



Product Evaluation

RC122 | 0616

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-122 **Effective Date:** June 1, 2016
Re-evaluation Date: May 2020

Product Name: EverGuard® TPO Single Ply Roofing Systems and EverGuard® Freedom™ TPO Self-Adhering Roofing Systems

Manufacturer: GAF
1 Campus Drive
Parsippany, NJ 08054
(973) 628-3000

General Description:

EverGuard® TPO membranes are nominal 45-mil (1.1 mm), 60-mil (1.52 mm), or 80-mil (2.0 mm) thick internally reinforced thermoplastic polyolefin roof covers. Side and end laps are sealed using hot air welding. The roof cover is mechanically attached or fully-adhered to approved substrates.

EverGuard Extreme® TPO membranes are nominal 50-mil (1.27 mm), 60-mil (1.52 mm), 70-mil (1.78 mm) or 80-mil (2.0 mm) thick, internally reinforced thermoplastic polyolefin roof covers. Side and end laps are sealed using hot air welding. The roof cover is mechanically attached or fully-adhered to approved substrates. EverGuard Extreme® TPO membranes are designed for advanced protection against heat aging and UV degradation.

EverGuard® TPO FB Ultra membranes are nominal 45-mil (1.1 mm), 60-mil (1.52 mm) or 80-mil (2.0 mm) thick internally reinforced thermoplastic polyolefin roof covers with a polyester fleece backing. Side and end laps are sealed using hot air welding. The roof cover is mechanically attached or fully-adhered to approved substrates.

EverGuard Extreme® TPO FB Ultra membranes are nominal 50-mil (1.27 mm), 60-mil (1.52 mm) or 80-mil (2.0 mm) thick, internally reinforced thermoplastic polyolefin roof covers with a polyester fleece backing. Side and end laps are sealed using hot air welding. The roof cover is mechanically attached or fully-adhered to approved substrates. EverGuard Extreme® TPO FB Ultra membranes are designed for advanced protection against heat aging and UV degradation.

EverGuard® Freedom™ TPO membranes are nominal 45-mil (1.1 mm) or 60-mil (1.52) thick, internally reinforced thermoplastic (TPO) roof covers with a self-adhering backing. EverGuard® Freedom™ TPO HW laps are sealed using hot air welding. EverGuard® Freedom™ TPO with RapidSeam™ technology laps are self-adhering. The roof cover is self-adhered to approved substrates.

LIMITATIONS and INSTALLATION:

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.

New Roof Deck Attachment: The wood deck shall meet or exceed the uplift requirements of the International Residential Code or International Building Code and shall be installed as required for resistance to wind loads.

Roof Framing Members: The roof wood framing members must be spaced a maximum of 24" o.c.

For All applications: The roof shall have a minimum slope of 1/4:12.

Surfacing (Optional): TOPCOAT® Membrane or United Coatings™ Roof Mate TCM Coating applied at a rate of 1 to 1.5 gallons per square. TOPCOAT TPO Red Primer applied at 0.5 gallons per square prior to application of TOPCOAT Membrane or United Coatings™ Roof Mate TCM Coating.

Note: Keep the manufacturer's installation instructions available on the job site during the installation. All fasteners must be corrosion resistant as specified in the International Residential Code (IRC) and the International Building Code (IBC) and the Texas Revisions.

Installation Instructions:

General Installation Requirements: Follow all manufacturer’s installation instructions, unless otherwise specified by this product evaluation.

