GAF®

SINGLE-PLY PRO FIELD GUIDE V1.1

GAF EVERGUARD®

WELCOME

SECTION 1: WORK PRACTICES

SECTION 2: PRODUCT DATA SHEETS

SECTION 3: SPECIFICATION TABLES & GUIDELINES

SECTION 5: ARCHITECTURAL DETAIL DRAWINGS

WELCOME & INTRODUCTION

Welcome to Version 1.1 of the EverGuard® TPO/PVC Single-Ply Pro Field Guide. Founded in 1886, GAF has grown to become North America's largest manufacturer of commercial and residential roofing. Professional roofing contractors have long preferred the rugged, dependable performance that only a GAF roof can offer.

CONTACTS & WEBSITE

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11800 Industry Avenue
Fontana, CA 92337

TECHNICAL HELP LINE:
Our Technical Help Line is a technical assistance service that allows you to contact us directly and speak with a technical representative about specifications, applications, code approvals and product information.

Technical Help Line: 1-800-ROOF-411 (1-800-766-3411)
Office Hours: 7:30 A.M. – 5:00 P.M. (Central Time Zone)
Email: technicalquestions@gaf.com

TAPERED DESIGN GROUP (TDG): 1-800-766-3411
Email: tdg@gaf.com

PRO FIELD GUIDE CONTENTS

THIS PRO FIELD GUIDE COVERS

- What is a single-ply roofing system
- Basic safety, weather and storage considerations

- Equipment needed to install
- Choosing the right system
- Most common installation mistakes
- The common system types
- Installation details
- Product data

WHAT IS A SINGLE-PLY ROOFING SYSTEM?

A roofing system that is usually composed of:

- Single layer roof membrane
  - TPO
  - PVC
  - EPDM
- Insulation or cover board
  - Polyisocyanurate
  - Expanded or Extruded polystyrene
  - Perlite
  - Wood Fiberboard
  - Gypsum board
- Deck
  - Steel
  - Structural concrete
  - Wood
  - Lightweight Insulating Concrete
  - Gypsum
  - Cementitious Wood Fiber
- Attached by:
  - Mechanical fasteners
  - Adhesives
  - Ballast
  - Self-Adhered

WHY DOES GAF OFFER SINGLE-PLY ROOFING SYSTEMS?

- Single-ply roofs comprise approximately one-half of all commercial roof systems installed.
- Single-ply systems allow GAF to offer the best solutions for almost all roof situations by not limiting our customers to only one or two technologies.

HAVE SINGLE-PLY ROOFING SYSTEMS BEEN AROUND VERY LONG?

- Yes. Single-ply roofs have been used in the U.S. since the early 1970s.

WILL THIS GUIDE COVER ALL SINGLE-PLY ROOFING SYSTEMS?

- No. This Single-Ply Pro Field Guide will cover two of the most popular Single-ply roof systems: TPO and PVC.
- For further detailed information, refer to the specific EverGuard® TPO/PVC application and specification manuals at www.gaf.com.

Section 1:
Work Practices

SAFETY PRECAUTIONS

SAFETY CAN BE COMPROMISED BY:

- High buildings may be a fall hazard.
- Dangerous areas: roof edges, steep slopes, ladders, temporary holes, skylights.
- Membrane may be slippery and can cause falls when wet from dew, rain, frost or snow, or leaking equipment.
- Hot asphalt can cause burns from spills, splashes from filling buckets and luggers, drips over roof edges or through openings, spray from broken piping and fittings, or overheating.
- Propane fuel can explode.
- Adhesive vapors may be flammable:
  - Can cause nausea and lightheadedness if inhaled in confined spaces.
  - Vapors can be drawn into building through HVAC equipment.
- Cutting tools and sheet metal edges may cause cuts.
- Heavy materials may cause back injuries (refer to product data sheets for weights of materials).
- Heat-welding equipment can cause burns and electrical shocks if wiring is improper, submerged in water or disassembled while plugged in.

MATERIAL HANDLING

Store all roofing materials including rolls, insulation and coated metal:
- Flat, on pallets off the ground or roof surface to prevent moisture damage.
- Do not stack pallets in such a way as to distort materials.
- Do provide plywood protection board if stacking pallets on top of palleted metal to prevent from warping.
- DO NOT use packaging for storage of insulation as this may cause condensation on the facer.
- Covered with breathable tarps to prevent condensation.

Store adhesives, caulking and sealants, fasteners, plates, termination bars and accessories and maximize usability by:
- Storing in original packaging on wood blocking or pallets off ground or roof surface to prevent corrosion of metal parts and pails.
- Covering with breathable tarps.
- Storing in heated area if outside temperatures fall below 40°F (4.5°C) to prevent from freezing.
- Keeping away from sparks and open flame sources that could cause a fire.
- Storing solvent-based products in approved quantities & approved location.

EQUIPMENT YOU MAY NEED

Tools and equipment needed to install a TPO/PVC roofing system may include…

- Brooms (soft & stiff)
- Chalk line
- Drill bits (carbide, steel)
- Electric drill
- Eye protection
- First-aid kit
- Gloves
- Gravel-moving equipment
- Gravel pusher
- Grounded extension cords
- Hammer
- Hammer drill
- Hand-held heat gun
- Ladder
- Measuring tape
- Metal crimpers
- Notched squeegee
- Pliers
- Portable generator
- Pull-out tester
- Rags
- Reciprocal saw
- Rivet gun
- Robotic welder
- Rope
- Rubber mallet
- Scissors
- Screw gun
- Screwdriver set
- Seam probe
- Shovel
- Snips
- Squeeze bottle
- Temporary ballast (planks, tires)
- T-square
- Utility knife
- Vise-grip pliers
- Weighted roller
- Wire brush
- Wood saw
- Writing/marking instrument

WEATHER CONSIDERATIONS

Wet roofing materials may…
- Reduce insulation value.
- Degrade.
- Create slippery conditions.
- Increase chances of electrical shocks.

Stormy weather…
- May include lightning that could strike cranes and ladders.
- Requires limiting the roof area being installed prior to the onset of bad weather.
- Requires temporary tie-offs.
- Requires stored materials to be properly covered and protected for the conditions experienced.

Cold weather…
- Stiffens roof membranes.
- Reduces workability of asphalt, adhesives and sealants.

Hot weather…
- Rapidly cures adhesives, caulking and sealants.

Windy weather…
- Creates difficulty in materials handling.
- Blows dirt and debris under the roof membrane, onto exposed adhesives and off roof.

Cloudy and windy weather and temperature…
- Can affect the setting of the automatic welding equipment.

Section 2: Product Data Sheets

EVERGUARD EXTREME® TPO 50 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10’ x 100’ (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	271 lbs. (123 kg)	5’ x 100’ (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	136 lbs. (61.7 kg)
		8’ x 100’ (2.44 x 30.5 m) (800 sq. ft. [74.3 sq. m])	217 lbs. (98.4 kg)	4’ x 100’ (1.21 x 30.5 m) (400 sq. ft. [37.1 sq. m])	108 lbs. (49 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD EXTREME® TPO 60 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	322 lbs. (146 kg)	5’ x 100’ (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	162 lbs. (73.5 kg)
		8’ x 100’ (2.44 x 30.5 m) (800 sq. ft. [74.3 sq. m])	257.6 lbs. (117 kg)	4’ x 100’ (1.21 x 30.5 m) (400 sq. ft. [37.1 sq. m])	128 lbs. (58.4 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD EXTREME® TPO 70 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10’ x 100’ (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	373 lbs. (163 kg)	5’ x 100’ (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	136 lbs. (61.7 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD EXTREME® TPO 80 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	420 lbs. (191 kg)	5' x 100' (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	210 lbs. (95 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD EXTREME® TPO 50 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	350 lbs. (159 kg)	5' x 100' (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	180 lbs. (82 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD EXTREME® TPO 60 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	346 lbs. (157 kg)	5' x 100' (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	174 lbs. (79 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD EXTREME® TPO 70 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10’ x 100’ (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	450 lbs. (204 kg)	5’ x 100’ (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	225 lbs. (102 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD EXTREME® TPO 80 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10’ x 50’ (3.05 x 15.24 m) (500 sq. ft. [46.5 sq. m])	230 lbs. (104 kg)	5’ x 50’ (1.52 x 15.24 m) (250 sq. ft. [23.23 sq. m])	116 lbs. (53 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® TPO 45 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	256 lbs. (116 kg)	5’ x 100’ (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	128 lbs. (58 kg)
		8’ x 100’ (2.44 x 30.5 m) (800 sq. ft. [74.3 sq. m])	204 lbs. (93 kg)	4’ x 100’ (1.21 x 30.5 m) (400 sq. ft. [37.1 sq. m])	102.4 lbs. (46 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® TPO 60 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	322 lbs. (146 kg)	5' x 100' (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	162 lbs. (73.5 kg)
		8' x 100' (2.44 x 30.5 m) (800 sq. ft. [74.3 sq. m])	257 lbs. (117 kg)	4' x 100' (1.21 x 30.5 m) (400 sq. ft. [37.1 sq. m])	128.8 lbs. (58.4 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® TPO 80 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	420 lbs. (191 kg)	5' x 100' (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	210 lbs. (95 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® TPO 45 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray, Energy Tan, Energy Gray	10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])	270 lbs. (122 kg)	5' x 100' (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])	144 lbs. (65 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® TPO 60 MIL FLEECE-BACK MEMBRANE

<table>
<tr><td rowspan="3">Roll size</td><td colspan="5">Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.</td></tr>
<tr><td>Colors</td><td>Full Roll Size</td><td>Full Roll Weight</td><td>Half Roll Size</td><td>Half Roll Weight</td></tr>
<tr><td>White, Tan, Gray, Energy Tan, Energy Gray</td><td>10' x 100' (3.05 x 30.5 m) (1,000 sq. ft. [92.9 sq. m])</td><td>344 lbs. (156 kg)</td><td>5’ x 100’ (1.52 x 30.5 m) (500 sq. ft. [46.5 sq. m])</td><td>185 lbs. (84 kg)</td></tr>
<tr><td colspan="6">Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.</td></tr>
<tr><td>Storage</td><td colspan="5">Store rolls on their sides on pallets or shelving in a dry area.</td></tr>
<tr><td>Safety Warning</td><td colspan="5">Membrane rolls are heavy. Position and install by at least two people.</td></tr>
</table>

EVERGUARD® TPO 80 MIL FLEECE-BACK MEMBRANE

<table>
<tr><td rowspan="3">Roll size</td><td colspan="5">Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.</td></tr>
<tr><td>Colors</td><td>Full Roll Size</td><td>Full Roll Weight</td><td>Half Roll Size</td><td>Half Roll Weight</td></tr>
<tr><td>White, Tan, Gray, Energy Tan, Energy Gray</td><td>10’ x 50’ (3.05 x 15.24 m) (500 sq. ft. [46.5 sq. m])</td><td>238 lbs. (108 kg)</td><td>5’ x 50’ (1.52 x 15.24 m) (250 sq. ft. [23.23 sq. m])</td><td>112 lbs. (51 kg)</td></tr>
<tr><td colspan="6">Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.</td></tr>
<tr><td>Storage</td><td colspan="5">Store rolls on their sides on pallets or shelving in a dry area.</td></tr>
<tr><td>Safety Warning</td><td colspan="5">Membrane rolls are heavy. Position and install by at least two people.</td></tr>
</table>

EVERGUARD® FREEDOM™ TPO HEAT-WELD (HW) MEMBRANE

<table>
<tr><td rowspan="4">Roll Size</td><td colspan="9">Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation</td></tr>
<tr><td>Colors</td><td>Full Roll Size</td><td colspan="3">Full Roll Weight</td><td>Half Roll Size</td><td colspan="3">Half Roll Weight</td></tr>
<tr><td rowspan="2">White, Tan, Gray, Energy Tan, Energy Gray</td><td rowspan="2">10’ x 50’ (3.05 x 15.24 m)</td><td>45</td><td>60</td><td>80</td><td rowspan="2">5’ x 50’ (1.52 m x 15.2m)</td><td>45</td><td>60</td><td>80</td></tr>
<tr><td>150 lb. (68 kg)</td><td>190 lb. (86.2 kg)</td><td>230 lb. (104.3 kg)</td><td>74 lb. (33.6 kg)</td><td>101 lb. (45.81 kg)</td><td>120 lb. (54.43 kg)</td></tr>
<tr><td>10’ x 100’ (3.05 x 30.5 m)</td><td>301 lb. (136.5 kg)</td><td>365 lb. (165.6 kg)</td><td>450 lb.</td><td>5’ x 100’ (1.52 m x 30.5 m)</td><td>148 lb. (67.13 kg)</td><td>192 lb. (87.1 kg)</td><td>230 lb. (104.3 kg)</td></tr>
<tr><td>Storage</td><td colspan="9">Note: Membrane rolls shipped horizontally on pallets.
Store on pallets in a clean, dry area at temperatures below 100°F; protect adhesive side from exposure to direct sunlight; and use care when handling the adhesive side of material. The adhesive is aggressive and will stick to skin.</td></tr>
<tr><td>Safety Warning</td><td colspan="9">Membrane rolls are heavy. Position and install by at least two people.</td></tr>
</table>

EVERGUARD® TPO WITH RAPIDSEAM™ TECHNOLOGY

Roll Size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation			
	Colors	**Full Roll Size**	**Roll Weight (nominal)**	
			45 mil	**60 mil**
	45 mil White 60 mil White, Tan, Gray	5’ x 50’ (1.52m x 15.2m)	74 lb. (33.6 kg)	93 lb. (42.2 kg)
Storage	Note: Membrane rolls shipped horizontally on pallets.			
	Store on pallets in a clean, dry area at temperatures below 100°F; protect adhesive side from exposure to direct sunlight; and use care when handling the adhesive side of material. The adhesive is aggressive and will stick to skin.			
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.			

EVERGUARD® PVC 50 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White	10' x 100’ (3.05 m x 30.5 m)	350.6 lb. (161.5 kg)	5' x 100’ (1.52 m x 30.5 m)	350.6 lb. (161.5 kg)
Storage	Membrane rolls shipped horizontally on pallets, stacked with two layers of four rolls.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 60 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White	10' x 100’ (3.05 m x 30.5 m)	398.2 lb. (180.6 kg)	5' x 100’ (1.52 m x 30.5 m)	199.1 lb. (90.31 kg)
Storage	Membrane rolls shipped horizontally on pallets, stacked with two layers of four rolls.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 80 MIL SMOOTH MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White	10' x 100' (3.05 m x 30.5 m)	422.5 lb. (191.6 kg)	5' x 100' (1.52 m x 30.5 m)	211.25 lb. (95.8 kg)
Storage	Membrane rolls shipped horizontally on pallets, stacked in a pyramid.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 50 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White	10' x 100' (3.05 m x 30.5 m)	382.5 lb. (191.6 kg)	5' x 100' (1.52 m x 30.5 m)	191.25 lb. (86.8 kg)
Storage	Membrane rolls shipped horizontally on pallets, stacked in a pyramid.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 60 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White	10' x 100' (3.05 m x 30.5 m)	392.5 lb. (178.0 kg)	5' x 100' (1.52 m x 30.5 m)	196.25 lb. (89.0 kg)
Storage	Membrane rolls shipped horizontally on pallets, stacked in a pyramid.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 80 MIL FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White	10' x 100' (3.05 m x 30.5 m)	430.8 lb. (195.4 kg)	60" x 100' (1.52 m x 30.5 m)	215.4 lb. (97.7 kg)
Storage	Membrane rolls shipped horizontally on pallets, stacked in a pyramid.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 50 MIL SMOOTH XK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray	10' x 100' (3.05 m x 30.5 m)	410 lb. (186 kg)	60" x 100' (1.52 m x 30.5 m)	205 lb. (93 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 60 MIL SMOOTH XK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray	10' x 100' (3.05 m x 30.5 m)	410 lb. (186 kg)	60" x 100' (1.52 m x 30.5 m)	165 lb. (75 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 80 MIL SMOOTH XK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray	10' x 80' (3.05 m x 24.4 m)	440 lb. (200 kg)	5' x 80' (1.52 m x 24.4 m)	178 lb. (81 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 60 MIL XK FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray	10' x 90' (3.05 m x 27.43 m)	420 lb. (191 kg)	5' x 90' (1.52 m x 27.43 m)	265 lb. (120 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

EVERGUARD® PVC 80 MIL XK FLEECE-BACK MEMBRANE

Roll size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Roll Size	Full Roll Weight	Half Roll Size	Half Roll Weight
	White, Tan, Gray	10' x 75' (3.05 m x 22.86 m)	632 lb. (287 kg)	5' x 75' (1.52 m x 22.86 m)	300 lb. (136 kg)
	Note: Membrane rolls shipped horizontally on pallets, stacked pyramid-style and banded.				
Storage	Store rolls on their sides on pallets or shelving in a dry area.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

CORNER CURB WRAP - TPO

SPECIFICATIONS	
Height:	12” (305 mm)
Base:	6” (152 mm)
Length:	13.5”, 19.5”, 25.5”, 31.5” (342.9 mm, 495.3 mm, 647.7 mm, 800.1 mm)
SHIPPING SPECIFICATIONS	
Curbs per carton:	4
Size:	Weight per carton:
13.5” (342.9 mm)	5.6 lb. (2.5 kg)
19.5” (495.3 mm)	7.4 lb. (3.36 kg)
25.5” (647.7 mm)	10.7 lb. (4.85 kg)
31.5” (800.1 mm)	12.5 lb. (5.67 kg)
Cartons per pallet:	32
PRODUCT SKUS	
White 13.5” (342.9 mm)	85F2920
White 19.5” (495.3 mm)	85F3920
White 25.5” (647.7 mm)	85F4920
White 31.5” (800.1 mm)	85F5920

