 80 is an 80-mil thick (2.03 mm) membrane consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture.
- FlexBase 120 is a 120-mil thick (3.05 mm) membrane consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture.
- FlexBase Plus 80 is an 80-mil thick (2.03 mm) base sheet consisting of a combination fiberglass and polyester reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture.

Anchor Sheets (continued):

- FlexBase Plus 120 is a 120-mil thick (3.05 mm) base sheet consisting of a combination fiberglass and polyester reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture.
- FlexBase E 80 is an 80-mil thick (2.03 mm) SBS rubber modified base sheet utilizing Kevlar fibers and a dual polyester and fiberglass combination reinforcement.
- FlexBase E 120 is a 120-mil thick (3.05 mm) SBS rubber modified base sheet utilizing Kevlar fibers and a dual polyester and fiberglass combination reinforcement.
- HPR Glasfelt is a 20-mil thick (0.51 mm) asphalt saturated mat made up of fiberglass monofilaments bonded together with a water-resistant melamine binder and reinforced with fiberglass strands.
- HPR Premium Glasfelt is a 25-mil thick (0.63 mm) asphalt-saturated mat made up of fiberglass monofilaments bonded together with a water-resistant melamine binder and reinforced with fiberglass strands.
- HPR Polyscrim Plus is a 30-mil thick (0.76 mm) continuous filament, point bonded, chemically treated, polyester mat.
- HPR Torch Base Sheet is a 110-mil thick (2.79 mm), smooth-surfaced, fiberglass reinforced, SBS modified bitumen torch applied base sheet.
- Millennium Base is an 80-mil thick (2.03 mm) fiberglass/polyester reinforced base sheet that is coated on both sides with an SBS polymer modified coal tar pitch compound.
- BK Glasfelt is a 20-mil thick (0.51 mm) coal tar impregnated glass felt.
- BK Premium Glasfelt is a 25-mil thick (0.64 mm) coal tar impregnated glass felt.
- HPR SA FR Base Sheet is an 80-mil thick (2.03 mm) SBS modified, fiberglass reinforced self-adhered base sheet.

SBS (Styrene-Butadiene-Styrene) Membranes:

- StressPly is an 80-mil thick (2.03 mm) membrane consisting of two layers of fiberglass scrim coated with an SBS compound on both sides.
- StressPly FR Mineral is a 145-mil thick (3.68 mm) membrane, identical in formulation to the StressPly membrane with the exception of a fire retardant added to the compound during the manufacturing process.
- StressPly E is a 115-mil thick (2.92 mm) membrane consisting of a combination SBS and Styrene-Isoprene-Styrene (SIS) compound utilizing Kevlar fibers with a dual fiberglass and polyester reinforcement.
- StressPly E FR Mineral is a 160-mil thick (4.06 mm) membrane, identical in formulation to the StressPly E membrane with the exception of a fire retardant added to the compound during the manufacturing process.
- StressPly EUV is a 115-mil thick (2.92 mm) membrane consisting of a combination SBS and Styrene-Isoprene-Styrene (SIS) compound incorporating Kevlar fibers with a dual fiberglass and polyester reinforcement.
- StressPly EUV FR Mineral is a 160-mil thick (4.06 mm) membrane, identical in formulation to the StressPly EUV membrane with the exception of a fire retardant and a surface mineral added to the compound during the manufacturing process.
- StressPly Plus is a 105-mil thick (2.67 mm) membrane consisting of a combination fiberglass and polyester scrim coated with an SBS compound on both sides.

SBS Membranes (continued):

- StressPly Plus FR Mineral is a 155-mil thick (3.94 mm) membrane similar in formulation to the StressPly Plus with the exception of a fire retardant and mineral granules added to the compound during the manufacturing process.
- VersiPly 40 is a 40-mil thick (1.02 mm) membrane consisting of two laminated layers of fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture.
- VersiPly 60 is a 60-mil thick (1.52 mm) membrane consisting of two laminated layers of fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture.
- VersiPly 80 is an 80-mil thick (2.03 mm) membrane consisting of two laminated layers of fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture.
- VersiPly Mineral is a 145-mil thick (3.68 mm) membrane consisting of two laminated layers of fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture.
- BiFlex Cap is a 120-mil thick (3.05 mm) membrane consisting of a fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture.
- BiFlex Cap Mineral is a 140-mil thick (3.56 mm) membrane consisting of a fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture.
- StressPly IV is a 180-mil thick (4.57 mm), smooth-surfaced, fiberglass-reinforced, rubber modified roofing membrane.
- StressPly IV Mineral is a 195-mil thick (4.95 mm), granular-surfaced, fiberglass-reinforced, rubber modified roofing membrane.
- StressPly IV UV Mineral is a 195-mil thick (4.95 mm), granular-surfaced, fiberglass reinforced, rubber modified roofing membrane.
- StressPly IV Plus is a 180-mil thick (4.57 mm), smooth-surfaced, polyester/fiberglass reinforced, rubber modified roofing membrane.
- StressPly IV Plus UV Mineral is a 195-mil thick (4.95 mm), granular-surfaced, polyester/fiberglass reinforced, rubber modified roofing membrane.
- StressPly IV Plus Mineral is a 195-mil thick (4.95 mm) is a 195-mil thick (4.94 mm), granular-surfaced, polyester/fiberglass reinforced, rubber modified roofing membrane.
- Millennium is a 120-mil thick (3.05 mm) membrane consisting of a combination fiberglass and polyester scrim coated with SBS compound on both sides and topped with a mineral surface.
- Millennium Mineral is a 160-mil thick (4.06 mm) membrane consisting of a combination fiberglass and polyester scrim coated with SBS compound on both sides and topped with a mineral surface.
- Millennium FR Mineral is a 160-mil thick (4.06 mm) membrane identical to the Millennium Mineral membrane with the exception of a fire retardant added to the compound during the manufacturing process.
- StressPly SA FR Mineral is a 140-mil thick (3.56 mm) SBS modified, fire retardant, fiberglass reinforced, mineral surfaced, self-adhering membrane.
- OptiMax is an 80-mil thick (2.03 mm) fiberglass reinforced membrane with a modified polyurethane resin.
- OptiMax FR Mineral is a 145-mil thick (3.68 mm), fire retardant, mineral surfaced, fiberglass reinforced membrane with a modified polyurethane resin.