System 1- Wood Deck with Mechanically Attached Roof Cover							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Fastener
1	Min. 19/32"APA wood structural panel sheathing, Exposure 1, 40/20	(one or more of the following, any combination) Min. 0.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA, RH or RN Polyiso Insulation, EnergyGuard Perlite Roof Insulation, min. 0.25" thick SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board, DensDeck or DensDeck Prime Roof Board	Preliminary attach each insulation board with a minimum of four, 11 gauge, galvanized ring shank nails per board. The nails must penetrate the plywood deck a minimum of 3/16".	NA	NA	EverGuard TPO, EverGuard Extreme TPO, EverGuard TPO FB Ultra or EverGuard Extreme TPO FB Ultra, 5.0 ft wide, mechanically attached	Drill-Tec #14 Fasteners & Drill-Tec 2 3/8" Barbed XHD Plates
	(optional) FireOut™ Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield® Solo™ Fire-Resistant Slip Sheet						
Design Pressure (psf)		Roof Cover Attachment					
-45		6" o.c. in the minimum 5" wide side lap and sealed with 1-3/4" wide heat weld.					

System 2- Wood Deck with Mechanically Attached Roof Cover							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Fastener
2	Min. 19/32" APA wood structural panel sheathing, Exposure 1, 40/20 (optional)	(one or more of the following, any combination) Min. 0.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA, RH or RN Polyiso Insulation, EnergyGuard Perlite Roof Insulation, Structodek High Density Fiberboard Roof Insulation, min. 0.25" thick SECUROCK Gypsum-Fiber Roof Board, DensDeck, DensDeck Prime Roof Board, 0.5" thick EnergyGuard HD Polyiso Insulation, EnergyGuard HD Plus Polyiso Insulation or EnergyGuard RH HD Polyiso Insulation	Preliminary attach each insulation board with a minimum of four, 11 gauge, galvanized ring shank nails per board. The nails must penetrate the plywood deck a minimum of 3/16".	NA	NA	EverGuard TPO, EverGuard Extreme TPO, EverGuard TPO FB Ultra or EverGuard Extreme TPO FB Ultra, mechanically attached	Drill-Tec #14 Fasteners & Drill-Tec 2" Double Barbed XHD Plates, Drill-Tec 2 3/8" Barbed XHD Plates, or Drill-Tec Eyehook Accuseam Plates
	FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet						
Design Pressure (psf)		Roof Cover Attachment					
-52.5		6" o.c. in rows spaced 55" o.c. The outside 1.75" of the 5" lap is heat welded and the fasteners are centered in the remaining 3.25" lap area.					

System 3 - Wood Deck with Mechanically Attached Insulation and Hot Applied Roof Cover							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Adhered
3	Min. 19/32" APA wood structural panel sheathing, Exposure 1, 40/20	Min. 0.25" SECUROCK Gypsum-Fiber Roof Board	Drill-Tec #12 Fasteners and Drill-Tec AccuTrac Flat Plates, 12 fasteners per board (every 1.33 sq/ft.)	NA	NA	EverGuard TPO FB Ultra or EverGuard Extreme TPO FB Ultra, hot applied.	Hot Applied Asphalt
		(optional base layer) Min. 0.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA, RH or RN Polyiso Insulation					
Design Pressure (psf)		Roof Cover Attachment					
-82.5		Roof cover is adhered in asphalt applied within the EVT range and at a rate of 20-25 lbs./sq. Laps are heat welded with min. 1-1/2" width for automatic machine welding. Weld width must be a min. 2" in width for hand welding.					

System 4 - Wood Deck with Self Adhered Roof Cover							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Self-Adhered
4	Min. 19/32" APA wood structural panel sheathing, Exposure 1, 40/20	Min. 1.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA or EnergyGuard RN Polyiso Insulation	All layers must be simultaneously attached with Drill-Tec #12 or #14 Fasteners and Drill-Tec 3" Steel Plates at a density of 1.3 square feet	NA	NA	EverGuard Freedom TPO with RapidSeam Technology or EverGuard Freedom TPO HW	Self-adhered to insulation
	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	(optional base layer) Min. 0.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA, RH or RN Polyiso Insulation, or min. 0.25 in. thick DensDeck Roof Board, DensDeck Prime Roof Board, SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board, 0.5" thick EnergyGuard HD Polyiso Insulation, EnergyGuard HD Plus Polyiso Insulation or EnergyGuard RH HD Polyiso Insulation					
Design Pressure (psf)		Roof Cover Attachment					
-52.5		EverGuard Freedom TPO HW or EverGuard Freedom TPO with Rapid Seam Technology is self-adhered and rolled with a weighted roller. The side laps of EverGuard Freedom TPO HW are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding). The side laps of EverGuard Freedom TPO with Rapid Seam Technology are 6" wide, self-adhered and rolled with a weighted roller.					

