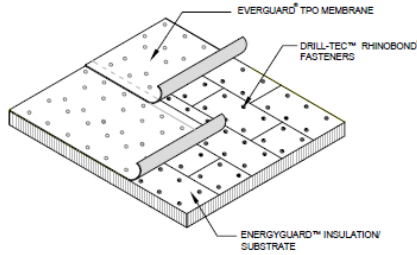




**TPO RB-303
RhinoBond® Attachment
Up to 35 year NDL**



COMPONENT	TYPE	REQUIRED	ATTACHMENT	RATE OF APPLICATION
DECK	Steel (Min 22 gauge), Structural Concrete, Wood Plank, Plywood, Lightweight Insulating Concrete	Acceptable decks vary by system, see specification manual	Per Code	
INSULATION	EnergyGuard™ Polyiso Roof Insulation ASTM C-1289	One (1) layer	Mechanically Attached See Insulation Table below	See attached table
INSULATION OPTIONAL LAYER	EnergyGuard™ Polyiso Roof Insulation, Tapered Polyiso Roof Insulation, HD Polyiso Cover Board ASTM C-1289 Dens Deck® or Dens Deck® Prime™ Roof Board ASTM C-1177 Securock® Gypsum Fiber or Securock® Glass Mat Roof Board ASTM C-1278	One (1) layer of any of the options listed	Mechanically Attached See Insulation Table below	See attached table
INSULATION	EnergyGuard™ HD Polyiso Cover Board ASTM C-1289 Dens Deck® or Dens Deck® Prime™ Roof Board ASTM C-1177 Securock® Gypsum Fiber or Securock® Glass Mat Roof Board ASTM C-1278	One (1) layer of any of the options listed	Mechanically Attached See Insulation Table below	See attached table
SINGLE PLY MEMBRANE	EverGuard Extreme® TPO 80 mil ASTM D-6878	One (1) ply	RhinoBond® Portable Bonding Tool	Welded to RhinoBond® Plates
GUARANTEE	WeatherStopper® EverGuard® Diamond Pledge™ NDL Roof Guarantee	Up to Thirty-Five (35) years		GUARANTEE FEE APPLICABLE

INSULATION ATTACHMENT	
Steel	Drill-Tec™ #15 or #21 Fasteners and 3" RhinoBond® XHD Plates
Structural Concrete	Drill-Tec™ #14 or CD-10 Fasteners and 3" RhinoBond® XHD Plates
Lightweight Insulating Concrete	Drill-Tec™ #14 or #15 Fasteners and 3" RhinoBond® XHD Plates through steel form
Plywood and Wood Plank	Drill-Tec™ #14 Fasteners and 3" RhinoBond® XHD Plates

All GAF® and EverGuard Extreme® accessories shall be used where applicable. GAF® Perimeter Edge Metal shall be used where conditions exist. This system shall be installed by a GAF® Master Select™ Contractor.

FLASHING: Refer to Specification Manual for flashing options and installation instructions.

Each roof has unique requirements. This general specification overview is a graphic representation of products and installation methods for select applications. To properly assess specific roofing needs, code compliance, system configurations and warranty eligibility, contact Contractor Services. **Note:** Your Field Services or Technical Services Managers are the only employees who can approve any deviation from GAF's published specification manual(s). Always review the appropriate Application & Specification Manual before commencing this project, as the Manual may contain information that is important for a successful installation.

This general specification overview shall not waive, supersede or alter the requirements and recommendations found in the most current Application & Specification Manual(s) referenced above, printed technical bulletins or specific correspondence drafted for this project by Field Services or Technical Services Manager.

Again, each project has unique requirements. Listed below are typical fastening patterns that may be appropriate when fastening insulation to specific decks. For specific information on fastener selection and placement contact GAF Contractor Services at 1-800-766-3411.