Insulations & Coverboards:

- ACFoam-II is a closed-cell polyisocyanurate foam core integrally bonded to heavy black (non-asphaltic), fiber-reinforced organic felt facers.
- ACFoam-III is a closed-cell polyisocyanurate foam core integrally bonded to coated glass mat facers.
- Hy-Therm AP is a polyisocyanurate foam insulation board with specially formulated organic/inorganic facers.
- ISO 95+ GL is a closed-cell polyisocyanurate foam core laminated to a black glass reinforced mat facer on both major surfaces.
- ENRGY 3 is a closed-cell polyisocyanurate foam core bonded in the manufacturing process to universal fiber glass reinforced facers.
- ENRGY 3 25 PSI is a closed-cell polyisocyanurate foam core bonded in the manufacturing process to universal fiber glass reinforced facers.
- H-Shield is a closed-cell polyisocyanurate foam core bonded to glass fiber reinforced facers on both sides.
- Multi-Max FA-3 polyisocyanurate foam core bonded in the manufacturing process to universal fiber glass reinforced facers.
- Structodek High Density Fiberboard Roof Insulation is a wood fiber insulation board with a top facer treated to reduce asphalt absorption.
- High Density Wood Fiberboard is a wood fiber insulation board with a top facer treated to reduce asphalt absorption.
- DensDeck is a non-structural, glass mat faced gypsum product with a silicone-treated, water resistant gypsum core and glass surface mats front, back and long edges, the primed board has both sides coated with an acrylic limestone filled binder.
- DensDeck Prime is a non-structural, glass mat faced gypsum product with a silicone-treated, water resistant gypsum core and glass surface mats front, back and long edges, the primed board has both sides coated with an acrylic limestone filled binder.
- SECUROCK Gypsum Fiber-Roof Board is a rigid, gypsum based board stock for use as an overlayment, underlayment or bonding surface.

Adhesives:

- HPR All Temp is a high-grade waterproofing and roofing laminate asphalt.
- Garlastic KM Plus is a proprietary high grade, SEBS (Styrene-Ethylene-Butylene-Styrene) modified roofing interply adhesive and waterproofing asphalt.
- Weatherking is a cold process modified adhesive composed of a unique blend of SEBS (Styrene-Ethylene-Butylene-Styrene) and SIS (Styrene-Isoprene-Styrene).
- Weatherking Plus is a cold process modified adhesive composed of a unique blend of SEBS (Styrene-Ethylene-Butylene-Styrene) and SIS (Styrene-Isoprene-Styrene).
- Black-Knight is a proprietary polymer modified coal tar pitch.
- Black-Knight LV is a proprietary polymer modified coal tar pitch.
- Black-Knight CTP is a proprietary polymer modified coal tar pitch.
- Green-Lock is a high-performance asphalt modified polyether, moisture-cured polymer adhesive.
- Insta Stik Quick Set Insulation Adhesive is a single component moisture curing urethane foam adhesive designed to adhere various roof insulations to other insulations, to a concrete substrate and to properly prepare build-up roof coverings.
- Insul-Lock HR is a highly elastomeric, one step, VOC compliant, high rise roof insulation adhesive.

Fasteners & Plates:

- #12 Standard Roofgrip is a Phillips head, modified buttress thread, carbon steel fastener for use in steel or wood decks.
- #14 Roofgrip is a Phillips head, standard thread, pinch point, carbon steel fastener use in metal, wood or concrete decks.
- Recessed Metal Plate is a galvalume steel plate for use with standard roofgrip, hex head or stainless fasteners.
- AccuTrac Flat Bottom is an A2-SS aluminized steel plate for use with OMG fasteners.
- OMG Heavy Duty is a truss head, self-drilling, pinch point, high thread fastener for use in wood, steel or concrete decks.
- CD-10 is a carbon steel expansion fastener for use in structural concrete decks.
- 3" Round Metal Plate is a round galvalume steel stress plate for use with OMG fasteners.
- OMG 3" Galvalume Steel Plate is a galvalume coated steel plate for use with approved fasteners screw.
- OMG CR Base Sheet Fastener (1.7") is a galvanized fastener for base sheet attachment with Olympic CR-10 coating.
- Dekfast 12 is a truss head modified BP type, milled slot self-drilling point, 13 threads per inch, carbon steel fastener for use on steel and wood decks.
- Dekfast 14 is a truss head modified BP type, self-drilling point, 13 threads per inch, carbon steel fastener for use on steel, wood or concrete decks.
- Dekfast DekSpike is a mushroom head hammer driven anchor for attachment of insulation, membrane and wood blocking.
- Dekfast Galvalume Steel Hex is a steel, galvalume AZ50 stress plate for use with all Dekfast fasteners.
- Dekfast Galvalume Steel 3" Round is a steel, galvalume AZ50 stress plate for use with all Dekfast fasteners.
- Trufast DP Pre-Assembled Insulation Plate is a preassembled Trufast #12 DP fastener with Trufast 3" Metal Insulation Plate.
- Trufast #14 HD is a carbon steel screw with #3 Phillips drive, modified truss head for use in steel, wood or concrete decks.
- Trufast 3" Metal Insulation Plate is a galvalume steel stress plate for use with Trufast fasteners.
- Trufast FM-90 is a two piece factory preassembled base ply fastener/plate unit with dual gripping shanks and integral rib reinforced Galvalume stress distribution plate, formed from 0.013" thick G-90 hot dipped galvanized steel used in lightweight insulating concrete decks and various poured gypsum decks.
- Trufast FM-290 is a two piece factory preassembled base ply fastener/plate unit with a pair of dual gripping shanks and integral rib reinforced galvalume stress distribution plate, formed from 0.013" thick G-90 hot dipped galvanized steel used in lightweight insulating concrete decks and various poured gypsum decks.
- Trufast Twin Loc-Nail is a three piece factory preassembled fastener/plate unit, tube formed from 0.030" thick G-90 hot dipped galvanized steel used in lightweight insulating concrete decks, new or existing cementitious wood fiber and various poured gypsum decks.

Limitations and Installation:

Roof Framing: Roof framing must be spaced a maximum of 24" on center.

Roof Deck: For new applications, the roof deck must be secured to the roof framing to resist the required uplift loads.

Positive Drainage of Roof Deck: Roof decks, in which this product is to be installed upon, must be provided with positive drainage. A minimum roof slope after construction of 1/4" per foot is recommended.

Design Wind Pressures: The design wind uplift pressures must be specified in the assemblies listed in this evaluation report.

Installation over an Existing Roof Covering (Roof Recover):

Acceptable Applications: The modified bitumen roofing system may be installed over an existing built-up roof covering or an existing modified bitumen roof covering based on the requirements set forth in this product evaluation report.

Roof Covering Replacement versus Roof Covering Recover: All existing roof coverings must be completely removed and a new roof covering installed if any of the following conditions occur:

- The existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for the additional roof covering.
- The existing roof has two or more applications of any type of roof covering.

Positive Drainage: The roof covering recover application must not be required to meet the minimum roof slope of 1/4" per foot if positive drainage is provided.

Roof Framing: The maximum allowable spacing of the roof framing must be as specified in this evaluation report.