System 5 & 6 - Wood Deck with Self Adhered Roof Cover										
System No.	Deck	Fire Coating	Underlayment		Top Insulation Layer		Roof Cover			
			Type	Attach	Type	Attach	Base	Ply	Cap	Self-Adhered
5 & 6	Min. 19/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	StormSafe Anchor Sheet mechanically attached (Max. 40" wide or lapped to produce max. 36" wide lap-to-lap spacing)	12 gauge, galvanized annular ring shank roofing nails with 1" diameter tin cap or Drill-Tec #12 Fasteners and Drill-Tec 3" Steel Plates	NA	NA	NA	NA	EverGuard FreedomTPO with RapidSeam Technology or EverGuard Freedom TPO HW	Self-adhered to underlayment
Design Pressure (psf)		Roof Cover Attachment								
		EverGuard Freedom TPO HW or EverGuard Freedom TPO with Rapid Seam Technology is self-adhered and rolled with a weighted roller. The side laps of EverGuard Freedom TPO HW are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding). The side laps of EverGuard Freedom TPO with Rapid Seam Technology are 6" wide, self-adhered and rolled with a weighted roller.								
		Underlayment Attachment								
		Tin-caps and nails at 9" o.c. in the 4" laps and 9" o.c. in two staggered rows.								
		-45								
		-105								
		Drill-Tec fasteners and plates spaced 8" o.c. in the 4" laps and 8" o.c. in the three staggered rows in the field.								

System 7 - Wood Deck with Self Adhered Roof Cover										
System No.	Deck	Fire Coating	Underlayment		Top Insulation Layer		Roof Cover			
			Type	Attach	Type	Attach	Base	Ply	Cap	Self-Adhered
7	Min. 19/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	StormSafe Anchor Sheet mechanically attached (Max. 48" wide or lapped to produce max. 44" wide lap-to-lap spacing)	Drill-Tec #14 Fasteners and Drill-Tec 3" Ribbed Galvalume Plates (Flat)	NA	NA	NA	NA	EverGuard Freedom TPO with RapidSeam Technology or EverGuard Freedom TPO HW	Self-adhered to underlayment
Design Pressure (psf)		Roof Cover Attachment								
		EverGuard Freedom TPO HW or EverGuard Freedom TPO with Rapid Seam Technology is self-adhered and rolled with a weighted roller. The side laps of EverGuard Freedom TPO HW are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding). The side laps of EverGuard Freedom TPO with Rapid Seam Technology are 6 in. wide, self-adhered and rolled with a weighted roller.								
		Underlayment Attachment								
-67.5		Drill-Tec fasteners and plates spaced 8" o.c. in the 4" laps and 8" o.c. in two staggered rows in the field.								

System 8 - Wood Deck with Self Adhered Roof Cover										
System No.	Deck	Fire Coating	Underlayment		Top Insulation Layer		Roof Cover			
			Type	Attach	Type	Attach	Base	Ply	Cap	Self-Adhered
8	Min. 15/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	StormSafe Anchor Sheet mechanically attached (Max. 48" wide or lapped to produce max. 44" wide lap-to-lap spacing)	12 gauge, galvanized annular ring shank roofing nails with 1-5/8" diameter tin caps	NA	NA	NA	NA	EverGuard Freedom TPO with RapidSeam Technology or EverGuard Freedom TPO HW	Self-adhered to underlayment
Design Pressure (psf)		Roof Cover Attachment								
		EverGuard Freedom TPO HW or EverGuard Freedom TPO with Rapid Seam Technology is self-adhered and rolled with a weighted roller. The side laps of EverGuard Freedom TPO HW are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding). The side laps of EverGuard Freedom TPO with Rapid Seam Technology are 6" wide, self-adhered and rolled with a weighted roller.								
		Underlayment Attachment								
-45		Drill-Tec fasteners and plates spaced 6" o.c. in the 4" laps and 6" o.c. in two staggered rows in the field.								