T-JOINT COVER PATCHES - TPO

SPECIFICATIONS	
Membrane Thickness:	.055” (1.40 mm)
Unit Size:	4” x 4” (102 mm x 102 mm)
SHIPPING SPECIFICATIONS	
Patches per carton:	100
Weight per carton:	3.3 lb. (1.5 kg)
Cartons per pallet:	196
PRODUCT SKUS	
T-Joint Cover Patch White	7712920
T-Joint Cover Patch Gray	7712345
T-Joint Cover Patch Tan	7712820

SCUPPER - TPO

SPECIFICATIONS	
Membrane thickness:	.055" (1.40 mm)
Dimensions:	4" x 6" x 12" (102 mm x 152 mm x 305 mm) 8" x 10" x 12" (203 mm x 254 mm x 305 mm)
SHIPPING SPECIFICATIONS	
Scuppers per carton:	2
Weight per carton:	
4" x 6" x 12" (102 mm x 152 mm x 305 mm)	7 lb. (3.18 kg)
8" x 10" x 12" (203 mm x 254 mm x 305 mm)	12 lb. (5.44 kg)
Cartons per pallet:	
4" x 6" x 12" (102 mm x 152 mm x 305 mm)	15
8" x 10" x 12" (203 mm x 254 mm x 305 mm)	9
PRODUCT SKUS	
4" x 6" x 12" (102 mm x 152 mm x 305 mm)	85TA920
8" x 10" x 12" (203 mm x 254 mm x 305 mm)	85TB920

POURABLE SEALER POCKET - TPO

SPECIFICATIONS	
Total Width of Pocket:	12" (305 mm)
Total Length of Pocket:	15 ¼" (387 mm)
Height of Walls:	4" (102 mm)
SHIPPING SPECIFICATIONS	
Carton Size:	28" x 12" x 12" (711 mm x 305 mm x 305 mm)
Pieces per carton:	6
Weight per carton:	6.5 lb. (2.95 kg)
Cartons per pallet:	16
Pallet Size:	42" x 42" (3.5' x 3.5')
PRODUCT SKUS	
White:	8002920CU

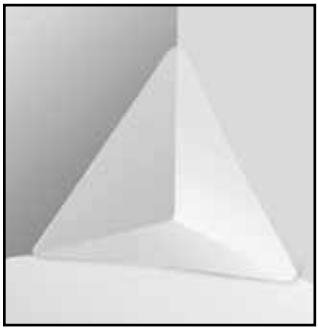
FLUTED CORNER - TPO

SPECIFICATIONS	
Diameter:	8” (203 mm)
Nominal thickness:	.050” (1.27 mm)
SHIPPING SPECIFICATIONS	
Corners per carton:	20
Weight per carton:	2.5 lb. (1.13 kg)
Cartons per pallet:	250
PRODUCT SKUS	
TPO Fluted Corner White	8A00920WA
TPO Fluted Corner Tan	8A00820WA
TPO Fluted Corner Grey	8A00345WA

UNIVERSAL CORNER - TPO

SPECIFICATIONS	
Size:	3” x 3” (76 mm x 76 mm) with 6" (152 mm) Flange
Thickness:	.070” (1.78 mm)
SHIPPING SPECIFICATIONS	
Corners per carton:	6
Weight per carton:	6 lb. (2.72 kg)
Cartons per pallet:	60
PRODUCT SKUS	
White	7730920CU

INSIDE CORNER - TPO



SPECIFICATIONS	
Membrane thickness:	.050” (1.27 mm)
Corner dimensions:	6” x 6” x 5 1/4” (152 mm x 152 mm x 133.35 mm)
SHIPPING SPECIFICATIONS	
20 Corners per carton:	3.5 lb. (1.6 kg)/carton
Cartons per pallet:	54
PRODUCT SKUS	
White	8509776WA

SQUARE TUBE WRAP - TPO

SHIPPING SPECIFICATIONS	
Pieces per carton:	6
Weight per carton:	4”x 4” (101.6 mm x 101.6 mm) - 6.0 lb. (2.72 kg)
	4”x 6” (101.6 mm x 152 mm) - 6.5 lb. (2.95 kg)
	6”x 6” (152 mm x 152 mm) - 7.0 lb. (3.18 kg)
Cartons per pallet:	24
PRODUCT SKUS	
EverGuard® TPO Square Tube Wrap 4”x 4” (102 mm x 102 mm)	8506920
EverGuard® TPO Square Tube Wrap 4”x 6” (102 mm x 152 mm)	8508920
EverGuard® TPO Square Tube Wrap 6”x 6” (152 mm x 152 mm)	8507920

PREFORMED VENT BOOT - TPO

SPECIFICATIONS	
Membrane thickness:	0.075” (1.905 mm)
For pipe sizes:	1” - 6” (25 mm - 152 mm) dia.
SHIPPING SPECIFICATIONS	
Boots per carton:	6
Weight per carton:	9 lb. (4.08 kg)
Cartons per pallet:	54
PRODUCT SKUS	
Vent Boot White	7710920CU

PREFORMED SPLIT PIPE BOOT - TPO

SPECIFICATIONS	ITEM DIMENSIONS/SKU #
For pipe sizes:	1” x 2” (25 mm x 52 mm) 85G1920
	3” x 5” (76 mm x 127 mm) 85G2920
	6” x 8” (152 mm x 203 mm) 85G3920
SHIPPING SPECIFICATIONS	
Boots per carton:	6
Weight per carton:	
1”– 2” (25 mm x 52 mm)	7.5 lb. (3.4 kg)
3”– 5” (76 mm x 127 mm)	7.5 lb. (3.4 kg)
6”– 8” (152 mm x 203 mm)	11 lb. (4.9 kg)
Cartons per pallet:	
1”– 2” (25 mm x 52 mm)	36
3”– 5” (76 mm x 127 mm)	36
6”– 8” (152 mm x 203 mm)	24
PRODUCT SKUS	
1”– 2” (25 mm x 52 mm)	85G1
3”– 5” (76 mm x 127 mm)	85G2
6”– 8” (152 mm x 203 mm)	85G3

EVERGUARD® TPO HEAT-WELDABLE COVER TAPE

SPECIFICATIONS	
Roll length:	100' (30.5 m)
Roll width:	6" (152 mm)
SHIPPING SPECIFICATIONS	
Rolls per carton:	2
Weight per carton:	34 lb. (15.42 kg)
Cartons per pallet:	27
PRODUCT SKUS	
6" Cover Tape	85P8

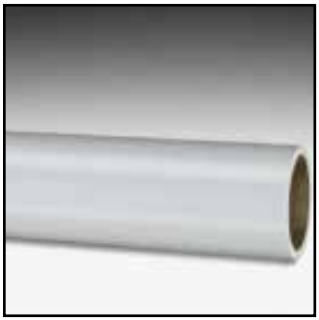
EVERGUARD® TPO DOUBLE-SIDED AND STRIP-IN TAPES

SPECIFICATIONS	Double-Sided	Strip-In Tapes
Roll Dimension:	6" x 75'	8" X 75'
Roll Weight:	5 lb (2.27 kg)/ each	7 lb (3 kg)/ each
Rolls Per Carton:	6	6
Weight Per Carton:	33.5 lb. (15 kg)	43 lb. (19.5 kg)
Cartons per pallet:	30	30
Weight Per Pallet:	1,060 lb. (481 kg)	1,360 lb. (617 kg)
PRODUCT SKUS		
Double-Sided Tape	7555	
Strip-in Tape	7655	

EVERGUARD® VENT - TPO

SPECIFICATIONS	
Membrane thickness:	.045” (1.14 mm)
Dimensions:	8” (203 mm)
SHIPPING SPECIFICATIONS	
Vents per carton:	2
Weight per carton:	6 lb. (2.72 kg)
Cartons per pallet:	12
PRODUCT SKUS	
Vent–8” (203 mm)	85TC920

UN-55 DETAILING MEMBRANE - TPO

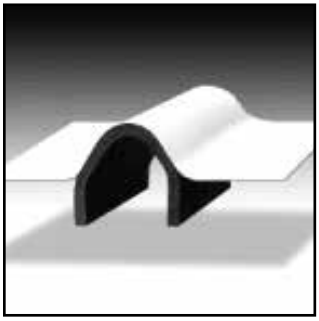


SPECIFICATIONS	
Roll Size:	24” x 50’ (610 mm x 15.24 m) rolls
Material:	55 mil unreinforced TPO membrane
SHIPPING SPECIFICATIONS	
Weight per roll:	28 lb. (12.7 kg)
PRODUCT SKU	
Detailing Membrane	7624

EVERGUARD EXTREME® 45 MIL UTILITY FLASHING STRIP - TPO

SPECIFICATIONS	
Roll Size:	8” x 100’ (203 mm x 30.5 m) rolls
Material:	45 mil reinforced TPO membrane
SHIPPING SPECIFICATIONS	
Weight per roll:	18 lb. (8.2 kg)
PRODUCT SKU	
Utility Flashing Strip	7608776

EXPANSION JOINT - TPO



SPECIFICATIONS	
Standard roll length:	50’ (15.24 m)
Membrane thickness:	60 mil nominal
PRODUCT SKU	
4" (102 mm) Roof - Roof White	8T604A
6" (152 mm) Roof - Roof White	8T606A
8" (203 mm) Roof - Roof White	8T608A
10" (254 mm) Roof - Roof White	8T610A
12" (305 mm) Roof - Roof White	8T612A
4" (102 mm) Roof - Wall White	8T604B
6" (152 mm) Roof - Wall White	8T606B
8" (203 mm) Roof - Wall White	8T608B
10" (254 mm) Roof - Wall White	8T610B
12" (305 mm) Roof - White	8T612B

EVERGUARD® TPO SAFETY TAPE

SPECIFICATIONS	
Width:	6” (152 mm)
Length:	100’ (30.48 m)
SHIPPING SPECIFICATIONS	
Qty per box:	2
Weight per box:	38 lb. (17.24 kg)
Boxes per pallet:	36
PRODUCT SKU	
TPO Yellow Safety Tape	755F902

EVERGUARD® TPO 6” (152 MM) COVER TAPE

SPECIFICATIONS	
Roll Length	100’ (30.5 m)
Roll Width	6” (152 mm)
SHIPPING SPECIFICATIONS	
Rolls per Case	2
Weight per Case	37.4 lb. (16.96 kg)
Cases per Pallet	36
PRODUCT SKUS	
White	755A920
Tan	755A820
Gray	755A345

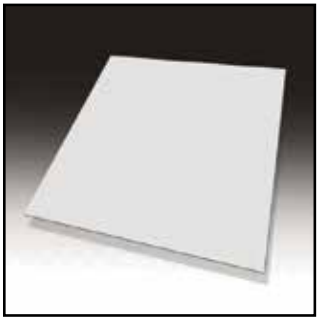
RTA (ROOF TRANSITION ANCHOR) STRIP - TPO

SPECIFICATIONS	
Roll Size:	6” x 100’ (152 mm x 30.5 m) rolls
Material:	45 mil reinforced TPO membrane with pressure-sensitive adhesive
SHIPPING SPECIFICATIONS	
Rolls per Case:	2
Weight per roll:	18 lb. (8.2 kg)
PRODUCT SKU	
RTA Strip	7710111

TPO 45 UTILITY FLASHING STRIP

SPECIFICATIONS	
Roll Size:	8” x 100’ (203 mm x 30.5 m) rolls
Material:	45 mil reinforced TPO membrane
SHIPPING SPECIFICATIONS	
Weight per roll:	18 lb. (8.2 kg)
PRODUCT SKU	
Utility Flashing Strip	7608

COATED METAL SHEETS - TPO



SPECIFICATIONS	
Dimensions:	4’ x 10’ (1.21 m x 3.05 m)
SHIPPING SPECIFICATIONS	
Sheets per pallet:	5, 10, 30
Weight per sheet:	
24-Gauge Galvanized Steel	47 lb. (21.31 kg)
Aluminum	30 lb. (13.61 kg)
Stainless Steel	47 lb. (21.31 kg)
20-Gauge Galvanized Steel	67 lb. (30.39 kg)
PRODUCT SKUS	
PVC Coated Metal White – 30 sheets	87DD920
PVC Coated Metal White – 10 sheets	87DE920
PVC Coated Metal White – 5 sheets	87DF920

WALKWAY ROLL - TPO

SHIPPING SPECIFICATIONS	
Roll Size	34” x 50’ (874 mm x 15.24 m)
Thickness	125 mil
Weight per roll	75 lb. (34 kg)
PRODUCT SKUS	
Gray	7750902
Yellow	7750345

TPO DRAIN - TPO

SPECIFICATIONS	
Whole-sized Drains (2” [52 mm], 3” [76 mm], 4” [102 mm], 5” [127 mm], or 6” [152 mm]) can be used on new construction and directly attached to new plumbing with a flexible coupling (not included).	
Half-inch-sized Drains (1 1/2” [38 mm], 2 1/2” [63.5 mm], 3 1/2” [89 mm], 4 1/2” [114 mm], and 5 1/2” [139.7 mm]) can be used as retrofit drains by ordering a drain sized 1/2” smaller than the drain pipe being fitted (for a 4” [102 mm] drain pipe, use a 3 1/2” [89 mm] drain).	
PRODUCT SKUS	
1 1/2” (38 mm)	4M41TPOMW
2” (52 mm)	4M43TPOMW
2 1/2” (63.5 mm)	4M45TPOMW
3” (76 mm)	4M47TPOMW
3 1/2” (89 mm)	4M49TPOMW
4” (102 mm)	4M51TPOMW
4 1/2” (114 mm)	4M51TPOMW
5” (127 mm)	4M55TPOMW
5 1/2” (139.7 mm)	4M57TPOMW
6” (152 mm)	4M59TPOMW

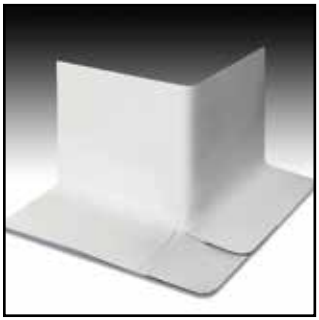
COATED SPEEDTITE™ DRAIN - TPO

SPECIFICATIONS		
Drain Body	11-gauge 0.125” (3.18 mm) spun aluminum	
Flange	17½” (445 mm) diameter with sump area	
Stem	10” (254 mm) length	
SHIPPING SPECIFICATIONS	3” (76 mm)	4” (102 mm)
Drains per carton:	1	1
Weight per carton:	8.5 lb. (3.86 kg)	8.9 lb. (4.04 kg)
Cartons per pallet:	20	20
PRODUCT SKUS		
3” (76 mm)	8523R	
4” (102 mm)	8523S	

COATED HERCULES DRAIN - TPO

SPECIFICATIONS				
Drain Body	11-gauge 0.125" (3.18 mm) spun aluminum			
Flange	17½" (445 mm) diameter with sump area			
Stem	12" (305 mm) length			
SHIPPING SPECIFICATIONS	3" (76 mm)	4" (102 mm)	5" (127 mm)	6" (152 mm)
Drains per carton:	1	1	1	1
Weight per carton:	7.4 lb. (3.36 kg)	7.9 lb. (3.58 kg)	7.9 lb. (3.58 kg)	8.5 lb. (3.86 kg)
Cartons per pallet:	TBD	TBD	TBD	TBD
PRODUCT SKUS				
3" (76 mm)	8523J			
4" (102 mm)	8523K			
5" (127 mm)	8523L			
6" (152 mm)	8523M			

CORNER CURB WRAP - PVC



SPECIFICATIONS	
Height:	12” (305 mm)
Base:	6” (152 mm)
Length:	13.5” (343 mm), 19.5” (495 mm), 25.5” (648 mm), 31.5” (800 mm)
SHIPPING SPECIFICATIONS	
Curbs per carton:	4
Weight per carton:	
13.5” (343 mm)	7 lbs. (3.18 kg)
19.5” (495 mm)	7 lbs. (3.18 kg)
25.5” (648 mm)	8 lbs. (3.63 kg)
31.5” (800 mm)	9 lbs. (4 kg)
Cartons per pallet:	32
PRODUCT SKUS	
White 13.5” (343 mm)	87E5920
White 19.5” (495 mm)	87E6920
White 25.5” (648 mm)	87E7920
White 31.5” (800 mm)	87E8920

UN-80 T-JOINT COVER PATCHES - PVC

SPECIFICATIONS	
Membrane Thickness:	.055” (1.40 mm)
Unit Size:	4” x 4” (102 mm x 102 mm)
SHIPPING SPECIFICATIONS	
Patches per carton:	100
Weight per carton:	9 lb. (4.08 kg)
Cartons per pallet:	196
PRODUCT SKUS	
T-Joint Cover Patch White	87I2920GA

POURABLE SEALER POCKET - PVC

SPECIFICATIONS	
Total Width of Pocket:	12" (305 mm)
Total Length of Pocket:	15 ¼" (387 mm)
Height of Walls:	4" (102 mm)
SHIPPING SPECIFICATIONS	
Carton Size:	28" x 12" x 12" (711 mm x 305 mm x 305 mm)
Pieces per carton:	6
Weight per carton:	9.5 lb. (4.31 kg)
Cartons per pallet:	16
Pallet Size:	42" x 42" (3.5' x 3.5')
PRODUCT SKUS	
White	85D6920

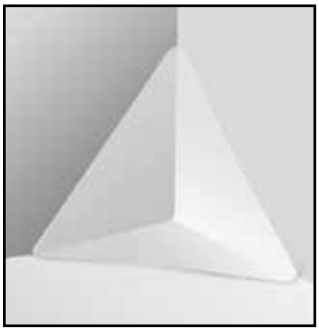
FLUTED CORNER - PVC

SPECIFICATIONS	
Diameter:	8" (203 mm)
Nominal thickness:	.055" (1.40 mm)
SHIPPING SPECIFICATIONS	
Corners per carton:	20
Weight per carton:	2.5 lb. (1.13 kg)
Cartons per pallet:	250
PRODUCT SKUS	
PVC Fluted Corner White	8B00920WA
PVC Fluted Corner Tan	8B00345WA
PVC Fluted Corner Grey	8B00820WA