Roof Deck: The existing roof deck must be as specified in each assembly listed in this evaluation report. The underside of the roof deck must be examined by the Texas Department of Insurance appointed engineer for corrosion or deterioration. If corrosion exists, then it must be treated with a rust inhibitor. A fastener withdrawal resistance test must be conducted in the corroded or deteriorated area to determine if the withdrawal resistance of the fastener complies with the minimum fastener requirements for the roof covering recover application. If the tested fastener fails to comply, then the deteriorated roof deck must be replaced.

Existing Roof Covering Preparation: The existing roof covering must be prepared to receive the roof covering recover as specified in The Garland Company installation instructions.

- The existing roof covering surface must be dry and free of dirt and debris.
- If the existing roof covering is gravel surfaced, then the loose gravel must be completely removed. The surface of the existing roof covering must be relatively smooth.
- If the existing roof covering has blisters, buckles, ridges, folds, or other deformations, then they must be removed and the surface patched to provide a smooth surface.
- If the existing roof covering has loose fasteners, then the existing membrane must be cut open, the loose fasteners removed, and the surface patched to provide a smooth surface.

Roof Covering Recover Installation: Installation of the roof covering recover must be specified in the Installation Instructions section of this evaluation report.

General installation Requirements:

All International Residential Code (IRC) and the International Building Code (IBC) requirements must be satisfied and manufacturer's installation instructions followed, unless otherwise specified by this product evaluation.

Membrane Attachment: The membrane must be mechanically attached or fully adhered using the fasteners, plates and adhesives specified in this evaluation report.

Fasteners: Fasteners must be of sufficient length to penetrate into and through the steel deck a minimum of 3/4" or the plywood deck or fully penetrate into the wood boards.

Appendix 1: Attachment Requirements for Wind Uplift Resistance						
Table	Deck	Assembly No.	Application	Type	Description	Page
2	Wood	W-1 through W-3	New, Reroof (Tear-Off) or Recover	A	Mechanically Attached Anchor Sheet Adhered Roof Cover	11
2 (Cont.)	CWF	CWF-1	New, Reroof (Tear-Off) or Recover	A	Mechanically Attached Anchor Sheet Adhered Roof Cover	12
2 (Cont.)	Concrete	C-1 through C-13	New or Reroof (Tear-Off)	A	Fully Adhered Insulation and Roof Cover	12-15
2 (Cont.)	Concrete	C-14 and C-15	New or Reroof (Tear-Off)	A	Fully Adhered Temp Roof, Insulation and Roof Cover	16
2 (Cont.)	LWC	LWC-1 through LWC-3	New or Reroof (Tear-Off)	A	Fully Adhered Insulation and Roof Cover	17
3	Steel	S-1 through S-11	New, Reroof (Tear-Off) or Recover	B	Mechanically Attached Base Insulation, Adhered Top Insulation, Adhered Roof Cover	18-21
4	Gypsum	G-1	New or Reroof (Tear-Off)	C	Mechanically Attached Insulation, Adhered Roof Cover	21
4 (Cont.)	Steel	S-12 through S-19	New, Reroof (Tear-Off) or Recover	C	Mechanically Attached Insulation, Adhered Roof Cover	22-23
5	Wood	W-4 and W-5	New, Reroof (Tear-Off) or Recover	E	Non-Insulated, Mechanically Attached Base Sheet, Adhered Roof Cover	24
5 (Cont.)	LWC	LWC-4 through LWC-10	New or Reroof (Tear-Off)	E	Non-Insulated, Mechanically Attached Base Sheet, Adhered Roof Cover	24-27
5 (Cont.)	CWF	CWF-2	New, Reroof (Tear-Off) or Recover	E	Non-Insulated, Mechanically Attached Base Sheet, Adhered Roof Cover	28

Installation: Unless otherwise noted, refer to the following references for bonded base, ply or cap sheet applications.

TABLE 1: GARLAND ROOF COVERS			
Reference	Layer	Material	Application
BP-AA (Base and Ply sheets, Asphalt-Applied)	Base	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	Hot asphalt, HPR All Temp or Garlastic KM Plus at 25 lbs/square
	Ply	HPR Glasfelt, HPR Premium Glasfelt or HPR Polyscrim Plus	
BP-CA1 (Base and Ply sheets, Cold-Applied, Weatherking)	Base	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	Weatherking or Weatherking Plus at 2.5 gal/square
	Ply	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	
SBS-AA (SBS, Asphalt-Applied)	Base	FlexBase 80, FlexBase 120, FlexBase E 80, FlexBase E 120, FlexBase Plus 80, FlexBase Plus 120, StressBase 80 or StressBase 120	Hot asphalt, HPR All Temp or Garlastic KM Plus at 25 lbs/square
	Ply	FlexBase 80, FlexBase 120, FlexBase E 80, FlexBase E 120, FlexBase Plus 80, FlexBase Plus 120, StressBase 80 or StressBase 120	
	Cap	BiFlex Cap, BiFlex Cap Mineral, StressPly, StressPly E, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, VersiPly 60, VersiPly 80, VersiPly Mineral, OptiMax or OpitMax FR Mineral	
SBS-CTP (SBS, Coal-Tar Pitch Applied)	Base	BK Glasfelt, BK Premium Glasfelt or Millennium Base	Black-Knight, Black-Knight LV, Black-Knight CTP at 30 lbs/square
	Ply	BK Glasfelt, BK Premium Glasfelt or Millennium Base	
	Cap	Millennium, Millennium Mineral or Millennium FR Mineral	
SBS-TA (SBS, Torch-Applied)	Base	HPR Torch Base Sheet	Torch-Applied
	Ply	HPR Torch Base Sheet	
	Cap	StressPly IV, StressPly IV Mineral, StressPly IV Plus Mineral, StressPly IV Plus UV Mineral, StressPly IV Plus or StressPly IV UV Mineral	
SBS-CA1 (SBS, Cold-Applied, Weatherking)	Base	FlexBase 80, FlexBase 120, FlexBase E 80, FlexBase E 120, FlexBase Plus 80, FlexBase Plus 120, StressBase 80 or StressBase 120	Weatherking or Weatherking Plus at 2.5 gal/square.
	Ply	FlexBase 80, FlexBase 120, FlexBase E 80, FlexBase E 120, FlexBase Plus 80, FlexBase Plus 120, StressBase 80 or StressBase 120	
	Cap	BiFlex Cap, BiFlex Cap Mineral, StressPly, StressPly E, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, VersiPly 80, VersiPly Mineral, OptiMax or OpitMax FR Mineral	
SBS-CA2 (SBS, Cold-Applied, GreenLock)	Base	FlexBase 80, FlexBase 120, FlexBase E 80, FlexBase E 120, FlexBase Plus 80, FlexBase Plus 120, StressBase 80, StressBase 120 or Millennium Base	GreenLock at 1.5-2.0 gal/square
	Ply	FlexBase 80, FlexBase 120, FlexBase E 80, FlexBase E 120, FlexBase Plus 80, FlexBase Plus 120, StressBase 80, StressBase 120 or Millennium Base	
	Cap	BiFlex Cap, BiFlex Cap Mineral, Millennium, Millennium FR Mineral, Millennium Mineral, StressPly, StressPly E, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR Mineral, StressPly FR Mineral, StressPly Plus, StressPly Plus FR Mineral, VersiPly 80, VersiPly Mineral, OptiMax or OpitMax FR Mineral	
SBS-SA (SBS, self-adhering)	Base	HPR SA FR Base Sheet	Self-Adhering
	Ply	HPR SA FR Base Sheet	
	Cap	StressPly SA FR Mineral	