System 9 - Wood Deck with Self Adhered Roof Cover										
System No.	Deck	Fire Coating	Underlayment		Top Insulation Layer		Roof Cover			
			Type	Attach	Type	Attach	Base	Ply	Cap	Self-Adhered
9	Min. 15/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	StormSafe Anchor Sheet mechanically attached (Max. 48" wide or lapped to produce max. 44" wide lap-to-lap spacing)	Drill-Tec #14 Fasteners and Drill-Tec 3" Ribbed Galvalume Plates (Flat)	NA	NA	NA	NA	EverGuard Freedom TPO with RapidSeam Technology or EverGuard Freedom TPO HW	Self-adhered to underlayment
Design Pressure (psf)		Roof Cover Attachment								
		EverGuard Freedom TPO HW or EverGuard Freedom TPO with Rapid Seam Technology is self-adhered and rolled with a weighted roller. The side laps of EverGuard Freedom TPO HW are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding). The side laps of EverGuard Freedom TPO with Rapid Seam Technology are 6" wide, self-adhered and rolled with a weighted roller.								
		Underlayment Attachment								
		Drill-Tec fasteners and plates spaced 18" o.c. in the 4" laps and 18" o.c. in two staggered rows in the field.								
		-45								

System 10 - Wood Deck with Self Adhered Roof Cover								
System No.	Deck	Insulation Layers		Roof Cover				
		Type	Attach	Base	Attach	Ply	Cap	Self-Adhered
10	Min. 19/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional top layer) Min. 0.25" thick DensDeck, SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board or min. 0.75" thick EnergyGuard Perlite Roof Insulation	Insulation is loose-laid over the deck when the optional cover board is present or preliminarily secured when the optional cover board is not present	StormSafe Anchor Sheet mechanically attached (Max. 48" wide or lapped to produce max. 44" wide lap-to-lap spacing)	Drill-Tec #14 Fasteners and Drill-Tec 3" Ribbed Galvalume Plates (Flat)	NA	EverGuard Freedom TPO with RapidSeam Technology or EverGuard Freedom TPO HW	Self-adhered to base sheet
	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	Min. 1.0" EnergyGuard Polyiso Insulation or EnergyGuard RH Polyiso Insulation						
Design Pressure (psf)		Roof Cover Attachment						
		EverGuard Freedom TPO HW or EverGuard Freedom TPO with Rapid Seam Technology is self-adhered and rolled with a weighted roller. The side laps of EverGuard Freedom TPO HW are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding). The side laps of EverGuard Freedom TPO with Rapid Seam Technology are 6" wide, self-adhered and rolled with a weighted roller.						
		Base Sheet Attachment						
-60		Drill-Tec fasteners and plates spaced 8 in. o.c. in the 4 in. laps and 8 in. o.c. in two staggered rows in the field.						