DRILL-TEC™ RHINOBOND® ATTACHMENT SYSTEM—ATTACHMENT TABLE

Deck Type ¹	Min. Pull-Out Values ²	Fastener	Plate ³	Min. Penetration	Fastening Pattern ⁴ (Field, Perimeter, Corner)		
					GAF Guarantee	60 psf 90 psf	105 psf 120 psf
22-ga. Steel (33 ksi)	450 lbf (204kgf)	Drill-Tec™ XHD #15	3"(76mm) Drill-Tec™ RhinoBond® XHD	¾" (19mm) Thru Deck	6,9,12	6,10,15	N/A
	600 lbf (272kgf)	Drill-Tec™ SXHD #21		1" (25mm) Thru Deck	6,9,12	6,10,15	N/A
22-ga. Steel (80 ksi)	450 lbf (204kgf)	Drill-Tec™ XHD #15	3"(76mm) Drill-Tec™ RhinoBond® XHD or SXHD	¾" (19mm) Thru Deck	6,9,12	N/A	8,15,20
	750 lbf (340kgf)	Drill-Tec™ SXHD #21		1" (25mm) Thru Deck	6,9,12	N/A	8,15,20
Structural Concrete⁵ [Min. 2500 psi (98,066 kilogram- force/cm²)]	700 lbf (317kgf)	Drill-Tec™ #14	3"(76mm) Drill-Tec™ RhinoBond® XHD	1" (25mm) Into Deck [3/16" (4.7mm) Pre- drilled hole required]	6,9,12	6,10,15	8,15,20
	900 lbf (408kgf)	Drill-Tec™ CD-10		1" (25mm) Into Deck [7/32" (5.5mm) Pre- drilled hole required]	6,9,12	6,10,15	8,15,20
Lightweight Insulating Concrete, 22ga. standard metal form	450 lbf (204kgf)	Drill-Tec™ XHD #15	3"(76mm) Drill-Tec™ RhinoBond® XHD	¾" (19mm) Thru Form	6,9,12	6,10,15	8,15,20
	350 lbf (159kgf)	Drill-Tec™ #14		¾" (19mm) Thru Form	6,9,12	6,10,15	8,15,20
Lightweight Insulating Concrete, 24ga. standard metal form	350 lbf (159kgf)	Drill-Tec™ XHD #15	3"(76mm) Drill-Tec™ RhinoBond® XHD	¾" (19mm) Thru Form	6,9,12	N/A	N/A
	350 lbf (159kgf)	Drill-Tec™ #14		¾" (19mm) Thru Form	6,9,12	N/A	N/A

Deck Type	Fastener	Plate ³	Minimum Pull Out Value (lbs)	Max Building Height (ft)	Fasteners per 4' x 8' Insulation Panel		
					Field	Perimeter	Corner
½" Plywood	Drill-Tec™ #14	3"(76mm) Drill-Tec™ RhinoBond® XHD	350	20	8	12	16
				60	12	18	24
⅝" Plywood	Drill-Tec™ #14	3"(76mm) Drill-Tec™ RhinoBond® XHD	450	20	8	12	16
				60	12	18	24
¾" Plywood	Drill-Tec™ #14	3"(76mm) Drill-Tec™ RhinoBond® XHD	525	20	6	9	12
				60	12	18	24
1" Nominal Wood Plank	Drill-Tec™ #14	3"(76mm) Drill-Tec™ RhinoBond® XHD	450	20	6	9	12
				60	12	18	24
2" Nominal Wood Plank	Drill-Tec™ #14	3"(76mm) Drill-Tec™ RhinoBond® XHD	800	20	6	9	12
				60	12	18	24

*Drill-Tec™ RhinoBond® TPO XHD TreadSafe Plates may be substituted provided that at least 2.0" thick insulation is installed above the deck. A ⅝" pilot hole must be drilled through the cover board when using TreadSafe Plates with gypsum or wood fiber top layer insulations.

1. The Drill-Tec™ RhinoBond Attachment System is not acceptable over gypsum, cementitious wood fiber, or OSB substrates, but is acceptable over structural or lightweight insulating concrete decks. However, other methods of attachment may be more appropriate, depending on the project type. Contact your local GAF Field Services Area Manager for possible alternatives.
2. Confirm quality and condition of roof decking by visual inspection, if possible, and by fastener pull-out testing. Remove and replace all deteriorated decking.
3. The Drill-Tec™ RhinoBond TPO XHD Plate is used to attach rigid insulation to roof decks. The special TPO coating on the plates allows for EverGuard® TPO Membrane to be welded to each plate using the RhinoBond® magnetic induction welding tool. Drill-Tec™ RhinoBond® Plates are different in type and color. TPO plates are a yellow/green, while the PVC plates are black in color. The appropriate plate must be used with the appropriate membrane type.
4. Fasteners shall be of sufficient length to provide minimum 1-in. embedment into the plank deck. Fasteners shall not be driven through the joints of the wood plank.
5. Pull-out values below the minimum listed above may be compensated for with additional fasteners. The cause for the low values shall be assessed to determine if additional fasteners are appropriate. Contact GAF for further assistance.
6. Consult FM Approvals, ROOFNAV listings, and FM LPDS 1-28 and 1-29 for detailed installation requirements and recommendations for FM-approved installations.
7. When installing Drill-Tec™ RhinoBond® Fasteners into lightweight insulating concrete that is poured over structural concrete, the fastener must penetrate a minimum of 1" (25 mm) into the structural concrete deck. A 7/32" (5.5 mm) pre-drilled hole is required.