Note 1: Unless otherwise noted, insulation / base sheet fasteners must be the following with the noted minimum fastener engagement for each deck type. For deck-types note listed, refer to the specific system listings herein:

Wood:	OMG #14 Roofgrip with Flat Bottom Plate (Accutrac), OMG HD with OMG 3 in. Galvalume Steel Plate, Dekfast #14 with Hex Plate or 3" Round Insulation Plate or Trufast HD with Trufast 3" Metal Insulation Plates. Minimum 3/4" plywood penetration or minimum 1" wood plank embedment.
Steel:	OMG #12 or #14 Roofgrip with Recessed or Flat Bottom Plate (Accutrac), OMG #12 Standard or HD with OMG 3". Galvalume Steel Plate, Dekfast #12 or #14 with Hex Plate or 3" Round Insulation Plate or Trufast DP or HD with Trufast 3" Metal Insulation Plates. Minimum 3/4" steel penetration and engage the top flute of the steel deck.
Concrete:	OMG #14 Roofgrip with Recessed or Flat Bottom Plate (Accutrac), OMG HD or CD-10 with OMG 3". Galvalume Steel Plate, Dekfast #14 or DekSpike with Hex Plate or 3" Round Insulation Plate or Trufast HD with Trufast 3" Metal Insulation Plates. Minimum 1" embedment. Fasteners installed with a pilot hole in accordance with the fastener manufacturer's published installation instructions.

Note 2:

Unless otherwise noted, insulation adhesive application rates are as follows. Ribbon or bead width is at the time of application; the ribbons/beads must expand as noted in the manufacturer's published instructions:

Hot asphalt (HA):	Full coverage, 20-40 lbs/square. Note: Reference to Hot asphalt herein indicates permissible use of HPR All Temp, Garlastic KM or Garlastic KM Plus
Coal-Tar (CT):	Full coverage, 30 lbs/square.
Insul-Lock HR (IL-HR):	Continuous 1/4 to 1/2" beads, 12" o.c.

Installation (Continued): Installation must be in accordance with the following assemblies:

TABLE 2: GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER WOOD DECK, MECHANICALLY ATTACHED ANCHOR SHEET, ADHERED INSULATION, ADHERED ROOF COVER											
Assembly No.	Deck	Anchor Sheet			Insulation			Roof Cover ¹			MDP (psf)
		Type	Fasteners	Attach	Base	Top	Attach	Base	Ply	Cap	
1 (W-1)	Min. 19/32" plywood at max. 24" spans attached with 8d ring shank nails 6" o.c. (New or Recover)	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	See Note 1	6" o.c. c. at the 4" lap and 6" o.c. in three, equally spaced, staggered center rows	Min. 1.5" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL	Min. 1/4" DensDeck Prime	IL-HR ribbons atop fastener rows, approx 8.8" o.c.	BP-AA or SBS-TA	BP-AA or SBS-TA	SBS-AA or SBS-TA	-52.5
2 (W-2)	Min. 19/32" plywood at max. 24" spans attached with #8 x 2-1/2" screws 6" o.c. (New)	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	See Note 1	9" o.c. at the 4" lap and 9" o.c. in two, equally spaced, staggered center rows	Min. 1.5" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL	Min. 1/2" High Density Wood Fiberboard or Min. 1/4" DensDeck Prime	Hot asphalt	BP-AA, SBS-AA or SBS-TA	BP-AA, SBS-AA or SBS-TA	SBS-AA or SBS-TA	-60
3 (W-3)	Min. 19/32" plywood at max. 24" spans attached with #8 x 2-1/2" screws 6" o.c. (New or Recover)	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	See Note 1	6" o.c. at the 4" lap and 6" o.c. in three, equally spaced, staggered center rows	Min. 1-1/2" ACFoam-II, ACFoam-III, H-shield, ENRGY 3, Multi-Max FA 3 or ISO 95+ GL	Min. 1/4" DensDeck Prime	Hot Asphalt	BP-AA or SBS-TA	BP-AA or SBS-TA	SBS-AA Or SBS-TA	-135

Footnote: 1. For roof cover installation refer to Table 1 above

Limitation and Installation (Cont):

TABLE 2 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER CEMENTITIOUS DECK, MECHANICALLY ATTACHED ANCHOR SHEET, ADHERED INSULATION, ADHERED ROOF COVER											
Assembly No.	Deck	Anchor Sheet			Insulation			Roof Cover ¹			MDP (psf)
		Type	Fasteners	Attach	Base	Top	Attach	Base	Ply	Cap	
4 (CWF-1)	Cementitious Wood Fiber deck consisting of 2" thick Tectum planks secured to supports at 24" max. o.c. spacing with 2"barbed plates and #15 fasteners, spaced at 24" o.c. at each support	HPR Glasbase, HPR Premium GlasBase, HPR Tri-Base Plus or HPR Tri-Base Premium	Trufast Twin Loc-Nails Min. 1.8" embedment	6" o.c. in 4" wide lap and 6"o.c. in three equally spaced staggered rows in field	Min. 1.5" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL	Min. 1/4" DensDeck Prime	Hot Asphalt	BP-AA or SBS-TA	BP-AA or SBS-TA	SBS-AA or SBS-TA	-135

Footnote: 1. For roof cover installation refer to Table 1 above.