System 11 - Wood Deck with Self Adhered Roof Cover								
System No.	Deck	Insulation Layers		Roof Cover				
		Type	Attach	Base	Attach	Ply	Cap	Self-Adhered
11	Min. 15/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional top layer) Min. 0.25" thick DensDeck, SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board or min. 0.75" thick EnergyGuard Perlite Roof Insulation	Insulation is loose-laid over the deck when the optional cover board is present or preliminarily secured when the optional cover board is not present	StormSafe Anchor Sheet mechanically attached (Max. 48" wide or lapped to produce max. 44" wide lap-to-lap spacing)	Drill-Tec #14 Fasteners and Drill-Tec 3" Ribbed Galvalume Plates (Flat) or Drill-Tec 3" Steel Plates	NA	EverGuard Freedom TPO with RapidSeam Technology or EverGuard Freedom TPO HW	Self-adhered to base sheet
	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	Min. 1.0" EnergyGuard Polyiso Insulation or EnergyGuard RH Polyiso Insulation						
Design Pressure (psf)		Roof Cover Attachment						
		EverGuard Freedom TPO HW or EverGuard Freedom TPO with Rapid Seam Technology is self-adhered and rolled with a weighted roller. The side laps of EverGuard Freedom TPO HW are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding). The side laps of EverGuard Freedom TPO with Rapid Seam Technology are 6" wide, self-adhered and rolled with a weighted roller.						
-45		Base Sheet Attachment						
		Drill-Tec fasteners and plates spaced 18" o.c. in the 4 in. laps and 18" o.c. in two staggered rows in the field.						

System 12 - Wood Deck with Mechanically Attached Insulation and Fully Adhered Roof Cover									
System No.	Deck	Base Insulation Layer(s)		Top Insulation Layer		Roof Cover			
		Type	Attach	Type	Attach	Base	Ply	Cap	Adhered
12	Min. 15/32" APA wood structural panel sheathing, Exposure 1, 40/20	Min. 2.0" EnergyGuard Polyiso Insulation or EnergyGuard RH Polyiso Insulation	Drill-Tec #14 Fasteners and Drill-Tec 3" Steel Plates, 16 fasteners per board (every 2.0 ft ²)	Min. 0.25" SECUROCK Gypsum-Fiber Roof Board	Cover board is adhered to the insulation with OlyBond 500, OlyBond 500 Green or LRF Adhesive M applied in 0.75 – 1.0" ribbons spaced 12.0" o.c. or GAF 2-Part Roofing Adhesive applied in 2.5" ribbons spaced 12" o.c.	NA	NA	EverGuard TPO, EverGuard Extreme TPO, EverGuard TPO FB Ultra or EverGuard Extreme TPO FB Ultra	EverGuard TPO and EverGuard Extreme TPO with EverGuard TPO #1121 Bonding Adhesive or EverGuard Low VOC TPO Bonding Adhesive. EverGuard TPO FB Ultra and EverGuard Extreme TPO FB Ultra with GAF 2-Part Roofing Adhesive
Design Pressure (psf)		Roof Cover Attachment							
-52.5		EverGuard TPO and EverGuard Extreme TPO fully adhered with EverGuard TPO #1121 Bonding Adhesive applied at 1.67 – 1.8 gals per/sq. The side laps are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding).							
		EverGuard TPO and EverGuard Extreme TPO fully adhered with EverGuard Low Voc Bonding Adhesive applied at 0.91 gals per/sq. The side laps are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding).							
		EverGuard TPO FB Ultra and EverGuard Extreme TPO FB Ultra adhered with GAF 2-Part Roofing Adhesive applied in a "spatter pattern" at 3.75 lbs/sq. The side laps are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding).							

System 13- Wood Deck with Mechanically Attached Roof Cover							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Fastener
13	Min. 19/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional) Min. 0.25" thick DensDeck, SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board or min. 0.75" thick EnergyGuard Perlite Roof Insulation	Insulation is loose-laid over the deck when the optional cover board is present or preliminarily secured when the optional cover board is not present	NA	NA	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec #14 Fasteners & Drill-Tec 2" Double Barbed XHD Plates, Drill-Tec Eyehook Accuseam Plates or Drill-Tec 2-3/8" Barbed XHD Plates
	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	Min. 0.5" EnergyGuard Polyiso Insulation or EnergyGuard RH Polyiso Insulation					
Design Pressure (psf)		Roof Cover Attachment					
-45		Drill-Tec fasteners and plates spaced 8" o.c. within 6" wide membrane side laps spaced 54" o.c. The side laps are min. 3" wide and sealed with min 1.5" wide heat welds (robotic welder) or with min. 2" wide heat welds (hand welding).					