UNIVERSAL CORNER - PVC

SPECIFICATIONS	
Size:	3” x 3” (76 mm x 76 mm) with Flange
Thickness:	.070” (1.78 mm)
SHIPPING SPECIFICATIONS	
Corners per carton:	20
Weight per carton:	10.2 lb. (4.63 kg)
Cartons per pallet:	60
PRODUCT SKUS	
White	85A4

INSIDE CORNER - PVC



SPECIFICATIONS	
Membrane thickness:	.055" (1.40 mm)
Corner dimensions:	6" x 6" x 5.25" (152 mm x 152 mm x 133.35 mm)
SHIPPING SPECIFICATIONS	
Patches per carton:	30
Weight per carton:	3.5 lb. (1.59 kg)
Cartons per pallet:	200
PRODUCT SKUS	
White	87H2920GA

EVERGUARD® PVC CONICAL PIPE BOOT

SPECIFICATIONS	
Membrane thickness:	0.055" (1.4 mm)
For pipe sizes:	1” - 6” (25 mm - 152 mm) dia.
SHIPPING SPECIFICATIONS	
Boots per carton:	12
Weight per carton:	12.5 lb. (5.67 kg)
PRODUCT SKUS	
White	851AONG

SQUARE TUBE WRAP - PVC

SHIPPING SPECIFICATIONS	
Boots per carton:	6
Weight per carton:	4" x 4" x 8" (101.6 mm x 101.6 mm x 203.2 mm) – 8 lb. (3.62 kg)
	6" x 6" x 8" (152.4 mm x 152.4 mm x 203.2 mm)– 9 lb. (4.08 kg)
PRODUCT SKUS	
4" x 4" x 8" (101.6 mm x 101.6 mm x 203.2 mm)	87F1920
6" x 6" x 8" (152.4 mm x 152.4 mm x 203.2 mm)	8508920

PREFORMED SPLIT PIPE BOOT - PVC

SPECIFICATIONS	ITEM DIMENSIONS/SKU #
For pipe sizes:	1" x 2" (25.4 mm x 50.8 mm) 85E9920
	3" x 5" (76.2 mm x 127 mm) 85E6920
	6" x 8" (152.4 mm x 203.2 mm) 85E7920
SHIPPING SPECIFICATIONS	
Boots per carton:	6
Weight per carton:	
1"– 2" (25.4 mm – 50.8 mm)	7.5 lb. (3.4 kg)
3"– 5" (76.2 mm – 127 mm)	7.5 lb. (3.4 kg)
6"– 8" (152.4 mm – 203.2 mm)	11 lb. (5 kg)
Cartons per pallet:	
1”– 2” (25 mm x 52 mm)	36
3”– 5” (76 mm x 127 mm)	36
6”– 8” (152 mm x 203 mm)	24
PRODUCT SKUS	
1”– 2” (25 mm x 52 mm)	85E9920
3”– 5” (76 mm x 127 mm)	85E6920
6”– 8” (152 mm x 203 mm)	85E7920

UN-55 DETAILING MEMBRANE - PVC

SPECIFICATIONS	
Roll Size:	24” x 50’ (610 mm x 15.24 m) rolls
Material:	55 mil unreinforced TPO membrane
SHIPPING SPECIFICATIONS	
Weight per roll:	40 lb. (18.2 kg)
SKU	87C2920

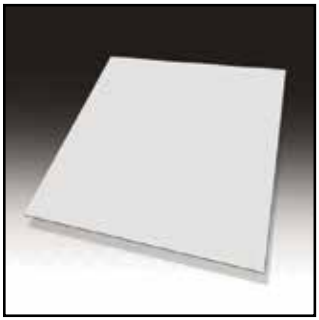
EXPANSION JOINT - PVC

SPECIFICATIONS	
Membrane thickness:	.060" (1.5 mm) reinforced membrane with foam supported bellows

WALKWAY ROLL - PVC

SHIPPING SPECIFICATIONS	
Roll Size	34” x 50’ (874 mm x 15.24 m)
Thickness	125 mil
Weight per roll	75 lb. (34 kg)
PRODUCT SKUS	
Gray	8525MTV

COATED METAL SHEETS - PVC



SPECIFICATIONS	
Dimensions:	4’ x 10’ (1.21 m x 3.05 m)
SHIPPING SPECIFICATIONS	
Sheets per pallet:	5, 10, 30
Weight per sheet:	
24-Gauge Galvanized Steel	47 lb. (21.31 kg)
Aluminum	30 lb. (13.61 kg)
Stainless Steel	47 lb. (21.31 kg)
20-Gauge Galvanized Steel	67 lb. (30.39 kg)
PRODUCT SKUS	
PVC Coated Metal White – 30 sheets	87DD920
PVC Coated Metal White – 10 sheets	87DE920
PVC Coated Metal White – 5 sheets	87DF920

COATED SPEEDTITE™ DRAIN - PVC

SPECIFICATIONS		
Drain Body	11-gauge 0.125” (3.18 mm) spun aluminum	
Flange	17½” (445 mm) diameter with sump area	
Stem	10” (254 mm) length	
SHIPPING SPECIFICATIONS	3” (76 mm)	4” (102 mm)
Drains per carton:	1	1
Weight per carton:	8.5 lb. (3.86 kg)	8.9 lb. (4.04 kg)
Cartons per pallet:	20	20
PRODUCT SKUS		
3” (76 mm)	8523T000	
4” (102 mm)	8523U000	

COATED HERCULES DRAIN - PVC

SPECIFICATIONS				
Drain Body	11-gauge 0.125" (3.18 mm) spun aluminum			
Flange	17½" (445 mm) diameter with sump area			
Stem	12" (305 mm) length			
SHIPPING SPECIFICATIONS	3" (76 mm)	4" (102 mm)	5" (127 mm)	6" (152 mm)
Drains per carton:	1	1	1	1
Weight per carton:	7.4 lb. (3.36 kg)	7.9 lb. (3.58 kg)	7.9 lb. (3.58 kg)	8.5 lb. (3.86 kg)
Cartons per pallet:	TBD	TBD	TBD	TBD
PRODUCT SKUS				
3" (76 mm)	8523N000			
4" (102 mm)	8523O000			
5" (127 mm)	8523P000			
6" (152 mm)	8523Q000			

LRF ADHESIVE M

SPECIFICATIONS	
Size - Bag in Box Kit:	5 gallon (19 L) box
Size - Cartridge:	4-1.5 L kits/carton
SHIPPING SPECIFICATIONS	
Weight - Bag in Box Kit:	50 lb. (23 kg)/box
Weight - Cartridge:	20 lb. (9 kg)/carton
PRODUCT SKUS	
15g Set (Parts A&B) :	418P
50g Set (Parts A&B) :	418Q
Adhesive Box A :	418K
Adhesive Box B :	418L
Adhesive Cartridge Kit :	418H

Note: See page 103 and 104 for adhesive coverage rates and compatible membranes.

TPO LRF ADHESIVE M LOW TEMP

SPECIFICATIONS	
Size - Cartridge:	4-1.5 L kits/carton
SHIPPING SPECIFICATIONS	
Weight - Cartridge:	20 lb. (16 kg)/carton
PRODUCT SKUS	
Cartridge:	418V
Note: Only available October-February.	

OLYBOND500® BAG IN BOX

SPECIFICATIONS	
Part 1:	5 gallon (19 L) box
Part 2:	5 gallon (19 L) box
SHIPPING SPECIFICATIONS	
Part 1:	53 lb. (24 kg)
Part 2:	45 lb. (20 kg)
PRODUCT SKUS	
Part 1:	4182
Part 2:	4183

OLYBOND500® BAG IN BOX (COLD WEATHER)

SPECIFICATIONS	
Part 1:	5 gallon (19 L) box
Part 2:	5 gallon (19 L) box
SHIPPING SPECIFICATIONS	
Part 1:	53 lb. (24 kg)
Part 2:	45 lb. (20 kg)
PRODUCT SKUS	
Part 1:	418A1
Part 2:	418A2
Note: Only available October-February.	

Note: See pages 103 and 104 for adhesive coverage rates and compatible membranes.

OLYBOND500® SPOT SHOT

SPECIFICATIONS	
Size - Cartridge:	4 sets of 1500 ml cartridges
SHIPPING SPECIFICATIONS	
Weight - Cartridge:	4 1500 ml cartridges - 19 lb. (9 kg)
PRODUCT SKUS	
Cartridge:	417K

OLYBOND500® EQUIPMENT FREE CANISTERS

SPECIFICATIONS	
Part 1 Component:	16 boxes
Part 2 Component:	16 boxes
SHIPPING SPECIFICATIONS	
OlyBond500® Canister Part 1:	48 lb. (21.77 kg)
OlyBond500® Canister Part 2:	38 lb. (17.24 kg)
OPTIONAL ACCESSORIES	
Gun and Hose Replacement Kit :	5 lb. (2.27 kg)
Bag of Ten (10) Mixing Tips:	3 lb. (1.36 kg)
Ten (10) Mix Tip Extension Tubes:	2 lb. (0.91 kg)
PRODUCT SKUS	
Part 1:	418X
Part 2:	418Y
Note: Part 1 Component includes 25 ft. Hose/Gun/Six (6) Tips/ Three (3) Tip Extenders.	
OPTIONAL ACCESSORIES SKUS	
Gun and Hose Replacement Kit :	418Z
Bag of Ten (10) Mixing Tips	418AA
Ten (10) Mix Tip Extension Tubes	418XBB

Note: See pages 103 and 104 for adhesive coverage rates and compatible membranes.

GAF 2-PART ROOFING ADHESIVE

SPECIFICATIONS	
Size A - Component:	12 boxes
Size B - Component:	12 boxes
SHIPPING SPECIFICATIONS	
Weight A - Component:	40 lb. (18 kg)/box
Weight B - Component:	35 lb. (16 kg)/box
PRODUCT SKUS	
Adhesion Kit Standard (A & B)	419P
Note: B component includes 25 ft. hose/gun/8 tips/8 extenders	
OPTIONAL ACCESSORIES SKUS	
2-Part Handi Gun/Hose Dispensing Unit	419R
2-Part Insulation Nozzle Extension (8 Tips)	419S
2-Part Roofing Adhesive Applicator Hose Tip (8 Tips)	419T

GAF 2-PART ROOFING ADHESIVE (COLD WEATHER)

SPECIFICATIONS	
Size A - Component:	12 boxes
Size B - Component:	12 boxes
SHIPPING SPECIFICATIONS	
Weight A - Component:	40 lb. (18 kg)/box
Weight B - Component:	35 lb. (16 kg)/box
PRODUCT SKUS	
Adhesion Kit Standard (A & B)	419Q
OPTIONAL ACCESSORIES SKUS	
2-Part Handi Gun/Hose Dispensing Unit	419R
2-Part Insulation Nozzle Extension (8 Tips)	419S
2-Part Roofing Adhesive Applicator Hose Tip (8 Tips)	419T
Note: Only available October-February.	

Note: See pages 103 and 104 for adhesive coverage rates and compatible membranes.

EVERGUARD® #1121 TPO BONDING ADHESIVE

SPECIFICATIONS	
Size:	5 gallon (19 L) pail
SHIPPING SPECIFICATIONS	
Weight per pail:	37 lb. (17 kg)
SKU:	7780OOM

EVERGUARD® WB 181 BONDING ADHESIVE

SPECIFICATIONS	
Size:	5 gallon (19 L) pail
SHIPPING SPECIFICATIONS	
Weight per pail:	45 lb. (20.5 kg)
SKU:	7785000WP

EVERGUARD® LOW VOC TPO BONDING ADHESIVE

SPECIFICATIONS	
Size:	5 gallon (19 L) pail
SHIPPING SPECIFICATIONS	
Weight per pail:	40 lb. (18 kg)
Pails per Pallet:	45
SKU:	7784

Note: See pages 103 and 104 for adhesive coverage rates and compatible membranes.

EVERGUARD® TPO 3 SQUARE LOW VOC BONDING ADHESIVE

SPECIFICATIONS	
Size:	5 gallon (19 L) pail
SHIPPING SPECIFICATIONS	
Weight per pail:	38 lb. (17.24 kg)
Pails per Pallet:	45
SKU (49 states):	7786

EVERGUARD® PVC BONDING ADHESIVE

SPECIFICATIONS	
Size:	5 gallon (19 L) pail
SHIPPING SPECIFICATIONS	
Weight per pail:	36 lb. (16.33 kg)
Pails per Pallet:	45
SKU:	856A

GAF 2-PART ROOFING ADHESIVE

SPECIFICATIONS	
Size A - Component:	12 boxes
Size B - Component:	12 boxes
SHIPPING SPECIFICATIONS	
Weight A - Component:	40 lb. (18 kg)/box
Weight B - Component:	35 lb. (16 kg)/box
PRODUCT SKUS	
Adhesion Kit Standard (A & B)	419P
Note: B component includes 25 ft. hose/gun/8 tips/8 extenders	
OPTIONAL ACCESSORIES SKUS	
2-Part Handi Gun/Hose Dispensing Unit	419R
2-Part Insulation Nozzle Extension (8 Tips)	419S
2-Part Roofing Adhesive Applicator Hose Tip (8 Tips)	419T

Note: See pages 103 and 104 for adhesive coverage rates and compatible membranes.

LRF ADHESIVE M

SPECIFICATIONS	
Size - Bag in Box Kit:	5 gallon (19 L) box
Size - Cartridge:	4-1.5 L kits/carton
SHIPPING SPECIFICATIONS	
Weight - Bag in Box Kit:	50 lb. (23 kg)/box
Weight - Cartridge:	20 lb. (9 kg)/carton
PRODUCT SKUS	
15g Set (Parts A&B) :	418P
50g Set (Parts A&B) :	418Q
Adhesive Box A :	418K
Adhesive Box B :	418L
Adhesive Cartridge Kit :	418H

TPO LRF ADHESIVE M LOW TEMP

SPECIFICATIONS	
Size - Cartridge:	4-1.5 L kits/carton
SHIPPING SPECIFICATIONS	
Weight - Cartridge:	20 lb. (16 kg)/carton
PRODUCT SKUS	
Cartridge:	418V
Note: Only available October-February.	

LRF ADHESIVE O

SPECIFICATIONS	
Size - Bag in Box Kit:	5 gallon (19 L) box
Size - Cartridge:	4-1.5 L kits/carton
SHIPPING SPECIFICATIONS	
Weight - Bag in Box Kit:	50 lb. (23 kg)/box
Weight - Cartridge:	20 lb. (9 kg)/carton
PRODUCT SKUS	
Cartridge:	418J
Bag in Box A:	418M
Bag in Box B:	418N
15 g Drum Part 1	418T
15 g Drum Part 2	418U

Note: See pages 103 and 104 for adhesive coverage rates and compatible membranes.

OLYBOND500® EQUIPMENT FREE CANISTERS

SPECIFICATIONS	
Part 1 Component:	16 boxes
Part 2 Component:	16 boxes
SHIPPING SPECIFICATIONS	
OlyBond500® Canister Part 1:	48 lb. (21.77 kg)
OlyBond500® Canister Part 2:	38 lb. (17.24 kg)
OPTIONAL ACCESSORIES	
Gun and Hose Replacement Kit :	5 lb. (2.27 kg)
Bag of Ten (10) Mixing Tips:	3 lb. (1.36 kg)
Ten (10) Mix Tip Extension Tubes:	2 lb. (0.91 kg)
PRODUCT SKUS	
Part 1:	418X
Part 2:	418Y
Note: Part 1 Component includes 25 ft. Hose/Gun/Six (6) Tips/ Three (3) Tip Extenders.	
OPTIONAL ACCESSORIES SKUS	
Gun and Hose Replacement Kit :	418Z
Bag of Ten (10) Mixing Tips	418AA
Ten (10) Mix Tip Extension Tubes	418XBB

EVERGUARD® TPO SEAM CLEANER

SPECIFICATIONS	
Size:	4 - 1 gallon (3.78 L) cans/carton
SHIPPING SPECIFICATIONS	
Weight per pail:	45 lb. (20.5 kg)
SKU:	7793

Note: See pages 103 and 104 for adhesive coverage rates and compatible membranes.