TABLE 2 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) CONCRETE DECK, FULLY ADHERED INSULATION AND ROOF COVER											
Assembly No.	Deck	Anchor Sheet			Insulation			Roof Cover ¹			MDP (psf)
		Type	Fasteners	Attach	Base	Top	Attach	Base	Ply	Cap	
5 (C-1)	Structural Concrete Roof Deck	ASTM D41	Min. 1/2" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3, Multi-Max, FA-3 or ISO 95+GL	Hot Asphalt	Min. 1/2" Structodeck High Density Fiberboard Roof Insulation or DensDeck	Hot Asphalt	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-157.5	5 (C-1)

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 2 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) CONCRETE DECK, FULLY ADHERED INSULATION AND ROOF COVER										
Assembly No.	Deck	Primer	Base Insulation Sheet		Top Insulation Layer		Roof Cover ¹			MDP (psf)
			Type	Attach	Base	Attach	Base	Ply	Cap	
6 (C-2)	Structural Concrete Roof Deck	ASTM D41	Min. 1-1/2" H Shield	Hot Asphalt	Min. 1/4" SECRUOCK Gypsum Fiber Roof Board	Hot Asphalt	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-375
7 (C-3)	Structural Concrete Roof Deck	None	Min. 1-1/2" ACFoam-II, ACFoam-III, H-Shield, ENRGY3, Multi-Max FA-3 or ISO 95+ GL	IL-HR	Min. 1/2" Structodek High Density Fiberboard Roof Insulation	IL-HR	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-127.5
8 (C-4)	Structural Concrete Roof Deck	None	Min. 2" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3 or ISO 95+ GL	IL-HR	Min. 1/4" SECRUOCK Gypsum Fiber Roof Board	IL-HR	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-225
9 (C-5)	Structural Concrete Roof Deck	None	Min. 1-1/2" H-Shield,	IL-HR, 6" o.c.	Min. 1/4" SECRUOCK Gypsum Fiber Roof Board	IL-HR, 6" o.c.	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-290
10 (C-6)	Structural Concrete Roof Deck	None	Min. 1-1/2" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL	IL-HR	Min. 1/2" Structodek High Density Fiberboard Roof Insulation	IL-HR	BP-CA1 or SBS-CA1	(Optional) BP-CA1 or SBS-CA1	SBS-CA1	-127.5

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 2 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) CONCRETE DECK, FULLY ADHERED INSULATION AND ROOF COVER										
Assembly No.	Deck	Primer	Base Insulation Layer		Top Insulation Layer		Roof Cover ¹			MDP (psf)
			Type	Attach	Base	Attach	Base	Ply	Cap	
11 (C-7)	Structural Concrete Roof Deck	None	Min. 1-1/2" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL	IL-HR	Min. 1/4" DensDeck or DensDeck Prime	IL-HR	BP-CA1 or SBS-CA1	(Optional) BP-CA1 or SBS-CA1	SBS-CA1	-142.5
12 (C-8)	Structural Concrete Roof Deck	None	Min. 2" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3 or ISO 95+ GL	IL-HR	Min. 1/4" SECRUOCK Gypsum-Fiber Roof Board	IL-HR	SBS-CA2	(Optional) SBS-CA2	SBS-CA2	-225
13 (C-9)	Structural Concrete Roof Deck	None	Min. 2" HyTherm AP, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL	IL-HR, 8" o.c.	Min. 1/2" SECRUOCK Gypsum-Fiber Roof Board	IL-HR, 8" o.c.	SBS-CA2	(Optional) SBS-CA2	SBS-CA2	-262.5
14 (C-10)	Structural Concrete Roof Deck	None	Min. 1-1/2" H-Shield	IL-HR, 6" o.c.	Min. 1/4" SECRUOCK Gypsum-Fiber Roof Board	IL-HR, 6" o.c.	SBS-CA2	(Optional) SBS-CA2	SBS-CA2	-290

Footnote: 1. For roof cover installation refer to Table 1 above

Limitation and Installation (Cont):

TABLE 2 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) CONCRETE DECK, FULLY ADHERED INSULATION AND ROOF COVER										
Assembly No.	Deck	Primer	Base Insulation Layer		Top Insulation Layer		Roof Cover ¹			MDP (psf)
			Type	Attach	Base	Attach	Base	Ply	Cap	
15 (C-11)	Structural Concrete Roof Deck	None	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board	IL-HR, 3" o.c.	None	N/A	SBS-CA2	(Optional) SBS-CA2	SBS-CA2	-452.5
16 (C-12)	Structural Concrete Roof Deck	None	Min. 1-1/2" H-Shield	IL-HR, 6" o.c.	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board primed with ASTM D41 primer	IL-HR, 6" o.c.	SBS-SA	(Optional) SBS-SA	SBS-SA	-127.5
17 (C-13)	Structural Concrete Roof Deck	None	Min. 1-1/2" ACFoam-II, ACFoam-III, HyTherm AP, ENRGY 3, ENRGY 3 25 PSI or ISO 95+ GL	IL-HR, 8" o.c.	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board, DensDeck or DensDeck Prime primed with ASTM D41 primer	IL-HR, 8" o.c.	SBS-SA	(Optional) SBS-SA	SBS-SA	-202.5

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 2 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) CONCRETE DECK, FULLY ADHERED TEMP ROOF, INSULATION, AND ROOF COVER											
Assembly No.	Deck	Primer	Temp Roof	Base Insulation Layer		Top Insulation Layer		Roof Cover ¹			MDP (psf)
				Type	Attach	Base	Attach	Base	Ply	Cap	
18 (C-14)	Structural Concrete Roof Deck	D41	HPR Torch Base	Min. 1-1/2" ENRGY 3 or ISO 95+ GL	IL-HR, 9" o.c.	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board	IL-HR	SBS-TA	(Optional) SBS-TA	SBS-TA	-220
19 (C-15)	Structural Concrete Roof Deck	D41	Two plies HPR Glas Felt in hot asphalt	Min. 1-1/2" ACFoam-II, ACFoam-III, H-Shield, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL	IL-HR	Min. 1/2" Structodek High Density Fiberboard Roof Insulation	IL-HR	BP-CA1 or SBS-CA1	(Optional) BP-CA1 or SBS-CA1	SBS-CA1	-127.5

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 2 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) LIGHT WEIGHT CONCRETE DECK, FULLY ADHERED INSULATION AND ROOF COVER										
Assembly No.	Deck	Light Weight Concrete	Base Insulation Layer		Top Insulation Layer		Roof Cover ¹			MDP (psf)
			Type	Attach	Base	Attach	Base	Ply	Cap	
20 (LWC-1)	Lightweight Concrete over Structural Concrete	CelcoreMF with Celcore HS Admixture 38-42 pcf wet density Min. F _c =350 psi with Celcore PVA curing compound at 0.5 gal/sq.	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board	IL-HR, 6" o.c.	None	N/A	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-262.5
21 (LWC-2)	Lightweight Concrete over Structural Concrete	CelcoreMF with Celcore HS Admixture 38-42 pcf wet density Min. F _c =350 psi with Celcore PVA curing compound at 0.5 gal/sq.	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board	IL-HR, 6" o.c.	None	N/A	SBS-CA2	(Optional) SBS-CA2	SBS-CA2	-262.5
22 (LWC-3)	Lightweight Concrete over Structural Concrete	CelcoreMF with Celcore HS Admixture 38-42 pcf wet density Min. F _c =350 psi with Celcore PVA curing compound at 0.5 gal/sq.	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board primed with D41 primer	IL-HR, 6" o.c.	None	N/A	SBS-SA	(Optional) SBS-SA	SBS-SA	-92.5