System 14, 15 &16- Wood Deck with Roof Covers Bonded to RhinoBond Plates							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Adhered
14, 15 & 16	Min. 15/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional) Min. 0.25" thick DensDeck, SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board or min. 0.75" thick EnergyGuard Perlite Roof Insulation NOTE: Min. 2" thick insulation required with Drill-Tec RhinoBond TPO XHD Tread Safe Plate	Insulation is loose-laid over the deck when the optional cover board is present or preliminarily secured when the optional cover board is not present	NA	NA	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec #14 Fasteners and Drill-Tec RhinoBond TPO XHD Plates or Drill-Tec RhinoBond TPO XHD Tread Safe Plates
	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	(optional) Min. 0.5" EnergyGuard Polyiso Insulation or EnergyGuard RH Polyiso Insulation NOTE: Min. 2" thick insulation required with Drill-Tec RhinoBond TPO XHD Tread Safe Plate					
Design Pressure (psf)		Roof Cover Attachment					
-52.5		Drill-Tec fasteners and plates spaced 36" o.c. along each joist. The membrane is bonded to the plates using the OMG RhinoBond tool.					
-75		Drill-Tec fasteners and plates spaced 24" o.c. along each joist. The membrane is bonded to the plates using the OMG RhinoBond tool.					
-82.5		Drill-Tec fasteners and plates spaced 18" o.c. along each joist. The membrane is bonded to the plates using the OMG RhinoBond tool.					

System 17- Wood Deck with Roof Covers Bonded to RhinoBond Plates							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Adhered
17	Min. 15/32" APA wood structural panel sheathing, Exposure 1, 40/20	(optional) Min. 0.25" thick DensDeck, SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board, min. 0.75" thick EnergyGuard Perlite Roof Insulation, min. 0.5" thick Structodek High Density Fiberboard Roof Insulation, 0.5" thick EnergyGuard HD Polyiso Insulation, EnergyGuard HD Plus Polyiso Insulation or EnergyGuard RH HD Polyiso Insulation NOTE: Min. 2" thick insulation required with Drill-Tec RhinoBond TPO XHD Tread Safe Plate	Drill-Tec #14 Fasteners and Drill-Tec RhinoBond TPO XHD Plates, 12 fasteners per board (every 2.67 ft ²)	NA	NA	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec #14 Fasteners and Drill-Tec RhinoBond TPO XHD Plates or Drill-Tec RhinoBond TPO XHD Tread Safe Plates
	(optional) FireOut Fire Barrier Coating applied at 1 gallon per square or mechanically fasten VersaShield Solo Fire-Resistant Slip Sheet	Min. 0.5" EnergyGuard Polyiso Insulation or EnergyGuard RH Polyiso Insulation NOTE: Min. 2" thick insulation required with Drill-Tec RhinoBond TPO XHD Tread Safe Plate					
Design Pressure (psf)		Roof Cover Attachment					
-52.5		The membrane is bonded to the plates using the OMG RhinoBond tool.					