TPO LOW VOC PRIMER

SPECIFICATIONS	
Size:	6 - 1 gallon (3.78 L) cans/carton
SHIPPING SPECIFICATIONS	
Weight per pail:	45 lb. (20.5 kg)
SKU:	755D

EVERGUARD® TPO PRIMER

SPECIFICATIONS	
Quantity/Size:	4 - 1 gallon (3.78 L) cans/carton
SHIPPING SPECIFICATIONS	
Weight per carton:	33 lb. (15 kg)
SKU:	775B

EVERGUARD® TPO BASE COAT

SPECIFICATIONS	
Size:	4 - 1 gallon (3.78 L) cans/carton
SHIPPING SPECIFICATIONS	
Weight per carton:	56 lb. (25.5 kg)
SKU:	779B699WP

FLEXSEAL™ - CAULK GRADE SEALANT

SPECIFICATIONS	
Quantity/Size:	20 - 10 oz (283.5 g) tubes/tube box
SHIPPING SPECIFICATIONS	
Weight per carton:	19 lb. (8.6 kg)/box
SKU:	8962920WP

TPO CUT EDGE SEALANT

SPECIFICATIONS	
Quantity/Size:	12 - 1 pint (16 oz) bottle/box
SHIPPING SPECIFICATIONS	
Weight per carton:	18 lb. (8 kg)/box
SKU:	7795SO01WP

EVERGUARD® LIQUID FLASHING

KIT CONTENTS	
3 – .53 gallon (2 L) pouches EverGuard® Liquid Flashing	
2 – 10.1 oz. (300 ml) tubes M-Bond™ Sealant	
1 – Pair rubber gloves	
1 – Notched trowel	
3 – Nozzle extensions	
1 – 50' (15.24 m) Roll of Flashing Fabric	
SHIPPING SPECIFICATIONS	
SKU	801A

EVERGUARD® ONE-PART POURABLE SEALANT

SHIPPING SPECIFICATIONS	
.53 gallon (2 L) pouch	
4 pouches/case	
48 cases/pallet	
Color	White
SKU	7777920

EVERGUARD® TWO-PART POURABLE SEALANT

KIT SPECIFICATIONS (2 KITS/BOX)	
1 gallon (3.78 L) part A	
1 pint (16 oz) part B	
Mixer	
Gloves	
SHIPPING SPECIFICATIONS	
SKU	7775A02

WATERBLOCK MASTIC

SPECIFICATIONS	
Quantity/Size:	25 tubes/carton
SHIPPING SPECIFICATIONS	
Weight per carton:	27 lb. (12 kg)/box
SKU:	8008

ROOFING FASTENERS

22-18 ga. STEEL, WOOD, and LWIC*

Drill-Tec™ #12 Fastener
Lengths: 1⅛" to 8" #3 Phillips Head

Drill-Tec™ #14 Fastener
Lengths: 1¼" to 24" #3 Phillips Head

Drill-Tec™ #12 Fastener Hex Head
Lengths: 1⅛" to 8" ¼" Hex Head

Drill-Tec™ XHD® Fastener (#15)**
Lengths: 2" to 22" #3 Phillips Head

STRUCTURAL CONCRETE

Drill-Tec™ CD-10
Lengths: 2" to 12" Flat Top Pan Head

Drill-Tec™ #14 Fastener
Lengths: 1¼" to 24" #3 Phillips Head

INSULATION PLATES

SUBSTRATES: POLYISO, HD POLYISO, or WOOD FIBER

Recessed

Drill-Tec™ 3" Steel Plate
Code # 4580 Galvalume
1000/Bucket 37 lb.

Drill-Tec™ 3" Plastic Locking Plate
Code # 45JK Plastic
1000/Box 25 lb.

Drill-Tec™ 3" AccuTrac® Recessed Plate
Code # 86S9 Galvalume
1000/Bucket 43 lb.

SUBSTRATES: GYPSUM & ANCHOR SHEET

Flat

Drill-Tec™ 3" Ribbed Galvalume Plate (Flat)
Code # 459Z Galvalume
1000/Bucket 37 lb.

Flat

Drill-Tec™ 3" Standard Steel Plate
Code # 4181 Galvalume
1000/Box 37 lb.

Drill-Tec™ 3" AccuTrac® Flat Plate
Code # 86S8 Galvalume
1000/Bucket 43 lb.

PRE-ASSEMBLED

For appropriate application, reference individual parts above.

Drill-Tec™ ASAP 3S
#12 Fastener /
3" Standard Steel Plate
Lengths: 1⅛" to 8"

Drill-Tec™ ASAP 3P
#12 Fastener /
3" Plastic Locking Plate
Lengths: 2¼" to 8"

Drill-Tec™ Heavy Duty ASAP Roofing Fastener Assembled with 3" Metal Plate
#14 Fastener /
3" Standard Steel Plate
Lengths: 2" to 20"

Drill-Tec™ Heavy Duty ASAP Roofing Fastener Assembled with 3" Plastic Plate
#14 Fastener /
3" Plastic Locking Plate
Lengths: 2" to 20"

*In lightweight insulating concrete applications, the fastener must penetrate the steel pan.
**Drill-Tec™ XHD® Fastener is not recommended for wood deck applications.

ROOFING FASTENERS

22-18 ga. STEEL and LWIC*

Drill-Tec™ XHD® Fastener† (#15)
Lengths: 2" to 22"
#3 Phillips Head

Drill-Tec™ 2" Double Barbed XHD® Plate†
Code # 4608 Galvalume
1000/Box 33 lb.

Drill-Tec™ 2½" Barbed XHD® Plate
Code # 8678 Galvalume
1000/Box 45 lb.

Drill-Tec™ 2½" Eye Hook® AccuSeam® Plate
Code # 8680 Galvalume
1000/Bucket 48 lb.

Drill-Tec™ 2¼" Barbed SXHD Plate
Code # 8679 Galvalume
500/Box 37 lb.

22-18 ga. STEEL, WOOD, STRUCTURAL CONCRETE and LWIC*

Drill-Tec™ #14 Fastener
Lengths: 1¼" to 24"
#3 Phillips Head

Drill-Tec™ 2" Double Barbed XHD® Plate
Code # 4608 Galvalume
1000/Box 33 lb.

Drill-Tec™ 2½" Barbed XHD® Plate
Code # 8678 Galvalume
1000/Box 45 lb.

Drill-Tec™ Eye Hook® AccuSeam® Plate
Code # 8680 Galvalume
1000/Box 48 lb.

Drill-Tec™ 2¼" Barbed SXHD Plate
Code # 8679 Galvalume
1000/Box 37 lb.

STRUCTURAL CONCRETE

Drill-Tec™ CD-10
Lengths: 2" to 12"
Flat Top Pan Head

Drill-Tec™ 2" Double Barbed XHD® Plate
Code # 4608 Galvalume
1000/Box 33 lb.

Drill-Tec™ 2½" Barbed XHD® Plate
Code # 8678 Galvalume
1000/Box 45 lb.

Drill-Tec™ 2¼" Barbed SXHD Plate
Code # 8679 Galvalume
500/Box 37 lb.

PURLINS (Max. ¼")

Drill-Tec™ Purlin Fastener
Lengths: 4" to 10"
#3 Square Drive

Drill-Tec™ 2" Double Barbed XHD® Plate
Code # 4608 Galvalume
1000/Box 33 lb.

Drill-Tec™ 2½" Barbed XHD® Plate
Code # 8678 Galvalume
1000/Box 45 lb.

Drill-Tec™ 2¼" Barbed SXHD Plate
Code # 8679 Galvalume
500/Box 37 lb.

22-18 ga. STEEL and LWIC*

Drill-Tec™ SXHD (#21)
Lengths: 2" to 21"
#3 Phillips Head

Drill-Tec™ 2¼" Barbed SXHD Plate
Code # 8679 Galvalume
1000/Box 37 lb.

† This fastener also available pre-assembled:

Drill-Tec™ Extra Heavy Duty ASAP Assembled Screw and 2¼" Steel Plate
XHD® Fastener /
2¼" Barbed XHD® Plate
Lengths: 2" to 18"

BAR

STRUCTURAL CONCRETE and MASONRY

Drill-Tec™ Masonry Anchors (Zinc)

3/16" x 3/4"	Code # 457B	9 lb.
1/4" x 1"	Code # 457F	18 lb.
1/4" x 1¼"	Code # 457H	21 lb.
1/4" x 1½"	Code # 457J	24 lb.
1/4" x 2"	Code # 457L	29 lb.

All sizes are 1000/Box

Drill-Tec™ LIP Termination Bar
6 in. o.c. Code # 453B
¾" Width Aluminum
500 ft./Tube 57 lb.

Drill-Tec™ FLAT Termination Bar
6 in. o.c. Code # 453D
1" Width Aluminum
500 ft./Tube 56 lb.

Drill-Tec™ Batten Bar
6 in. o.c. Code # 8068
1" Width Aluminum
500 ft./Tube 60 lb.

*In lightweight insulating concrete applications, the fastener must penetrate the steel pan.

DRILL-TEC™ LD

GYPSUM and CEMENTITIOUS WOOD FIBER (TECTUM)

Drill-Tec™ 3" LD Fastener (Lite Deck)
Lengths: 2⅛" to 12" #3 Square Drive

Drill-Tec™ 3" LD Plate (for Insulation)
Code # 4578 Galvalume
500/Box 19 lb.

DRILL-TEC™ GYPTEC®

GYPSUM and CEMENTITIOUS WOOD FIBER (TECTUM)

Drill-Tec™ Polymer GypTec® Fastener
Lengths: 2½" to 8" #4 Square Drive

Drill-Tec™ 2" GypTec Plate
(for Membrane)
Code # 4596 Galvalume
1000/Box 34 lb.

Drill-Tec™ 3" GypTec Plate (for Insulation)
Code # 4599 Galvalume
1000/Box 46 lb.

DRILL-TEC™ LOCKING IMPACT NAILS

GYPSUM, CEMENTITIOUS WOOD FIBER (TECTUM), and LIGHTWEIGHT INSULATING CONCRETE

Drill-Tec™ Locking Impact Nail

1.4" Length for Base Sheets Code # 45D1
Galvalume 500/Box 26 lb.

1.8" Length for Base Sheet or Insulation Code # 45D2
Galvalume 500/Box 28 lb.

DRILL-TEC™ BASE SHEET FASTENERS

LIGHTWEIGHT INSULATING CONCRETE

Drill-Tec™ Base Sheet Fasteners

1.7" Length Code # 459C
Galvalume 500/Box 20 lb.

1.2" Length* Code # 459U
Galvalume 1000/Box 35 lb.
*1.2" length may also be used in gypsum applications.

ENERGYGUARD™ & ENERGYGUARD™ NH POLYISO INSULATION FLAT STOCK PHYSICAL CHARACTERISTICS AND SHIPPING INFORMATION 4 'X 4' (1.2 M X 1.2 M)

Physical Characteristics			Shipping Information (4' x 4') (1.21 m x 1.21 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
1.0" (25.4 mm)	5.7	2 5/8" (66.7 mm)	48	2,304	48	7.68	768 (71.35 sq. m)	36,864 (2,425 sq. m)
1.1" (27.9 mm)	6.3	2 5/8" (66.7 mm)	43	2,064	48	6.88	688 (64 sq. m)	33,024 (3,068 sq. m)
1.2" (30.5 mm)	6.8	2 5/8" (66.7 mm)	38	1,824	48	6.08	608 (56.5 sq. m)	29,184 (2,711 sq. m)
1.3" (33 mm)	7.4	2 5/8" (66.7 mm)	36	1,728	48	5.76	576 (53.5 sq. m)	27,648 (2,568 sq. m)
1.4" (35.6 mm)	8.0	4 3/8" (111 mm)	34	1,632	48	5.44	544 (50.5 sq. m)	26,112 (2,426 sq. m)
1.5" (38.1 mm)	8.6	4 3/8" (111 mm)	32	1,536	48	5.12	512 (47.5 sq. m)	24,576 (2,283 sq. m)
1.6" (40.6 mm)	9.1	4 3/8" (111 mm)	30	1,440	48	4.8	480 (44.5 sq. m)	23,040 (2,140 sq. m)
1.7" (43.1 mm)	9.7	4 3/8" (111 mm)	28	1,344	48	4.48	448 (41.6 sq. m)	21,504 (1,998 sq. m)
1.75" (44.4 mm)	10	4 3/8" (111 mm)	27	1,296	48	4.32	432 (40 sq. m)	20,736 (1,926 sq. m)
1.8" (45.7 mm)	10.3	4 3/8" (111 mm)	25	1,200	48	4	400 (37 sq. m)	19,200 (1,784 sq. m)
1.9" (48.3 mm)	10.8	4 3/8" (111 mm)	25	1,200	48	4	400 (37 sq. m)	19,200 (1,784 sq. m)
2.0" (51 mm)	11.4	4 3/8" (111 mm)	24	1,152	48	3.84	384 (35.6 sq. m)	18,432 (1,712 sq. m)
2.1" (53 mm)	12.0	4 3/8" (111 mm)	22	1,056	48	3.52	352 (32.7 sq. m)	16,896 (1,570 sq. m)
2.2" (56 mm)	12.6	4 3/8" (111 mm)	21	1,008	48	3.36	336 (31 sq. m)	16,128 (1,498 sq. m)
2.3" (58 mm)	13.2	4 3/8" (111 mm)	20	960	48	3.2	320 (29.7 sq. m)	15,360 (1,427 sq. m)
2.4" (61 mm)	13.8	4 3/8" (111 mm)	20	960	48	3.2	320 (29.7 sq. m)	15,360 (1,427 sq. m)
2.5" (64 mm)	14.4	4 3/8" (111 mm)	19	912	48	3.04	304 (28.25 sq. m)	14,584 (1,356 sq. m)
2.6" (66 mm)	15.0	4 3/8" (111 mm)	18	864	48	2.88	288 (26.75 sq. m)	13,824 (1,284 sq. m)
2.7" (69 mm)	15.6	4 3/8" (111 mm)	17	816	48	2.72	272 (25 sq. m)	13,056 (1,213 sq. m)

*Other sizes available upon request

(continued next page)

ENERGYGUARD™ & ENERGYGUARD™ NH POLYISO INSULATION FLAT STOCK PHYSICAL CHARACTERISTICS AND SHIPPING INFORMATION 4 'X 4' (1.2 M X 1.2 M) (CONT.)

Physical Characteristics			Shipping Information (4' x 4') (1.21 m x 1.21 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
2.8" (71 mm)	16.2	4 3/8" (111 mm)	17	816	48	2.72	272 (25 sq. m)	13,056 (1,213 sq. m)
2.9" (74 mm)	16.8	4 3/8" (111 mm)	16	768	48	2.56	256 (23.8 sq. m)	12,288 (1,142 sq. m)
3.0" (76 mm)	17.4	4 3/8" (111 mm)	16	768	48	2.56	256 (23.8 sq. m)	12,288 (1,142 sq. m)
3.1" (79 mm)	18.0	4 3/8" (111 mm)	15	720	48	2.4	240 (22.3 sq. m)	11,520 (1,070 sq. m)
3.2" (81 mm)	18.6	4 3/8" (111 mm)	15	720	48	2.4	240 (22.3 sq. m)	11,520 (1,070 sq. m)
3.25" (83 mm)	18.9	4 3/8" (111 mm)	14	672	48	2.24	224 (20.8 sq. m)	10,752 (999 sq. m)
3.3" (84 mm)	19.2	4 3/8" (111 mm)	14	672	48	2.24	224 (20.8 sq. m)	10,752 (999 sq. m)
3.4" (86 mm)	19.9	4 3/8" (111 mm)	14	672	48	2.24	224 (20.8 sq. m)	10,752 (999 sq. m)
3.5" (89 mm)	20.5	4 3/8" (111 mm)	13	624	48	2.08	208 (19.3 sq. m)	9,984 (928 sq. m)
3.6" (91 mm)	21.1	4 3/8" (111 mm)	13	624	48	2.08	208 (29.3 sq. m)	9,984 (928 sq. m)
3.7" (94 mm)	21.7	4 3/8" (111 mm)	12	576	48	1.92	192 (17.8 sq. m)	9,216 (856 sq. m)
3.8" (97 mm)	22.3	4 3/8" (111 mm)	12	576	48	1.92	192 (17.8 sq. m)	9,216 (856 sq. m)
3.9" (99 mm)	23.0	4 3/8" (111 mm)	12	576	48	1.92	192 (17.8 sq. m)	9,216 (856 sq. m)
4.0" (102 mm)	23.6	4 3/8" (111 mm)	12	576	48	1.92	192 (17.8 sq. m)	9,216 (856 sq. m)
4.1" (104 mm)	24.2	4 3/8" (111 mm)	11	528	48	1.76	176 (17.8 sq. m)	8,448 (785 sq. m)
4.2" (106 mm)	24.8	4 3/8" (111 mm)	11	528	48	1.76	176 (16.3 sq. m)	8,449 (785 sq. m)
4.3" (109 mm)	25.4	4 3/8" (111 mm)	11	528	48	1.76	176 (16.3 sq. m)	8,450 (785 sq. m)
4.4" (112 mm)	26.0	4 3/8" (111 mm)	10	480	48	1.6	160 (14.8 sq. m)	7,680 (713 sq. m)
4.5" (114 mm)	26.6	4 3/8" (111 mm)	10	480	48	1.6	160 (14.8 sq. m)	7,680 (713 sq. m)
4.6" (116 mm)	27.1	4 3/8" (111 mm)	10	480	48	1.6	160 (14.8 sq. m)	7,680 (713 sq. m)

*Other sizes available upon request

ENERGYGUARD™ & ENERGYGUARD™ NH POLYISO INSULATION FLAT STOCK PHYSICAL CHARACTERISTICS AND SHIPPING INFORMATION 4 'X 8' (1.2 M X 2.4 M)

Physical Characteristics			Shipping Information (4' x 8') (1.21 m x 2.4 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
1.0" (25.4 mm)	5.7	2 5/8" (66.7 mm)	48	1,152	24	15.36	1536 (142.7 sq. m)	36,864 (2,425 sq. m)
1.1" (27.9 mm)	6.3	2 5/8" (66.7 mm)	43	1,032	24	13.76	1376 (128 sq. m)	33,024 (3,068 sq. m)
1.2" (30.5 mm)	6.8	2 5/8" (66.7 mm)	38	912	24	12.16	1216 (113 sq. m)	29,184 (2,711 sq. m)
1.3" (33 mm)	7.4	2 5/8" (66.7 mm)	36	864	24	11.52	1152 (107 sq. m)	27,648 (2,568 sq. m)
1.4" (35.6 mm)	8.0	4 3/8" (111 mm)	34	816	24	10.88	1088 (101 sq. m)	26,112 (2,426 sq. m)
1.5" (38.1 mm)	8.6	4 3/8" (111 mm)	32	768	24	10.24	1024 (95 sq. m)	24,576 (2,283 sq. m)
1.6" (40.6 mm)	9.1	4 3/8" (111 mm)	30	720	24	9.60	960 (89 sq. m)	23,040 (2,140 sq. m)
1.7" (43.1 mm)	9.7	4 3/8" (111 mm)	28	672	24	8.96	896 (837 sq. m)	21,504 (1,998 sq. m)
1.75" (44.4 mm)	10	4 3/8" (111 mm)	27	648	24	8.64	864 (80.2 sq. m)	20,736 (1,926 sq. m)
1.8" (45.7 mm)	10.3	4 3/8" (111 mm)	25	600	24	8.00	800 (74.3 sq. m)	19,200 (1,784 sq. m)
1.9" (48.3 mm)	10.8	4 3/8" (111 mm)	25	600	24	8.00	800 (74.3 sq. m)	19,200 (1,784 sq. m)
2.0" (51 mm)	11.4	4 3/8" (111 mm)	24	576	24	7.68	768 (71.3 sq. m)	18,432 (1,712 sq. m)
2.1" (53 mm)	12.0	4 3/8" (111 mm)	22	528	24	7.04	704 (65.4 sq. m)	16,896 (1,570 sq. m)
2.2" (56 mm)	12.6	4 3/8" (111 mm)	21	504	24	6.72	672 (62.4 sq. m)	16,128 (1,498 sq. m)
2.4" (61 mm)	13.8	4 3/8" (111 mm)	20	480	24	6.40	640 (59.5 sq. m)	15,360 (1,427 sq. m)
2.5" (64 mm)	14.4	4 3/8" (111 mm)	19	456	24	6.08	608 (56.5 sq. m)	14,584 (1,356 sq. m)
2.6" (66 mm)	15.0	4 3/8" (111 mm)	18	432	24	5.76	576 (53.5 sq. m)	13,824 (1,284 sq. m)
2.7" (69 mm)	15.6	4 3/8" (111 mm)	17	408	24	5.44	544 (50.5 sq. m)	13,056 (1,213 sq. m)
2.8" (71 mm)	16.2	4 3/8" (111 mm)	17	408	24	5.44	544	13,056 (1,213 sq. m)

*Other sizes available upon request

(continued next page)

ENERGYGUARD™ & ENERGYGUARD™ NH POLYISO INSULATION FLAT STOCK PHYSICAL CHARACTERISTICS AND SHIPPING INFORMATION 4 'X 8' (1.2 M X 2.4 M) (CONT.)