Footnote: 1. For roof cover installation refer to Table 1 above

Limitation and Installation (Cont):

TABLE 3: GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER STEEL DECK, MECHANICALLY ATTACHED BASE INSULATION, ADHERED TOP INSULATION, ADHERED ROOF COVER										
Assembly No.	Deck	Base Insulation Layer			Top Insulation Layer		Roof Cover ¹			MDP (psf)
		Type	Fasteners	Attach	Base	Top Attach	Base	Ply	Cap	
23 (S-1)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 2" ACFoam-II, ACFoam-III, ISO 95+ GL, ENRGY 3, or ENRGY 3 25 PSI	See Note 1	1 fastener per 2 sq. ft.	(Optional) Min. 1/2" Structodek High Density Fiberboard Roof Insulation	Insta Stik Quick Set Insulation Adhesive, 3/4"-1" beads, 12" o.c.	BP-CA1 or SBS-CA1	(Optional) BP-CA1 or SBS-CA1	SBS-CA1 or SBS-CA1	-45
24 (S-2)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 1.8" ACFoam-II, ACFoam-III, ISO 95+ GL or ENRGY 3	See Note 1	1 Fastener per 3 sq. ft.	Min. 1/2" Structodek High Density Fiberboard Roof Insulation or min. 1/4" DensDeck or DensDeck Prime	Hot asphalt	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA	-45
25 (S-3)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 1-1/2" ACFoam-II, ACFoam-III. ISO 95+ GL or H-Shield	See Note 1	1 fastener per 2 sq. ft.	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board	IL-HR	BP-SAA, SBS-AA or SBS-TA	(Optional) BP-AA, SBS-AA or SBS-TA	SBS-AA or SBS-TA	-45

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 3 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER STEEL DECK, MECHANICALLY ATTACHED BASE INSULATION, ADHERED TOP INSULATION, ADHERED ROOF COVER										
Assembly No.	Deck	Base Insulation Layer			Top Insulation Layer		Roof Cover ¹			MDP (psf)
		Type	Fasteners	Attach	Base	Top Attach	Base	Ply	Cap	
26 (S-4)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 2" ACFoam-II, ACFoam-III, ISO 95+ GL, ENRGY 3, or ENRGY 3 25 PSI	See Note 1	1 fastener per 1.6 sq. ft.	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board	IL-HR	BP-AA, SBS-AA, or SBS-TA	(Optional) BP-AA, SBS-AA, or SBS-TCA1	SBS-AA or SBS-TA	-60
27 (S-5)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 1-1/2" ACFoam-II, or ACFoam-III	OMG #12 Standard Roofgrip with OMG 3 in. Galv. Steel Plate	1 Fastener per 1.33 sq. ft.	Min. 1/2" Structodek High Density Fiberboard Roof Insulation	Hot asphalt	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-82.5
28 (S-6)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 1-1/2" ACFoam-II or ACFoam-III	OMG #12 Standard Roofgrip with OMG 3 in. Galv. Steel Plate	1 fastener per 1.33 sq. ft.	Min. 1/4" DensDeck or DensDeck Prime	Hot Asphalt	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA or SBS-TA	-82.5

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 3 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER STEEL DECK, MECHANICALLY ATTACHED BASE INSULATION, ADHERED TOP INSULATION, ADHERED ROOF COVER										
Assembly No.	Deck	Base Insulation Layer			Top Insulation Layer		Roof Cover ¹			MDP (psf)
		Type	Fasteners	Attach	Base	Top Attach	Base	Ply	Cap	
29 (S-7)	Min. 22 ga. Type B, Grade 33 ksi Steel (New or Recover)	Min. 2" ACFoam-II, ACFoam-III, H-Shield or ISO 95+ GL	See Note 1	1 fastener per 1 sq. ft.	Min. 1/4" DensDeck Prime	IL-HR, 6" o.c.	BP-AA or SBS-TA	BP-AA, or SBS-TA	SBS-AA or SBS-TA	-112.5
30 (S-8)	Min. 22 ga. Type B, Grade 33 ksi Steel (New or Recover)	Min. 2" ACFoam-II, ACFoam-III, H-Shield, or ISO 95+ GL	See Note 1	1 Fastener per 1 sq. ft.	Min. 1/4" DenseDeck Prime	Hot asphalt	BP-AA	BP-AA	SBS-AA or SBS-TA	-142.5
31 (S-9)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 1-1/2" ACFoam-II, ACFoam-III, ENRGY 3, H-Shield, or ISO 95+ GL	See Note 1	1 fastener per 2 sq. ft.	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board primed with D41 primer	Hot Asphalt or IL-HR	SBS-SA	(Optional) SBS-SA	SBS-SA	-45

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 3 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER STEEL DECK, MECHANICALLY ATTACHED BASE INSULATION, ADHERED TOP INSULATION, ADHERED ROOF COVER										
Assembly No.	Deck	Base Insulation Layer			Top Insulation Layer		Roof Cover ¹			MDP (psf)
		Type	Fasteners	Attach	Base	Top Attach	Base	Ply	Cap	
32 (S-10)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 1-1/2" max. 4 ft. x 4 ft. ENRGY 3 or ISO 95+ GL	OMG HD with OMG 3" Galv. Steel Plate	1 fastener per 1.6 sq. ft.	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board primed with D41 primer	IL-HR	SBS-SA	(Optional) SBS-SA	SBS-SA	-45
33 (S-11)	Min. 22 ga. Type B, Grade 33 ksi Steel (New)	Min. 1-1/2" ACfoam-II, ACfoam-III, H-Shield, ENRGY 3, ENRGY 3 25 PSI, or ISO 95+ GL	See Note 1	1 per 2 sq. ft.	Min. 1/2" FM Approved High Density Wood Fiberboard or min. 1/4" DensDeck or DensDeck Prime	Hot Asphalt or Coal Tar	SBS-CTP	(Optional) SBS-CTP	SBS-CTP	-45

Footnote: 1. For roof cover installation refer to Table 1 above.