System 18- Steel Deck with Roof Covers Bonded to RhinoBond Plates							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Adhered
18	Min. 22 ga., type B, Grade 33 Steel.	(optional) Min. 0.25" thick DensDeck, SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board, min. 0.75" thick EnergyGuard Perlite Roof Insulation, min. 0.5" thick Structodek High Density Fiberboard Roof Insulation, 0.5" thick EnergyGuard HD Polyiso Insulation, EnergyGuard HD Plus Polyiso Insulation or EnergyGuard RH HD Polyiso Insulation NOTE: Min. 2" thick insulation required with Drill-Tec RhinoBond TPO XHD Tread Safe Plate	Drill-Tec XHD Fasteners and Drill-Tec RhinoBond TPO XHD Plates, 12 fasteners per board (every 2.67 ft ²)	NA	NA	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec XHD Fasteners and Drill-Tec RhinoBond TPO XHD Plates or Drill-Tec RhinoBond TPO XHD Tread Safe Plates
		Min. 1.0" EnergyGuard Polyiso Insulation or EnergyGuard RH Polyiso Insulation NOTE: Min. 2" thick insulation required with Drill-Tec RhinoBond TPO XHD Tread Safe Plate					
Design Pressure (psf)		Roof Cover Attachment					
-67.5		The membrane is bonded to the plates using the OMG RhinoBond tool.					

System 19- Steel Deck with Mechanically Attached Roof Cover							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Fastener
19	Min. 22 ga., type B, Grade 33 Steel.	(one or more of the following, any combination) Min. 0.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA, RH or RN Polyiso Insulation, EnergyGuard Perlite Roof Insulation, min. 0.25" thick SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board, DensDeck or DensDeck Prime Roof Board	Preliminary attach each insulation board with a minimum of four fasteners per board.	NA	NA	EverGuard TPO, EverGuard Extreme TPO, EverGuard TPO FB Ultra or EverGuard Extreme TPO FB Ultra, 8.0' wide, mechanically attached	Drill-Tec SXHD Fasteners & Drill-Tec 2 3/4" Barbed SXHD Plates
Design Pressure (psf)		Roof Cover Attachment					
-45		12" o.c. in the minimum 6" wide side lap and sealed with 1-1/2" wide heat weld.					

System 20- Steel Deck with Mechanically Attached Roof Cover							
System No.	Deck	Insulation Layers			Roof Cover		
		Type	Attach	Base	Ply	Cap	Fastener
20	Min. 22 ga., type B, Grade 33 Steel.	(one or more of the following, any combination) Min. 0.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA, RH or RN Polyiso Insulation, EnergyGuard Perlite Roof Insulation, min. 0.25" thick SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board, DensDeck or DensDeck Prime Roof Board	Preliminary attach each insulation board with a minimum of four fasteners per board.	NA	NA	EverGuard TPO, EverGuard Extreme TPO, EverGuard TPO FB Ultra or EverGuard Extreme TPO FB Ultra, 8.0' wide, mechanically attached	Drill-Tec XHD Fasteners & Drill-Tec 2 3/8" Barbed XHD Plates
Design Pressure (psf)		Roof Cover Attachment					
-60		6" o.c. in the minimum 6" wide side lap and sealed with 1-1/2" wide heat weld.					

System 21- Steel Deck with Mechanically Attached Roof Cover							
System No.	Deck	Insulation Layers		Roof Cover			
		Type	Attach	Base	Ply	Cap	Fastener
21	Min. 22 ga., type B, Grade 33 Steel.	(one or more of the following, any combination) Min. 0.5" thick EnergyGuard Polyiso Insulation, EnergyGuard RA, RH or RN Polyiso Insulation, EnergyGuard Perlite Roof Insulation, min. 0.25" thick SECUROCK Gypsum-Fiber Roof Board, SECUROCK Glass-Mat Roof Board, DensDeck or DensDeck Prime Roof Board	Preliminary attach each insulation board with a minimum of four fasteners per board.	NA	NA	EverGuard TPO, EverGuard Extreme TPO, EverGuard TPO FB Ultra or EverGuard Extreme TPO FB Ultra, 10.0' wide, mechanically attached	Drill-Tec XHD Fasteners & Drill-Tec 2 3/4" Barbed SXHD Plates
Design Pressure (psf)		Roof Cover Attachment					
-67.5		6" o.c. in the minimum 6" wide side lap and sealed with 1-1/2" wide heat weld.					