Physical Characteristics			Shipping Information (4' x 8') (1.21 m x 2.4 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
2.9" (74 mm)	16.8	4 3/8" (111 mm)	16	384	24	5.12	512 (47.5 sq. m)	12,288 (1,142 sq. m)
3.0" (76 mm)	17.4	4 3/8" (111 mm)	16	384	24	5.12	512 (47.5 sq. m)	12,288 (1,142 sq. m)
3.1" (79 mm)	18.0	4 3/8" (111 mm)	15	360	24	4.80	480 (44.5 sq. m)	11,520 (1,070 sq. m)
3.2" (81 mm)	18.6	4 3/8" (111 mm)	15	360	24	4.80	480 (44.5 sq. m)	11,520 (1,070 sq. m)
3.25" (83 mm)	18.9	4 3/8" (111 mm)	14	336	24	4.48	448 (41.6 sq. m)	10,752 (999 sq. m)
3.3" (84 mm)	19.2	4 3/8" (111 mm)	14	336	24	4.48	448 (41.6 sq. m)	10,752 (999 sq. m)
3.4" (86 mm)	19.9	4 3/8" (111 mm)	14	336	24	4.48	448 (41.6 sq. m)	10,752 (999 sq. m)
3.5" (89 mm)	20.5	4 3/8" (111 mm)	13	312	24	4.16	416 (38.6 sq. m)	9,984 (928 sq. m)
3.6" (91 mm)	21.1	4 3/8" (111 mm)	13	312	24	4.16	416 (38.6 sq. m)	9,984 (928 sq. m)
3.7" (94 mm)	21.7	4 3/8" (111 mm)	12	288	24	3.84	384 (35.6 sq. m)	9,216 (856 sq. m)
3.8" (97 mm)	22.3	4 3/8" (111 mm)	12	288	24	3.84	384 (35.6 sq. m)	9,216 (856 sq. m)
3.9" (99 mm)	23.0	4 3/8" (111 mm)	12	288	24	3.84	384 (35.6 sq. m)	9,216 (856 sq. m)
4.0" (102 mm)	23.6	4 3/8" (111 mm)	12	288	24	3.84	384 (35.6 sq. m)	9,216 (856 sq. m)
4.1" (104 mm)	24.2	4 3/8" (111 mm)	11	264	24	3.52	352 (32.7 sq. m)	8,448 (785 sq. m)
4.2" (106 mm)	24.8	4 3/8" (111 mm)	11	264	24	3.52	352 (32.7 sq. m)	8,449 (785 sq. m)
4.3" (109 mm)	25.4	4 3/8" (111 mm)	11	264	24	3.52	352 (32.7 sq. m)	8,450 (785 sq. m)
4.4" (112 mm)	26.0	4 3/8" (111 mm)	10	240	24	3.20	320 (29.7 sq. m)	7,680 (713 sq. m)
4.5" (114 mm)	26.6	4 3/8" (111 mm)	10	240	24	3.20	320 (29.7 sq. m)	7,680 (713 sq. m)
4.6" (116 mm)	27.1	4 3/8" (111 mm)	10	240	24	3.20	320 (29.7 sq. m)	7,680 (713 sq. m)

*Other sizes available upon request

ENERGYGUARD™ & ENERGYGUARD™ NH TAPERED POLYISO INSULATION PHYSICAL CHARACTERISTICS AND SHIPPING INFORMATION

Physical Characteristics		Shipping Information (4' x 4') (1.21 m x 1.21 m)				
Slope	Thickness	Size*	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Sq. Ft. Per Truck
1/8:12	.5"-1" (12.7 mm - 25.4 mm)	AA	64	3,072	48	49,152 (4,566 sq. m)
	1"-1.5" (25.4 mm - 38.1 mm)	A	38	1,824	48	29,184 (2,711 sq. m)
	1.5"-2" (38.1 mm - 51 mm)	B	26	1,248	48	19,968 (1,855 sq. m)
	2"-2.5" (51 mm - 64 mm)	C	20	960	48	15,360 (1,427 sq. m)
	2.5"-3" (64 mm - 76 mm)	D	16	768	48	12,288 (1,142 sq. m)
	3"-3.5" (76 mm - 89 mm)	E	14	672	48	10,752 (999 sq. m)
	3.5"-4" (89 mm - 102 mm)	F	12	576	48	9,216 (856 sq. m)
1/4:12	.5"-1.5" (12.7 mm - 38.1 mm)	X	48	2,304	48	36,864 (3,425 sq. m)
	1.5"-2.5" (38.1 mm - 64 mm)	Y	24	1,152	48	18,432 (1,712 sq. m)
	2.5"-3.5" (64 mm - 89 mm)	Z	16	768	48	12,288 (1,142 sq. m)
	1"-2" (25.4 mm - 51 mm)	G	32	1,536	48	24,576 (2,283 sq. m)
	2"-3" (51 mm - 76 mm)	H	19	912	48	14,592 (1,356 sq. m)
	3"-4" (76 mm - 102 mm)	I	12	576	48	9,216 (856 sq. m)
1/2:12	.5"-2.5" (12.7 mm - 64 mm)	Q	32	1,536	48	24,576 (2,283 sq. m)
	1"-3" (25.4 mm - 76 mm)	XX	22	1,056	48	16,896 (1,570 sq. m)

*Other sizes available upon request

ENERGYGUARD™ AND ENERGYGUARD™ NH POLYISO INSULATION RECYCLED CONTENT CHART

Board Thickness	Total Recycled Content By Weight	Pre-Consumer Recycled %*	Post-Consumer Recycled %**
1.0" (25 mm)	43.00%	11.00%	32.00%
1.1" (28 mm)	41.00%	10.00%	31.00%
1.2" (30.5 mm)	39.00%	10.00%	29.00%
1.3" (33 mm)	37.00%	9.00%	28.00%
1.4" (35.5 mm)	35.00%	9.00%	26.00%
1.5" (38 mm)	33.00%	8.00%	25.00%
1.6" (41 mm)	32.00%	8.00%	24.00%
1.7" (43 mm)	30.00%	7.00%	23.00%
1.8" (46 mm)	29.00%	7.00%	22.00%
1.9" (48 mm)	28.00%	7.00%	21.00%

(continued next page)

ENERGYGUARD™ AND ENERGYGUARD™ NH POLYISO INSULATION RECYCLED CONTENT CHART (CONT.)

Board Thickness	Total Recycled Content By Weight	Pre-Consumer Recycled %*	Post-Consumer Recycled %**
2.0" (52 mm)	27.00%	7.00%	20.00%
2.1" (53 mm)	25.00%	6.00%	19.00%
2.2" (56 mm)	24.00%	6.00%	18.00%
2.3" (58.5 mm)	23.00%	6.00%	17.00%
2.4" (61 mm)	22.00%	5.00%	17.00%
2.5" (63.5 mm)	22.00%	6.00%	16.00%
2.6" (66 mm)	21.00%	5.00%	16.00%
2.7" (68.5 mm)	20.00%	5.00%	15.00%
2.8" (71 mm)	20.00%	5.00%	15.00%
2.9" (73.6 mm)	19.00%	5.00%	14.00%
3.0" (76 mm)	18.00%	4.00%	14.00%
3.1" (78.7 mm)	18.00%	4.00%	14.00%
3.2" (81 mm)	17.00%	4.00%	13.00%
3.3" (84 mm)	17.00%	4.00%	13.00%
3.4" (86 mm)	16.00%	4.00%	12.00%
3.5" (89 mm)	16.00%	4.00%	12.00%
3.6" (91.5 mm)	15.00%	4.00%	11.00%
3.7" (94 mm)	15.00%	4.00%	11.00%
3.8" (96.5 mm)	15.00%	4.00%	11.00%
3.9" (99 mm)	15.00%	4.00%	11.00%
4.0" (102 mm)	15.00%	4.00%	11.00%
4.1" (104 mm)	15.00%	4.00%	11.00%
4.2" (106.7 mm)	15.00%	4.00%	11.00%
4.3" (109 mm)	14.00%	3.00%	11.00%
4.4" (111.7 mm)	14.00%	3.00%	11.00%
4.5" (114 mm)	14.00%	3.00%	11.00%
4.6" (117 mm)	13.00%	3.00%	10.00%

* Pre-consumer Recycled Content (Post-Industrial) is defined as material diverted from the waste stream.

** Post-consumer Recycled Content is defined as waste material generated by household or by commercial, industrial, and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of materials from the distribution chain.

ENERGYGUARD™ HD TAPERED POLYISO INSULATION PHYSICAL CHARACTERISTICS AND SHIPPING INFORMATION

Physical Characteristics			Shipping Information (4' x 4') (1.21 m x 1.21 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
1/2" (12 mm)	2.5	3.75" (95.25 mm)	96	4,608	96	7.68	384 (35.67 sq. m)	737.28 (68.5 sq. m)

Physical Characteristics			Shipping Information (4' x 8') (1.21 m x 2.4 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
1/2" (12 mm)	2.5	3.75" (95.25 mm)	48	2,304	48	15.36	768 (71.35 sq. m)	737.28 (68.5 sq. m)

*Other sizes available upon request

ENERGYGUARD™ HD PLUS TAPERED POLYISO INSULATION PHYSICAL CHARACTERISTICS AND SHIPPING INFORMATION

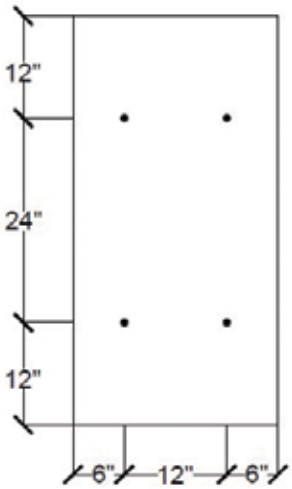
Physical Characteristics			Shipping Information (4' x 4') (1.21 m x 1.21 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
1/2" (12 mm)	2.5	4.75" (120.65 mm)	96	4,608	96	7.68	384 (35.67 sq. m)	737.28 (68.5 sq. m)

Physical Characteristics			Shipping Information (4' x 8') (1.21 m x 2.4 m)					
Size*	LTTR Value	Max Flute Span (in)	Bds/ Bundle	Bds/ Truck	Bundles/ Truck	Squares Per Bundle	Sq. Ft. Per Bundle	Sq. Ft. Per Truck
1/2" (12 mm)	2.5	4.75" (120.65 mm)	48	2,304	48	15.36	768 (71.35 sq. m)	737.28 (68.5 sq. m)

*Other sizes available upon request

INSULATION FASTENING PATTERNS 2' X 4' (610 mm X 1.2 M) BOARDS

4



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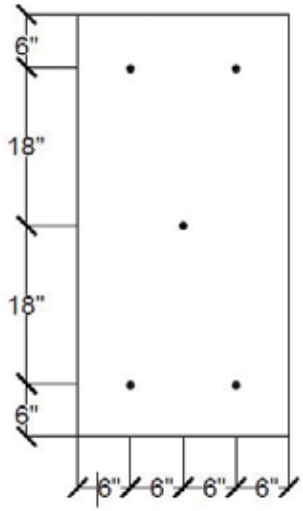

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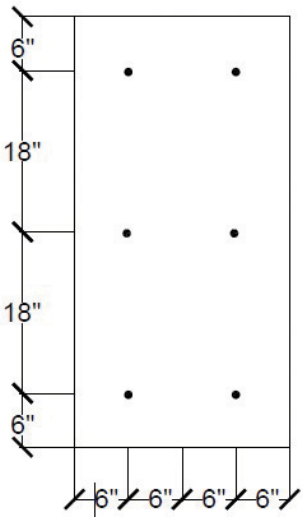

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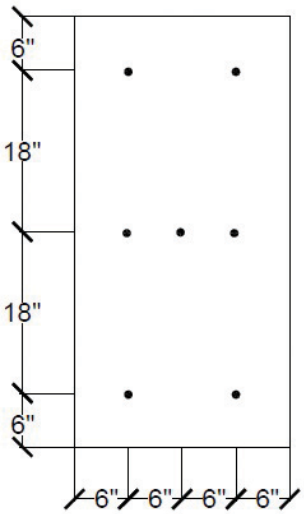

INSULATION FASTENING PATTERNS 2' X 4' (610 mm X 1.2 M) BOARDS (CONT.)

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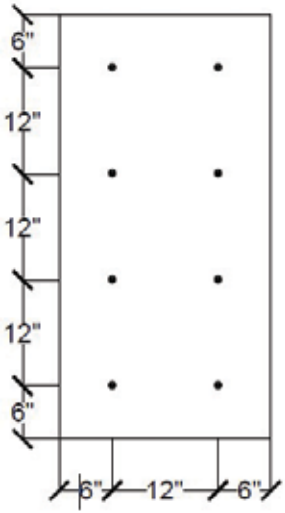

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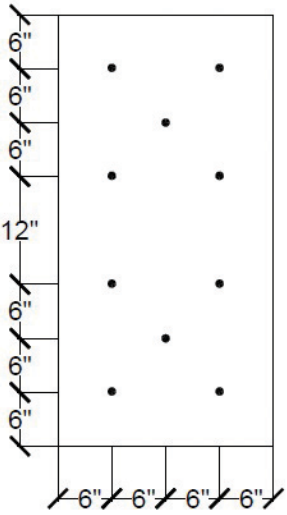

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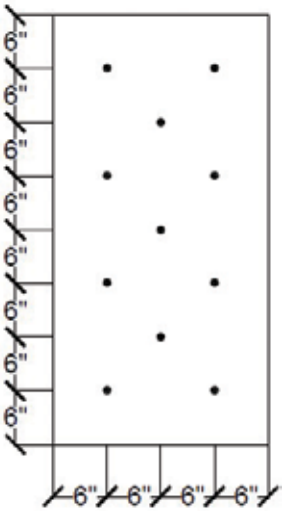

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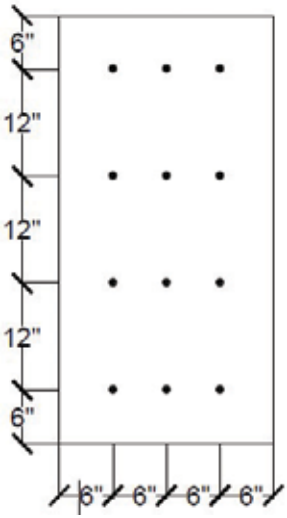

INSULATION FASTENING PATTERNS 2' X 4' (610 mm X 1.2 M) BOARDS (CONT.)