TABLE 4: GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) GYPSUM DECK, MECHANICALLY ATTACHED INSULATION, ADHERED ROOF COVER										
Assembly No.	Deck	Base Insulation Layer	Top Insulation Layer			Roof Cover ¹			MDP (psf)	
			Type	Fasteners	Attach	Base	Ply	Cap		
34 (G-1)	Existing poured gypsum or gypsum plank	One or more layers, any combination, loose laid	Min. 1/4" DensDeck or DensDeck Prime or min. 1/2" FM approved High Density Wood Fiberboard	Trufast Twin Loc-Nails (minimum 1-inch embedment into deck)	1 per 2 sq. ft.	BP-AA, SBS-AA, SBS-TA	(Optional) BP-AA, SBS-AA, SBS-TA	SBS-AA, or SBS-TA	-45	

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 4(CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER STEEL DECK, MECHANICALLY ATTACHED INSULATION, ADHERED ROOF COVER									
Assembly No.	Deck	Base Insulation Layer	Top Insulation Layer			Roof Cover¹			MDP (psf)
			Type	Fasteners	Attach	Base	Ply	Cap	
35 (S-12)	Min. 22 ga. Type, Grade 33 ksi Steel (New)	Min. 1-1/2" ACFoam-II, or ACFoam-III, loose laid	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board	See Note 1	1 per 1.33 sq. ft.	BP-AA, SBS-AA, or SBS-TA	(Optional) BP-AA, SBS-AA, or SBS-TA	SBS-AA, or SBS-TA	-75
36 (S-13)	Min. 22 ga. Type, Grade 33 ksi Steel (New)	Min. 1-1/2" ACFoam-II, ACFoam-III, H-Shield, Hy-Therm AP or ENRGY 3 25 PSI, loose laid	Min. 1/2" DensDeck Prime	Trufast 3" Metal Insulation Plates with Trufast HD	1 per 1.33 sq. ft.	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA	-112.5
37 (S-14)	Min. 22 ga. Type, Grade 33 ksi Steel (New or Recover) ²	Min. 1-1/2" ACFoam-II, ACFoam-III, H-Shield, Hy-Therm AP, ENRGY 3, Multi-Max FA-3 or ISO 95+ GL, loose laid	Min. 1/2" DensDeck Prime	See Note 1	1 per 1 sq. ft.	BP-AA, SBS-AA or SBS-TA	BP-AA, SBS-AA or SBS-TA	SBS-AA or SBS-TA	-150
38 (S-15)	Min. 22 ga. Type, Grade 33 ksi Steel (New)	Min. 1-1/2" ACFoam-II, ACFoam-III, H-Shield, Hy-Therm AP or ENRGY 3 25 PSI, loose laid	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board	Trufast 3" Metal Insulation Plates with Trufast HD	1 per 1 sq. ft.	BP-AA or SBS-AA	(Optional) BP-AA or SBS-AA	SBS-AA	-172.5

Footnote: 1. For roof cover installation refer to Table 1 above.

2. Assembly No. 37 (S-14) may also be applied to structural concrete roof deck (New or Recover).

Limitation and Installation (Cont):

TABLE 4 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER STEEL DECK, MECHANICALLY ATTACHED INSULATION, ADHERED ROOF COVER¹									
Assembly No.	Deck	Base Insulation Layer	Top Insulation Layer			Roof Cover			MDP (psf)
			Type	Fasteners	Attach	Base	Ply	Cap	
39 (S-16)	Min. 22 ga. Type, Grade 33 ksi Steel	(Optional) One or more layers, any combination, loose laid	Min. 1/2" DensDeck or SECUROCK Gypsum-Fiber Roof Board	See Note 1	1 per 2.7 sq. ft.	SBS-AA, SBS-CA1, or SBS-CA2	(Optional) SBS-AA, SBS-CA1 or SBS-CA2	SBS-AA, SBA-CA1 or SBS-CA2	-45
40 (S-17)	Min. 22 ga. Type, Grade 33 ksi Steel	Min. 1-1/2" ACFoam-II or ACFoam-III, loose laid	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board	Trufast 3" Metal Insulation Plates with Trufast HD	1 per 1.33 sq. ft.	SBS-AA, SBS-CA1, or SBS-CA2	(Optional) SBS-AA, SBS-CA1 or SBS-CA2	SBS-AA, SBA-CA1 or SBS-CA2	-75
41 (S-18)	Min. 22 ga. Type, Grade 33 ksi Steel	Min. 1-1/2" ENRGY 3 or ISO 95+ GL, loose laid	Min. 1/4" SECUROCK Gypsum-Fiber Roof Board primed with D41 primer	OMG XHD with OMG 3" Galvalume Steel Plate	1 per 1 sq. ft.	SBS-SA	(optional) SBS-SA	SBS-SA	-90
42 (S-19)	Min. 22 ga. Type, Grade 33 ksi Steel	Min. 1-1/2" ENRGY 3 25 PSI or ISO 95+ GL, loose laid	Min. 1/2" SECUROCK Gypsum-Fiber Roof Board primed with D41 primer	OMG XHD with OMG 3" Galvalume Steel Plate	1 per 1 sq. ft.	SBS-CTP	(Optional) SBS-CTP	SBS-CTP	-120

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Continued): Installation must be in accordance with the following assemblies:

TABLE 5: GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off) OR RECOVER WOOD DECK, NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET, ADHERED ROOF COVER							
Assembly No.	Deck	Base Sheet			Roof Cover ¹		MDP (psf)
		Type	Fasteners	Attach	Ply	Cap	
43 (W-4)	Min. 19/32" plywood at max. 24" spans attached with #8 x 2-1/2" screws 6" o.c. (New or Recover)	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	See Note 1	6" o.c. at the 4" lap and 6" o.c. in three, equally spaced, staggered center rows	BP-AA	SBS-AA	-135
44 (W-5)	Min. 19/32" plywood at max. 24" spans attached with #8 x 2-1/2" screws 6" o.c. (New)	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus or HPR Tri-Base Premium	See Note 1	9" o.c. at the 4" lap and 9" o.c. in two, equally spaced, staggered center rows	BP-AA, BP-CA1, or SBS-CA1	SBS-AA or SBS-CA1	-45

Footnote: 1. For roof cover installation refer to Table 1 above.

TABLE 5(CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) LIGHT WEIGHT CONCRETE DECK, NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET, ADHERED ROOF COVER								
Assembly No.	Deck	Lightweight Concrete	Base Sheet			Roof Cover ¹		MDP (psf)
			Type	Fasteners	Attach	Ply	Cap	
45 (LWC-4)	Light Weight Concrete over min. 22 ga. Type B, Grade 33 ksi Steel, at max. 5'-0" spans ²	Min. 300 psi, min. 2" thick approved cellular lightweight insulating concrete. Note: to qualify the lightweight concrete under this assembly, a 1.8" Twin Loc-Nail must achieve a withdrawal of 120 lb.-f when tested per ANSI/SPRI FX-1	HPR Glasbase, HPR Premium Glasbase, or HPR Tri-Base Plus	Min. 1.8" Twin Loc-Nails	9" o.c. at the 4" lap and 9" o.c. in two equally spaced staggered center rows	BP-AA, SBS-AA, or SBS-TA	SBS-AA or SBS-CA1	-75

Footnote: 1. For roof cover installation refer to Table 1 above.