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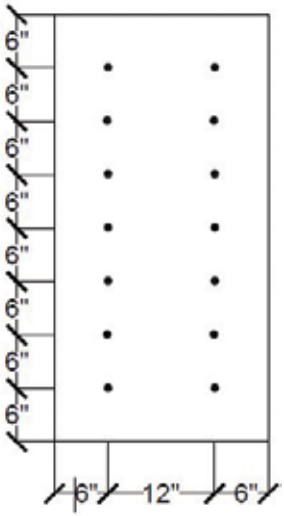

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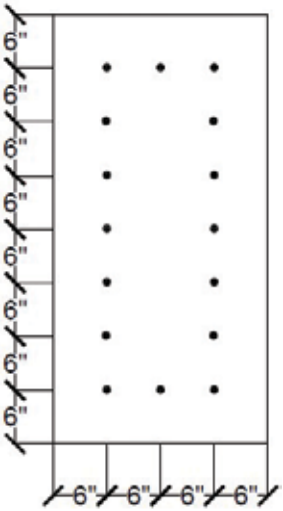

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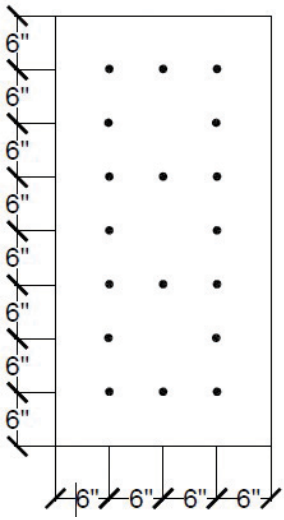

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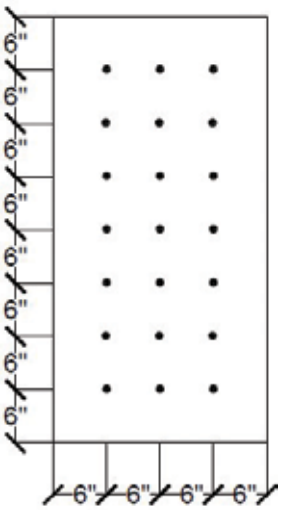

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS

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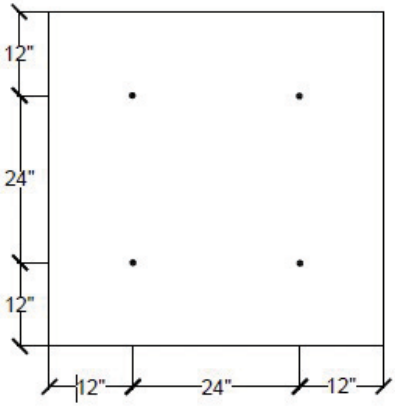

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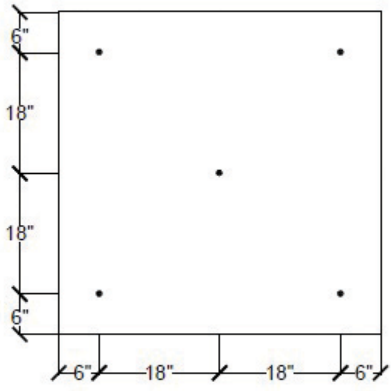

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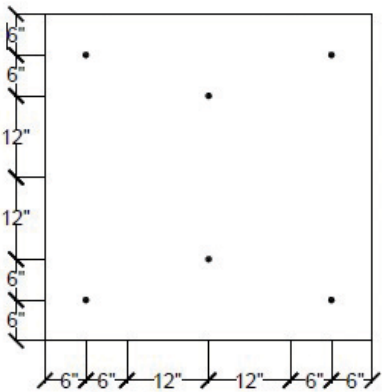

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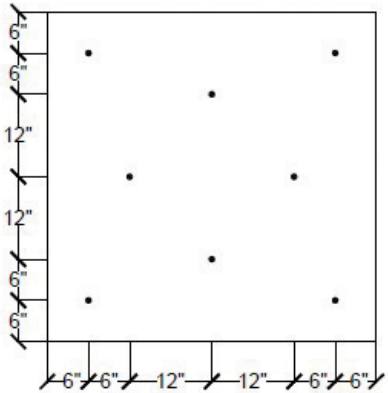

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS (CONT.)

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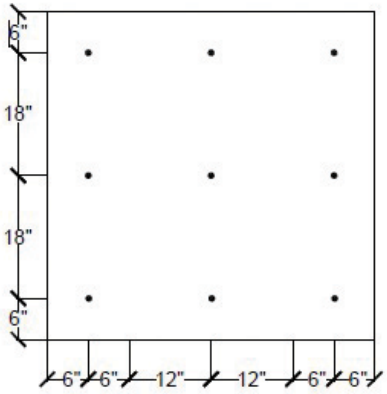

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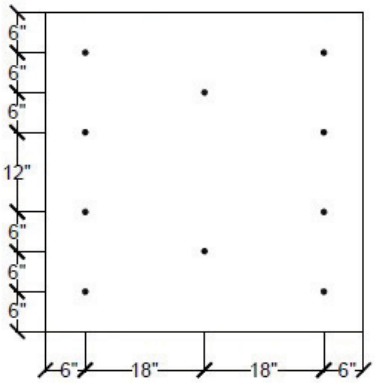

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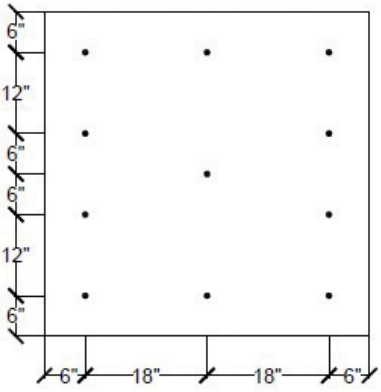

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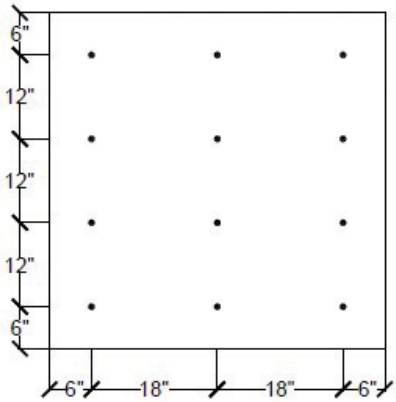

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS (CONT.)

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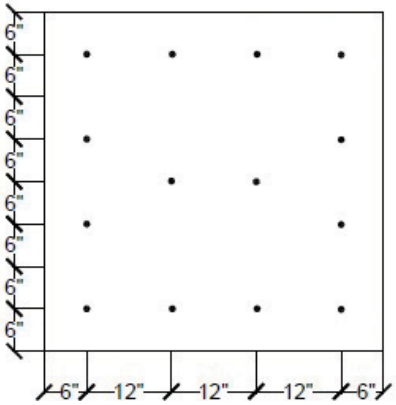

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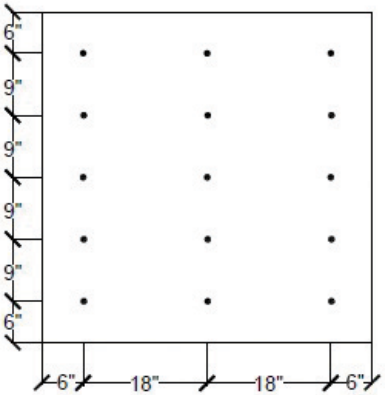

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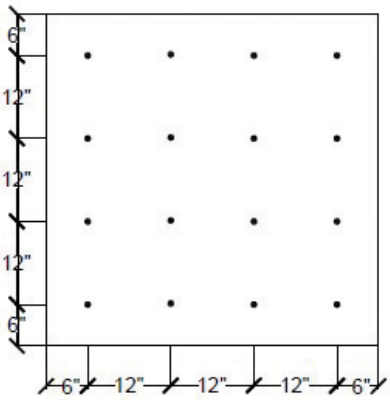

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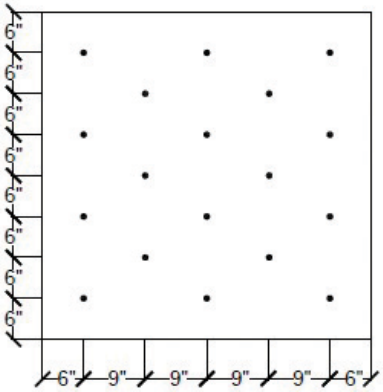

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS (CONT.)

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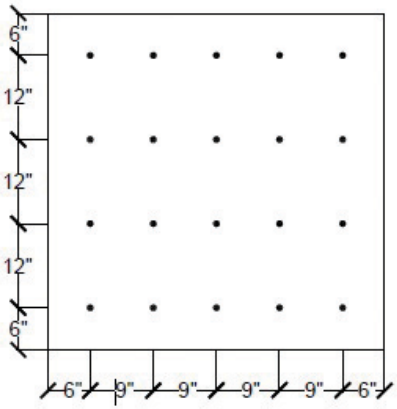

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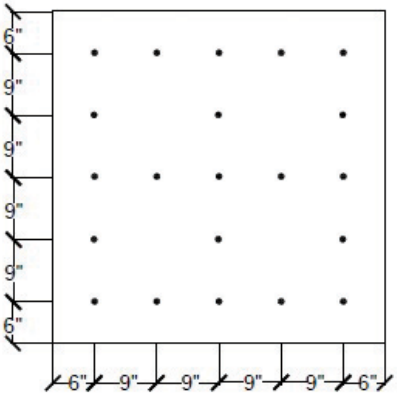

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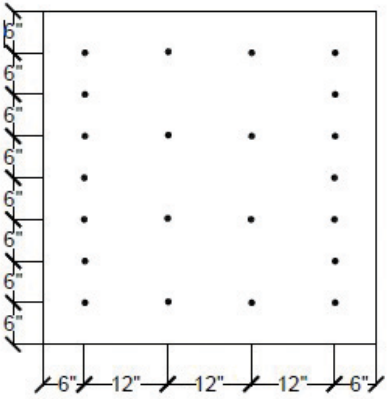

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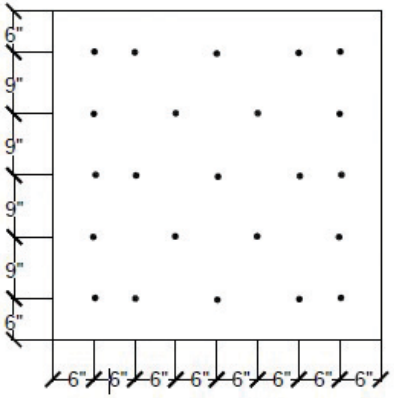

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS (CONT.)

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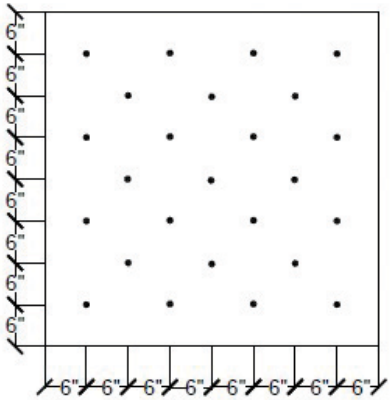

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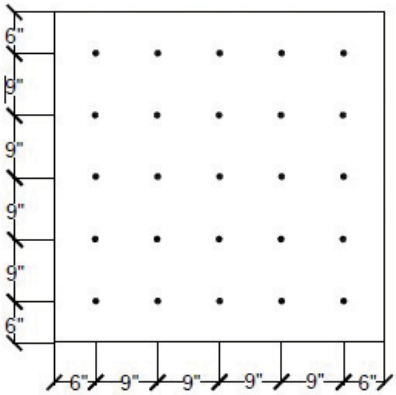

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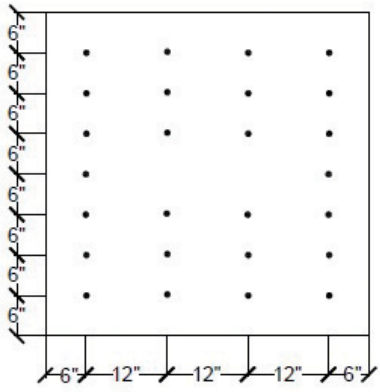

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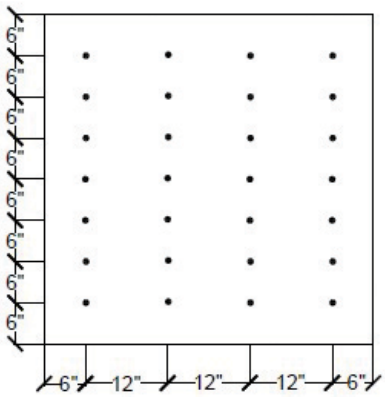

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS (CONT.)

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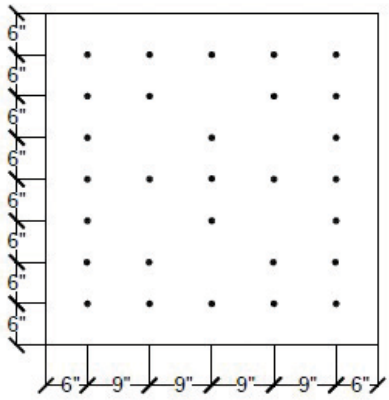

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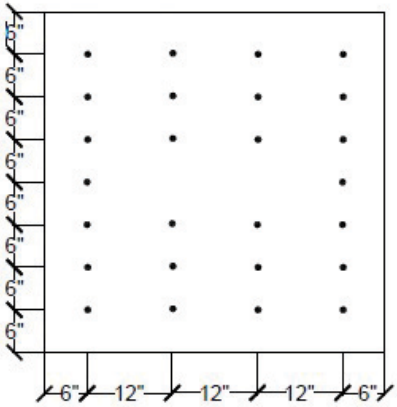

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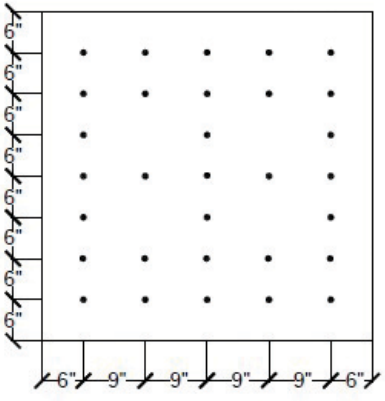

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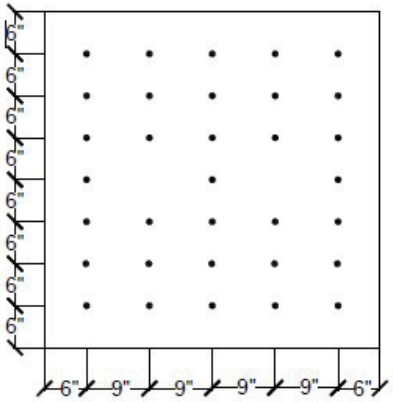

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS (CONT.)

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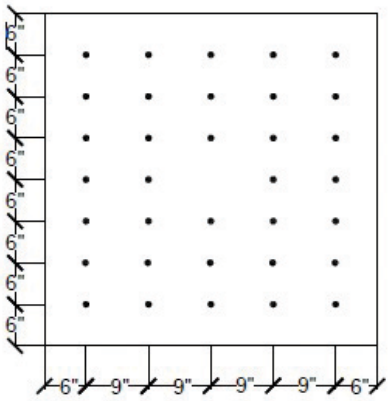

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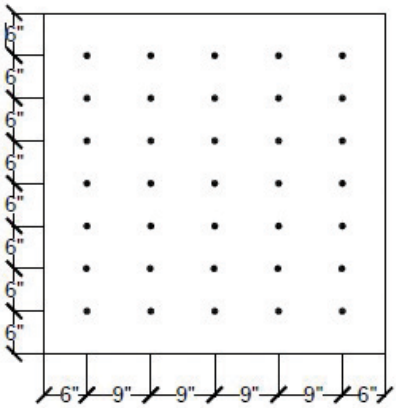

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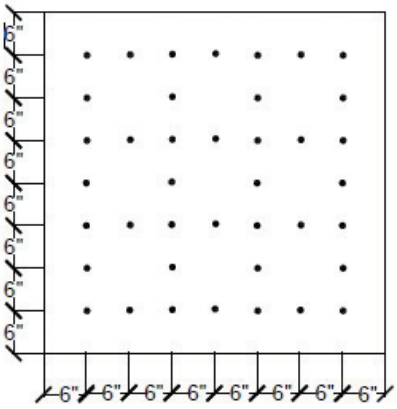

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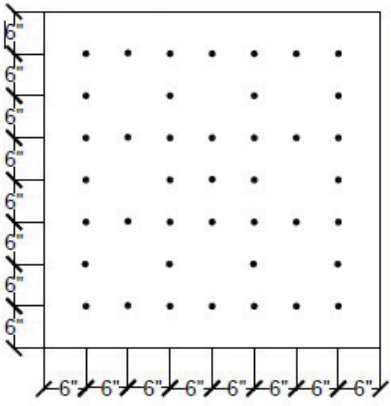

INSULATION FASTENING PATTERNS 4' X 4' (1.2 M X 1.2 M) BOARDS (CONT.)

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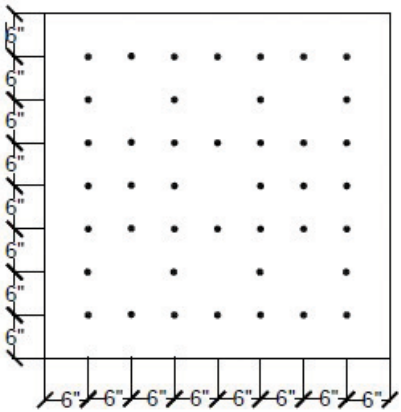

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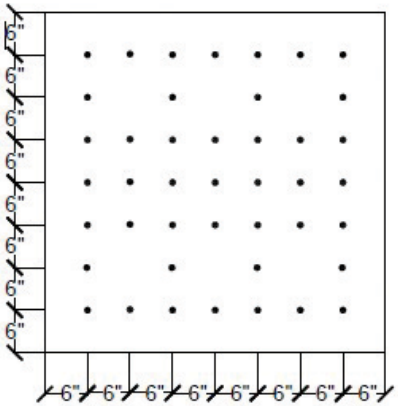

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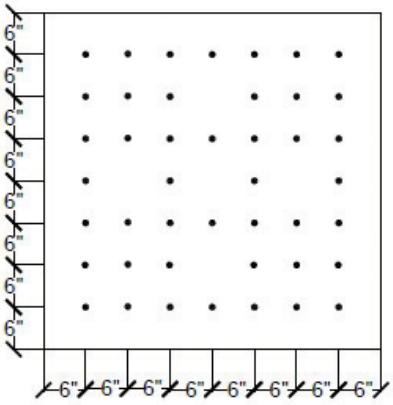

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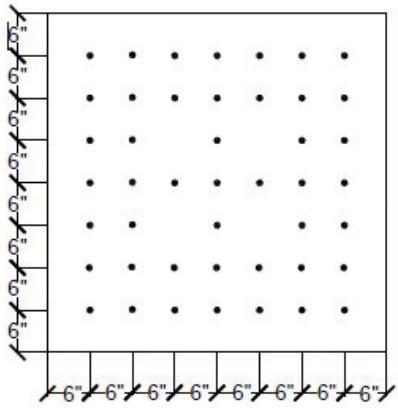

INSULATION FASTENING PATTERNS 4' X 8' (1.2 M X 2.4 M) BOARDS

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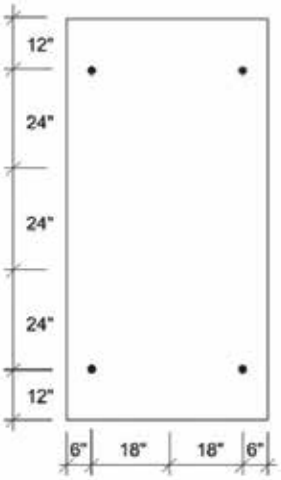

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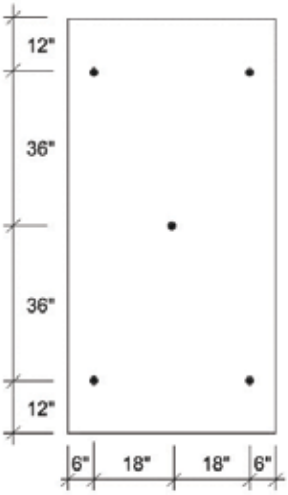

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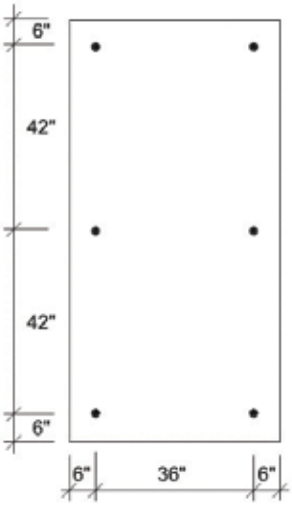

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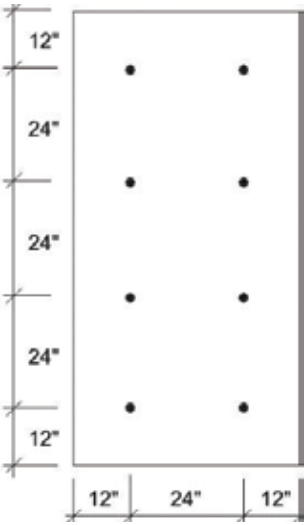

INSULATION FASTENING PATTERNS 4' X 8' (1.2 M X 2.4 M) BOARDS (CONT.)

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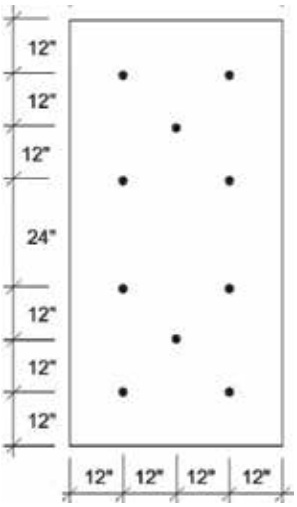

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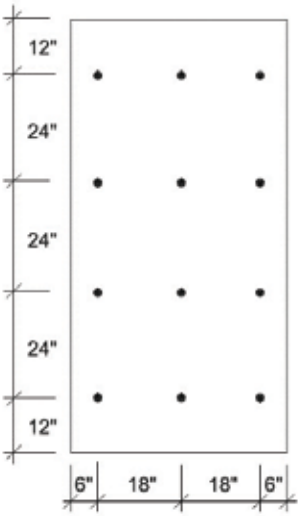

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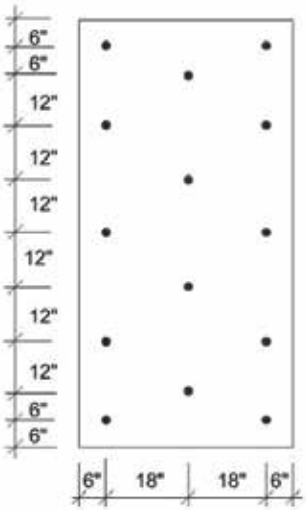

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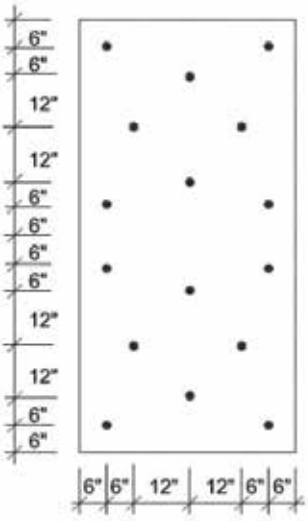

INSULATION FASTENING PATTERNS 4' X 8' (1.2 M X 2.4 M) BOARDS (CONT.)

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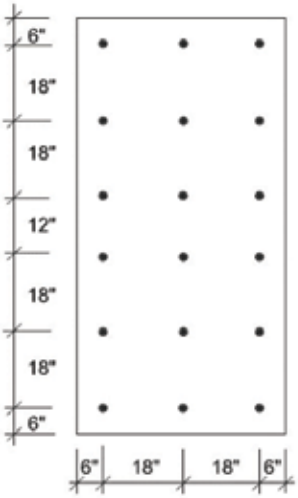

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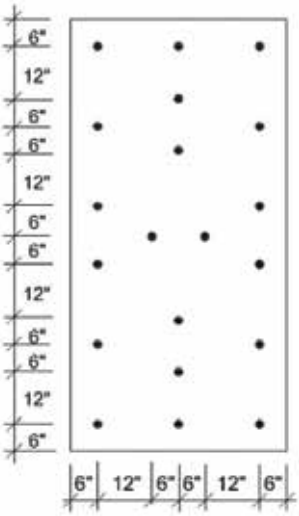

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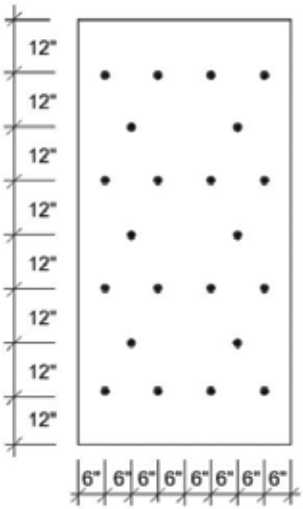

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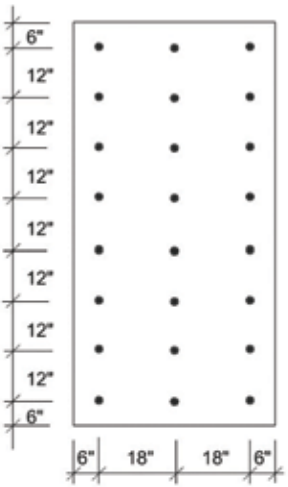

INSULATION FASTENING PATTERNS 4' X 8' (1.2 M X 2.4 M) BOARDS (CONT.)

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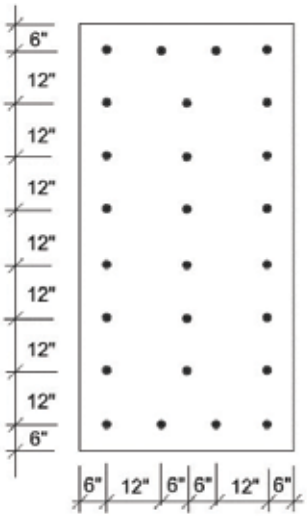

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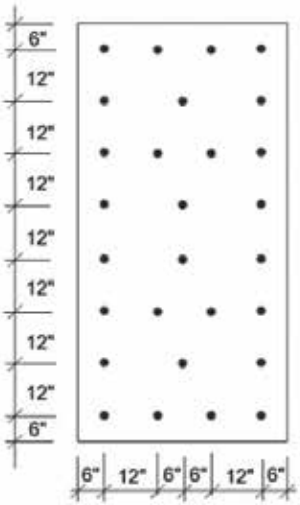

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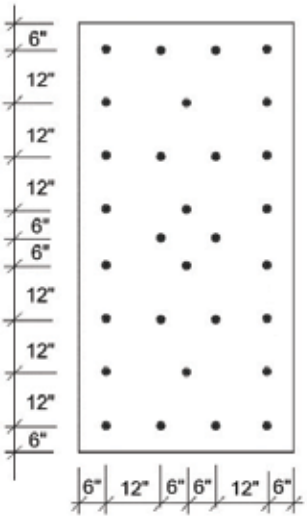

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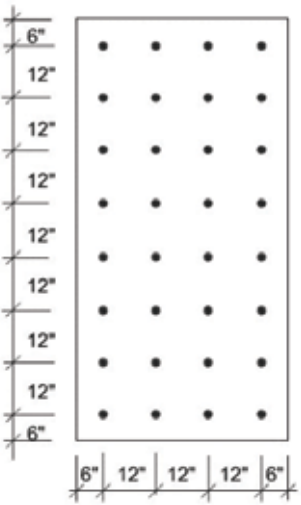

INSULATION FASTENING PATTERNS 4' X 8' (1.2 M X 2.4 M) BOARDS (CONT.)

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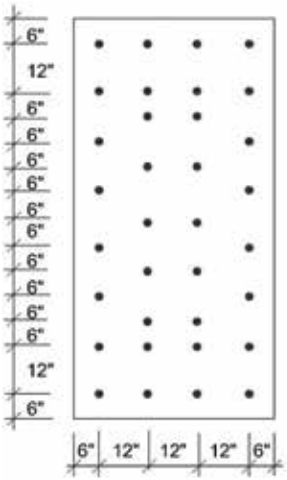

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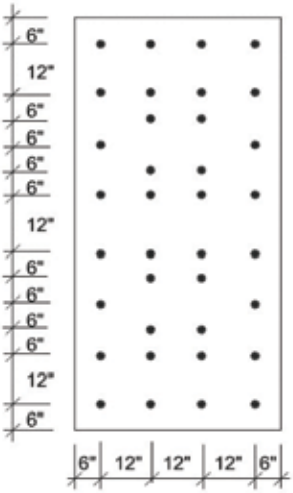

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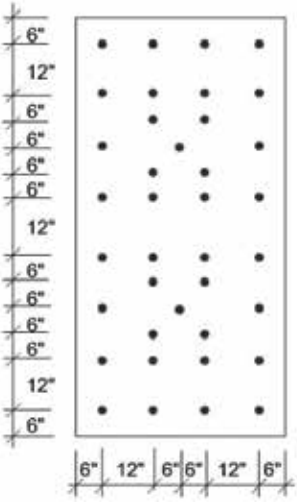

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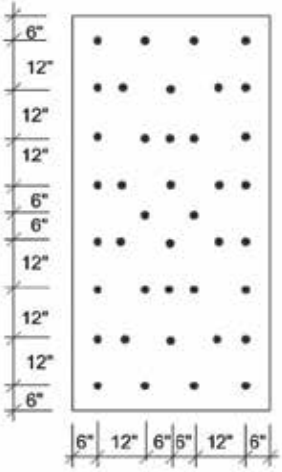

INSULATION FASTENING PATTERNS 4' X 8' (1.2 M X 2.4 M) BOARDS (CONT.)

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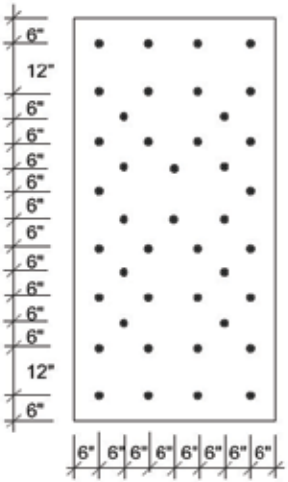

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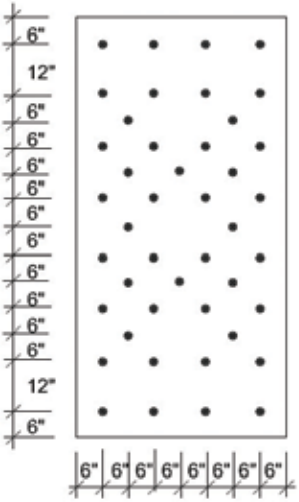

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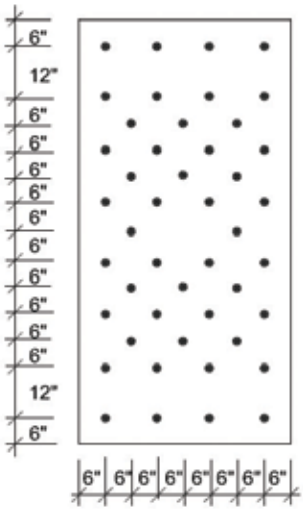

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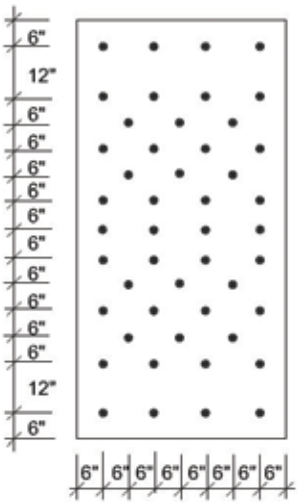


Section 3: Specification Tables & Guidelines

TPO SPECIFICATION TABLE - NEW CONSTRUCTION OR TEAR OFF - *MECHANICALLY ATTACHED SYSTEMS*

Deck	Insulation/Substrate Attachment		Insulation/Substrate								Membrane Type	
	Mech. Attached	Adhesive/ LRF[2]	ISO	Gypsum Board	Wood Fiber/ Perlite	EPS/XPS	Fanfold[1]	3/6 oz (85/170 g) Polymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Steel	Yes		Yes	Yes	Yes	Yes					Yes	
	Yes		Yes	Yes	Yes	Yes						Yes
Wood	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Structural Concrete & Gypsum	Yes		Yes	Yes	Yes	Yes	Yes	Yes			Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes
Lightweight Insulating Concrete	Yes		Yes			Yes	Yes	Yes			Yes	
	Yes		Yes			Yes	Yes			Yes		Yes
Cementitious Wood Fiber	Yes		Yes	Yes	Yes	Yes	Yes	Yes			Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes

[1] Fanfold to be used as an overlay board only.
[2] Low rise foam or hot asphalt for cricket and saddle attachment. If specification requires insulation to be adhered in a mechanically attached system, use foam adhesive designed for insulation attachment, or hot asphalt.

TPO SPECIFICATION TABLE - RE-COVER - *MECHANICALLY ATTACHED SYSTEMS*

Existing Roofing System Type	Insulation/Substrate Attachment		Insulation/Substrate								Membrane Type	
	Mech. Fast.	Adhesive/ LRF[4]	ISO	Gypsum Board	Wood Fiber/ Perlite[1]	EPS/XPS	Fanfold[3]	3/6 oz (85/170 g) Polymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Smooth BUR/MB	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes
Single-Ply Membrane	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes
Granule-Surfaced BUR/MB	Yes		Yes	Yes	Yes	Yes	Yes	Yes			Yes	
	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Gravel-Surfaced BUR/MB[5]	Yes		Yes	Yes	Yes	Yes	Yes				Yes	
	Yes		Yes	Yes	Yes	Yes	Yes					Yes
Standing Seam Metal[6]	Yes		Yes	Yes	Yes	Yes[2]					Yes	
	Yes		Yes	Yes	Yes	Yes[2]						Yes

[1] Roof moisture scan required for use of perlite/wood fiber in re-cover roofing systems.
[2] An approved cover board is required when XPS is used as flute fill material.
[3] Fanfold to be used as an overlay board only.
[4] Low rise foam or hot asphalt for cricket and saddle attachment. If specification requires insulation to be adhered in a mechanically attached system, use foam adhesive designed for insulation attachment, or hot asphalt.
[5] All loose gravel must be removed.
[6] When recovering over an existing standing seam roof, fasteners must be directly installed into structural purlins with appropriate fastener type. Fastening into the panel is not permitted.

PVC SPECIFICATION TABLE - NEW CONSTRUCTION OR TEAR OFF - *MECHANICALLY ATTACHED SYSTEMS*

Deck	Insulation/Substrate Attachment		Insulation/Substrate								Membrane Type	
	Mech Fast.	Adhesive/ LRF[3]	ISO	Gypsum Board	Wood Fiber/ Perlite	EPS/ XPS	Fanfold[2]	3/6 oz. (85/170 g) Polymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Steel	Yes		Yes	Yes	Yes	Yes[1]		Yes			Yes	
	Yes		Yes	Yes	Yes	Yes						Yes
Wood	Yes		Yes	Yes	Yes	Yes[1]	Yes[1]	Yes	Yes		Yes	
	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Structural Concrete & Gypsum	Yes		Yes	Yes	Yes	Yes[1]	Yes[1]	Yes			Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes
Lightweight Insulating Concrete	Yes		Yes			Yes[1]	Yes[1]	Yes			Yes	
	Yes		Yes			Yes	Yes			Yes		Yes
Cementitious Wood Fiber	Yes		Yes	Yes	Yes	Yes[1]	Yes[1]	Yes			Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes

[1] XPS/Fanfold in combination with a 3/6 oz. (85/170 g) polymat separator.
[2] Fanfold to be used as an overlay board only.
[3] Low rise foam or hot asphalt for cricket and saddle attachment. If specification requires insulation to be adhered in a mechanically attached system, use foam adhesive designed for insulation attachment, or hot asphalt.