2. Assembly No. 45 (LWC-4) may also be applied to light weight concrete over a structural concrete deck

Limitation and Installation (Cont):

TABLE 5(CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) LIGHT WEIGHT CONCRETE DECK, NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET, ADHERED ROOF COVER								
Assembly No.	Deck	Lightweight Concrete	Base Sheet			Roof Cover ¹		MDP (psf)
			Type	Fasteners	Attach	Ply	Cap	
46 (LWC-5)	Light Weight Concrete over min. 22 ga., Type B vented steel deck attached at max. 6 ft. Spans with 5/8" puddle welds spaced 6" o.c. side laps with Tek screws, 12" o.c. ²	Celcore Lightweight Insulating Concrete or existing cellular light weight concrete with a min. compression strength of 300 psi; 1/4" slurry is poured over the deck. Optional min. 1" thick, min. 1.0 pcf EPS board is placed into the slurry, followed by a min. 2" top coat. Note: To qualify existing lt. weight concrete deck under this assembly, an ES FM-290 fastener must achieve a withdrawal of 200 lb. when tested per ANSI/SPRI FX-1	HPR Tri-Base Plus	FM-290	7" o.c. at the 4" lap and 7" o.c. in three equally spaced staggered rows in the center of the sheet	SBS-CA2	SBS-CA2	-75
47 (LWC-6)	Light Weight concrete over min. 22 ga. Type B vented steel deck attached at max. 5 ft. Spans with 1/2" puddle welds spaced 6" o.c., Side laps with Tek/1 screws 15" o.c. ³	Celcore MF with Cecore HS admixture at 38-42 pcf wet cast density and with minimum compression strength of 350 psi; 1/4" slurry is poured over the deck. Optional min. 1" thick, min 1.0 pcf EPS board is placed into the slurry, followed by min. 2" top coat. Celcore PVA curing compound, spray applied at 0.5 gal/100 sq. ft.	HPR Glasbase, HPR Premium Glasbase, or HPR Tri-base plus	FM-290	10" o.c. at the 4" side lap and 10" o.c. in three staggered rows in the center of the sheet.	SBS-CA2	SBS-CA2	-90

Footnote: 1. For roof cover installation refer to Table 1 above.
 2. Assembly No. 46 (LWC-5) may also be applied to light weight concrete over structural concrete roof deck.
 3. Assembly No. 47 (LWC-6) may also be applied to light weight concrete over structural concrete roof deck.

Limitation and Installation (Cont):

TABLE 5 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) LIGHTWEIGHT CONCRETE DECK, NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET, ADHERED ROOF COVER								
Assembly No.	Deck	Lightweight Concrete	Base Sheet			Roof Cover ¹		MDP (psf)
			Type	Fasteners	Attach	Ply	Cap	
48 (LWC-7)	Light weight concrete over min. 22 ga., Type B vented steel deck attached at max. 5 ft. Spans with 5/8" puddle welds spaced 6" o.c. Side laps with Tek/1 screws, 15" o.c.	Celcore MF with Celcore HS Admixture at 38-42 pcf wet cast density and with min. compression strength of 350 psi; 1/4" slurry is poured over the deck. Optional min. 1" thick, min. 1.0 pcf EPS board is placed in the slurry followed by a 2" top coat. Celcore PVA curing compound spray applied at a rate of 0.5 gal/100 sq. ft.	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, or HPR Tri-Base Premium	Trufast FM-90, FM-290 or Twin Loc-Nails or OMG CR Base Sheet faster	6" o.c. at the 4" lap and 6" o.c. in four staggered rows in the center of the sheet	SBS-AA or SBS-TA	SBS-AA or SBS-TA	-150

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 5 (CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION OR REROOF (Tear-Off) LIGHTWEIGHT CONCRETE DECK, NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET, ADHERED ROOF COVER								
Assembly No.	Deck	Lightweight Concrete	Base Sheet			Roof Cover ¹		MDP (psf)
			Type	Fasteners	Attach	Ply	Cap	
49 (LWC-8)	Light weight concrete over min. 22 ga., Type B steel deck attached at max. 5 ft. Spans with 5/8" puddle welds spaced 6" o.c. Side laps with Tek/1 screws, 15" o.c.	Celcore MF with Celcore HS Admixture at 38-42 pcf wet cast density and with min. compression strength of 350 psi; 1/4" slurry is poured over the deck. Optional min. 1" thick, min. 1.0 pcf EPS board is placed in the slurry followed by a 2" top coat. Celcore PVA curing compound spray applied at a rate of 0.5 gal/100 sq. ft.	Versiply 40	Trufast FM-90, FM-290 or Twin Loc-Nails or OMG CR Base Sheet Fastener (1.7")	6" o.c. at the 4" lap and 6" o.c. in four staggered rows in the center of the sheet	SBS-CA2	SBS-CA2	-150
50 (LWC-9)	Light weight concrete over min. 22 ga., Type B steel deck attached at max. 5 ft. Spans with 5/8" puddle welds spaced 6" o.c. Side laps with Tek/1 screws, 15" o.c.	Celcore MF with Celcore HS Admixture at 38-42 pcf wet cast density and with min. compression strength of 350 psi; 1/4" slurry is poured over the deck. Optional min. 1" thick, min. 1.0 pcf EPS board is placed in the slurry followed by a 2" top coat. Celcore PVA curing compound spray applied at a rate of 0.5 gal/100 sq. ft.	HPR SA FR Base	Trufast FM-90, FM-290 or Twin Loc-Nails or OMG CR Base Sheet Fastener (1.7") Note: Stress Plates primed with D41 primer	6" o.c. at the 4" side lap and 9" o.c. in four staggered rows in the center of the sheet.	SBS-SA	SBS-SA	-150

Footnote: 1. For roof cover installation refer to Table 1 above.

Limitation and Installation (Cont):

TABLE 5(CONTINUED): GARLAND MODIFIED BITUMEN – NEW CONSTRUCTION, REROOF (Tear-Off), OR RECOVER CEMENTITIOUS DECK, NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET, ADHERED ROOF COVER							
Assembly No.	Deck	Base Sheet			Roof Cover ¹		MDP (psf)
		Type	Fasteners	Attach	Base	Cap	
51 (CWF-2)	Cementitious wood fiber deck consisting of 2" thick Tectum planks secured to supports at max. 24" o.c. spacing with 2" barbed plates and #15 fasteners, spaced 24" o.c. at each support	HPR Glasbase, HPR Premium Glasbase, HPR Tri-Base Plus, or HPR Tri-Base Premium	Trufast Twin Loc-Nails (minimum 1.8-inch embedment into deck)	6" o.c. at the 4" lap and 6" o.c. in three equally spaced, staggered center rows	BP-AA	SBS-AA	-172.5

Footnote: 1. For roof cover installation refer to Table 1 above.

Note: Keep the manufacturer’s installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.