PVC SPECIFICATION TABLE - RE-COVER - *MECHANICALLY ATTACHED SYSTEMS*

Existing Roofing System Type	Insulation/Substrate Attachment		Insulation/Substrate								Membrane Type	
	Mech Fast.	Adhesive/ LRF[5]	ISO	Gypsum Board	Wood Fiber/ Perlite[1]	EPS/ XPS	Fanfold[4]	3/6 oz. (85/170 g) Polymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Smooth BUR/MB	Yes		Yes	Yes	Yes	Yes[3]	Yes[3]	Yes	Yes		Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes
Single-Ply Membrane	Yes		Yes	Yes	Yes	Yes[3]	Yes[3]	Yes	Yes		Yes	
	Yes		Yes	Yes	Yes	Yes	Yes			Yes		Yes
Granule-Surfaced BUR/MB	Yes		Yes	Yes	Yes	Yes[3]	Yes[3]	Yes	Yes		Yes	
	Yes		Yes	Yes	Yes	Yes	Yes[3]			Yes		Yes
Gravel-Surfaced BUR/MB[6]	Yes		Yes	Yes	Yes	Yes[3]	Yes[3]				Yes	
	Yes		Yes	Yes	Yes	Yes	Yes					Yes
Standing Seam Metal[2]	Yes		Yes	Yes	Yes	Yes[3]		Yes[3]			Yes	
	Yes		Yes	Yes	Yes	Yes						Yes

[1] Roof moisture scan required for use of perlite/wood fiber in re-cover roofing systems.
[2] An approved cover board is required when XPS is used as flute fill material.
[3] XPS/Fanfold in combination with a 3/6 oz. (85/170 g) polymat separator.
[4] Fanfold to be used as an overlay board only.
[5] Low rise foam or hot asphalt for cricket and saddle attachment. If specification requires insulation to be adhered in a mechanically attached system, use foam adhesive designed for insulation attachment, or hot asphalt. A polymat must be used to cover any asphalt bleed out when a smooth PVC membrane is used.
[6] All loose gravel must be removed.

INSULATION ATTACHMENT TABLE - *MECHANICALLY ATTACHED SYSTEMS*

(Meets FM attachment requirements[1])

NUMBER OF FASTENERS					
Insulation Type	Board Size	Thickness	Fasteners/Board		
			Field	Perimeter	Corner
Polyiso	4'x4' (1.2 m x 1.2 m)	any	4	4	4
	4'x8' (1.2 m x 2.4 m)	1/2" - 1.2" (13 mm - 30 mm)	6	6	6
	4'x8' (1.2 m x 2.4 m)	≥1.3" (33 mm)	5	5	5
Perlite	4'x4' (1.2 m x 1.2 m)	any	4	4	4
Wood Fiber	4'x4' (1.2 m x 1.2 m)	any	4	4	4
	4'x8' (1.2 m x 2.4 m)	any	6	6	6
Extruded Polystyrene[3]	4'x4' (1.2 m x 1.2 m)	any	4	4	4
	4'x8' (1.2 m x 2.4 m)	1/2" - 1.2" (13 mm - 30 mm)	6	6	6
	4'x8' (1.2 m x 2.4 m)	≥1.3" (33 mm)	5	5	5
Expanded Polystyrene[3]	4'x4' (1.2 m x 1.2 m)	any	4	4	4
	4'x8' (1.2 m x 2.4 m)	1/2" - 1.2" (13 mm - 30 mm)	6	6	6
	4'x8' (1.2 m x 2.4 m)	≥1.3" (33 mm)	5	5	5
Fanfold – TPO or Fleece-back PVC only	Fanfold[2]	3/8" min (10 mm)	2-1-2-1-2	2-1-2-1-2	2-1-2-1-2
Gypsum Board[4]	4'x8' (1.2 m x 2.4 m)	1/4" – 5/8" (6 mm - 16 mm)	6	6	6

[1]Attachment requirements to meet determined uplift resistance are dependent on deck type, specific fastener, etc.
[2]Fanfold attachment spacing is for each 2' x 4' (610 mm x 1.2 m) section.
[3]Smooth PVC must have 3/6 oz. (85/170 gr) polymat separator sheet or fleece back.
[4]Includes approved DensDeck® and SECUROCK® Roof Board products.

INSULATION ATTACHMENT TABLE - *MECHANICALLY ATTACHED SYSTEMS* (CONT.)

(Meets FM attachment requirements[1])

TYPE OF INSULATION FASTENER			
Deck	**Fastener**	**Plate**	**Penetration (minimum)**
Steel (Min. 22 gauge)[5]	DRILL-TEC™ (#14) or Fastener (#12)	DRILL-TEC™ 3" (76 mm) Galvalume	3/4" (19 mm) through the deck
Wood – plank, OSB and plywood sheathing	DRILL-TEC™ (#14) or Fastener (#12)	DRILL-TEC™ 3" (76 mm) Galvalume	1" (25 mm) thread into/ through the deck
Structural Concrete	DRILL-TEC™ #14 Fastener or DRILL-TEC™ CD-10	DRILL-TEC™ 3" (76 mm) Galvalume	1" (25 mm) thread/shank into the deck
Insulating Concrete	DRILL-TEC™ (#14)	DRILL-TEC™ 3" (76 mm) Galvalume	3/4" (19 mm) thread through steel form
Gypsum Concrete	DRILL-TEC™ Polymer GYPTEC™Fastener	DRILL-TEC™ 3" (76 mm) GYPTEC™ Plate	1 1/2" (38 mm) thread into the deck
Cementitious Wood Fiber	DRILL-TEC™ Polymer GYPTEC™ Fastener	DRILL-TEC™ 3" (76 mm) GYPTEC™ Plate	1 1/2" (38 mm) thread into the deck

[1]Attachment requirements to meet determined uplift resistance are dependent on deck type, specific fastener, etc.
[2]Fanfold attachment spacing is for each 2' x 4' (610 mm x 1.2 m) section.
[3]Smooth PVC must have 3/6 oz. (85/170 gr) polymat separator sheet or fleece-back.
[4]Includes approved DensDeck® and Securock® Roof Board products.
[5]24-26 gauge decks require a GAF Field Services Manager's or Director's approval. GAF does not approve the use of metal panels as a roof deck.

PERIMETER HALF SHEET TABLE

Building Width	Building Height	Number of EverGuard® TPO 60" (1.5 m) Half Sheets	Number of EverGuard® PVC 60" (1.5 m) Half Sheets
<200' (61 m)	0-34' (0-10 m)	1	1
	35-100' (10-30 m)	2	2
	>100' (30 m)	Formula: Install half sheets throughout the perimeter and corner region. The width of this region is defined as the least of the following two measurements: 0.1 x building width or 0.4 x building height **Note:** The minimum width is 4' (1.2 m). The width is defined as the narrowest dimension.	
≥200 (61 m)	any height		

Note: FM attachment requires the Formula calculation.

TPO & PVC MEMBRANE ATTACHMENT TABLE - *MECHANICALLY ATTACHED SYSTEMS*

(10' [3.05 m] field sheets)

Deck Type	Typical Pull-out Values (lbs)	Fastener Type	Plate	Penetration	Standard Pattern	90 psf[1] Pattern
22 ga. standard (33 ksi)	450	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	450	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	3/4" (19 mm) through the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	450	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/4" (70 mm) double barbed SXHD	3/4" (19 mm) through the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	350	DRILL-TEC™ #14 Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the deck	6" (152 mm) o.c.	
	350	DRILL-TEC™ #14 Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	3/4" (19 mm) through the deck	6" (152 mm) o.c.	
22 ga. high strength (80 ksi)	750	DRILL-TEC™ SXHD (#21)	DRILL-TEC™ 2 3/4" (70 mm) double barbed SXHD	3/4" (19 mm) through the deck	12" (305 mm) o.c.	12" (305 mm) o.c.
	450	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/4" (70 mm) double barbed SXHD	3/4" (19 mm) through the deck	12" (305 mm) o.c.	12" (305 mm) o.c.
	450	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/4" (70 mm) double barbed SXHD	3/4" (19 mm) through the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
24 ga. standard[2]	350	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the deck	6" (152 mm) o.c.	
	350	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	3/4" (19 mm) through the deck	6" (152 mm) o.c.	
	350	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/4" (70 mm) double barbed SXHD	3/4" (19 mm) through the deck	6" (152 mm) o.c.	
	350	DRILL-TEC™ #14 Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the deck	6" (152 mm) o.c.	
	350	DRILL-TEC™ #14 Fastener	DRILL-TEC™ 2" (51 mm) double barbed	3/4" (19 mm) through the deck	6" (152 mm) o.c.	

[1]90 psf is attachment pattern to provide 90 lbf/ft^2 (5.3 kPa) of uplift pressure resistance and may equate to FM I-90. Refer to current FM Approval Guide.
[2]24-26 gauge decks require a GAF Field Services Manager's or Director's approval. GAF does not approve the use of metal panels as a roof deck.

Note: For designing at elevated uplift pressures, please consult the current FM Approval Guide/ROOFNAV.

(continued next page)

TPO & PVC MEMBRANE ATTACHMENT TABLE - *MECHANICALLY ATTACHED SYSTEMS* (CONT.)

(10' [3.05 m] field sheets)

Deck Type	Typical Pull-out Values (lbs)	Fastener Type	Plate	Penetration	Standard Pattern	90 psf[1] Pattern
2" (51mm) Nominal Wood Plank	800	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	1" (25 mm) into the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	800	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	1" (25 mm) into the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
1" (25mm) Nominal Wood Plank	450	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	1" (25 mm) through the deck	9" (229 mm) o.c.	
	450	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	1" (25 mm) through the deck	9" (229 mm) o.c.	
3/4" (19mm) Nominal Plywood	525	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	2DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	1" (25 mm) through the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	525	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	1" (25 mm) through the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
15/32" (12mm) Plywood or OSB	350	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	1" (25 mm) through the deck	6" (152 mm) o.c.	
	350	DRILL-TEC™ #14 Fastener or DRILL-TEC™ (#15) XHD Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	1" (25 mm) through the deck	6" (152 mm) o.c.	
Structural Concrete	700	DRILL-TEC™ #14 Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	1" (25 mm) into the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	700	DRILL-TEC™ #14 Fastener	DRILL-TEC™ Eye Hook® AccuSeam® Plate	1" (25 mm) into the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	900	DRILL-TEC™ CD-10	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	1" (25 mm) into the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	900	DRILL-TEC™ CD-10	DRILL-TEC™ Eye Hook® AccuSeam® Plate	1" (25 mm) into the deck	12" (305 mm) o.c.	6" (152 mm) o.c.
	900	DRILL-TEC™ CD-10	DRILL-TEC™ 2 3/4" (70 mm) double barbed SXHD	1" (25 mm) into the deck	12" (305 mm) o.c.	12" (305 mm) o.c.

[1]90 psf is attachment pattern to provide 90 lbf/ft^2 (5.3 kPa) of uplift pressure resistance and may equate to FM I-90. Refer to current FM Approval Guide.

Note: For designing at elevated uplift pressures, please consult the current FM Approval Guide/ROOFNAV.

TPO & PVC MEMBRANE ATTACHMENT TABLE - *MECHANICALLY ATTACHED SYSTEMS* (CONT.)

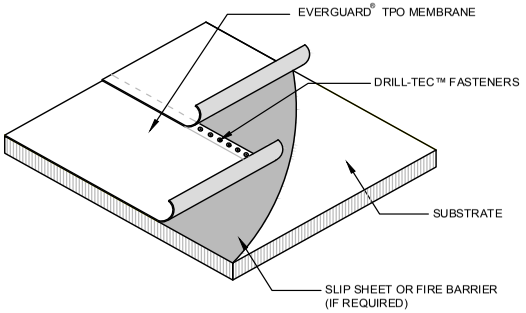
(10' [3.05 m] field sheets)

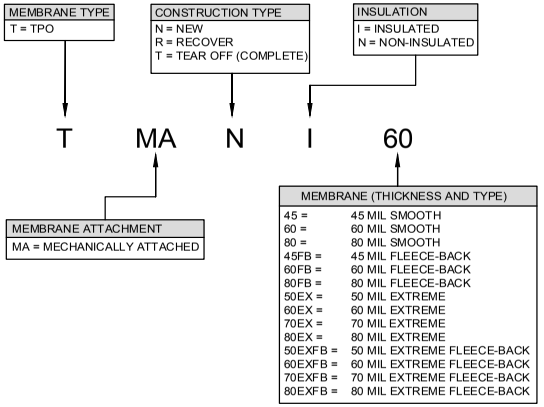
Deck Type	Typical Pull-out Values (lbs)	Fastener Type	Plate	Penetration	Standard Pattern	90 psf[1] Pattern
Lightweight Insulating Concrete, 22 ga. standard form	450	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the form	12" (305 mm) o.c.	6" (152 mm) o.c.
	450	DRILL-TEC™ XHD (#15) Fastener	Drill-Tec™ Eye Hook® AccuSeam® Plate	3/4" (19 mm) through the form	12" (305 mm) o.c.	6" (152 mm) o.c.
	350	DRILL-TEC™ #14 Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the form	6" (152 mm) o.c.	
	350	DRILL-TEC™ #14 Fastener	Drill-Tec™ Eye Hook® AccuSeam® Plate	3/4" (19 mm) through the form	6" (152 mm) o.c.	
Lightweight Insulating Concrete, 24 ga. standard form	350	DRILL-TEC™ XHD (#15) Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the form	6" (152 mm) o.c.	
	350	DRILL-TEC™ XHD (#15) Fastener	Drill-Tec™ Eye Hook® AccuSeam® Plate	3/4" (19 mm) through the form	6" (152 mm) o.c.	
	350	DRILL-TEC™ #14 Fastener	DRILL-TEC™ 2 3/8" (61 mm) barbed XHD	3/4" (19 mm) through the form	6" (152 mm) o.c.	
	350	DRILL-TEC™ #14 Fastener	Drill-Tec™ Eye Hook® AccuSeam® Plate	3/4" (19 mm) through the form	6" (152 mm) o.c.	
Gypsum Concrete	400	DRILL-TEC™ Polymer GYPTEC™ Fastener	DRILL-TEC™ GYPTEC™ 2" (51 mm) barbed	1 1/2" (38 mm) into the deck	9" (229 mm) o.c.	6" (152 mm) o.c.
Cementitious Wood Fiber	300	DRILL-TEC™ Polymer GYPTEC™ Fastener	Drill-Tec™ Eye Hook® AccuSeam® Plate	1 1/2" (38 mm) into the deck	6" (152 mm) o.c.	

[1]90 psf is attachment pattern to provide 90 lbf/ft^2 (5.3 kPa) of uplift pressure resistance and may equate to FM I-90. Refer to current FM Approval Guide.

Note: For designing at elevated uplift pressures, please consult the current FM Approval Guide/ROOFNAV.

INSULATED & NON-INSULATED TPO MECHANICALLY ATTACHED SYSTEMS SPECIFICATION PLATE



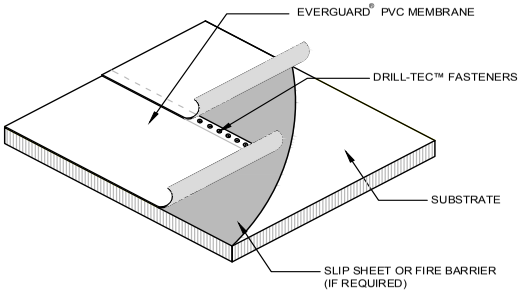


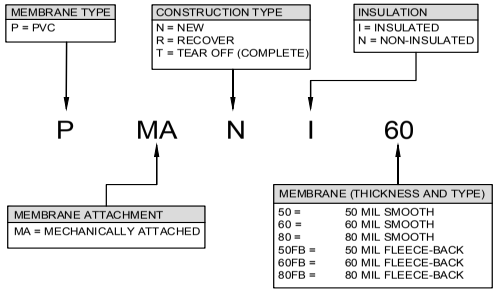
MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)			
				15	20	25[2]	30[2]
T	MA	N R[1] T	I N	45 45FB	60 60FB 50EX 50EXFB	80 80FB 60EX 60EXFB	70EX 70EXFB 80EX 80EXFB
				MINIMUM MEMBRANE REQUIREMENTS			

1. For a non-insulated recover with smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield ®Solo ™ Fire-Resistant Slip Sheet.
2. New & Tear-off only. Refer to the Guarantee Requirements Table for additional requirements on extended-length guarantees.

EXCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC MECHANICALLY ATTACHED SYSTEMS SPECIFICATION PLATE



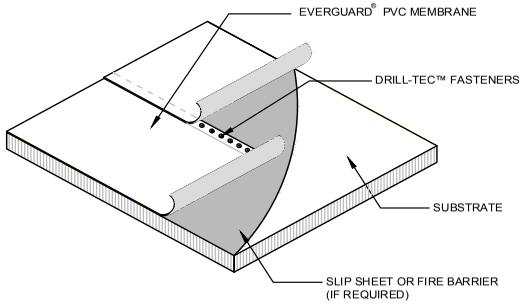


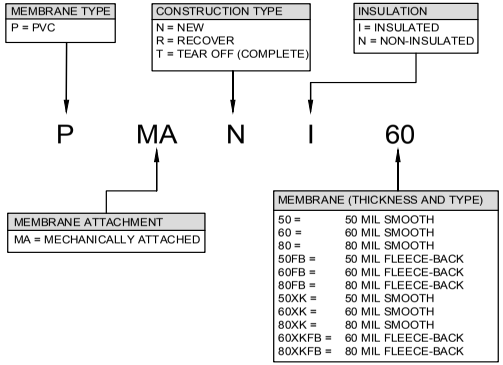
MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				15	20	25[2]
P	MA	N R[1] T	I N	50 50FB	60 60FB	80 80FB
				MINIMUM MEMBRANE REQUIREMENTS		

1. For a non-insulated recover with smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield® Solo™ Fire-Resistant Slip Sheet.
2. New & Tear-off only. Refer to the Guarantee Requirements Table for additional requirements on extended-length guarantees.

INCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC MECHANICALLY ATTACHED SYSTEMS SPECIFICATION PLATE





MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				12	15	20
P	MA	N R[1] T	I N	50 50FB 50XK	60 60FB 60XK 60XKFB	80 80FB 80XK 80XKFB
				MINIMUM MEMBRANE REQUIREMENTS		

1. For a non-insulated re-cover with smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield® Solo™ Fire-Resistant Slip Sheet.

TPO SPECIFICATION TABLE - NEW CONSTRUCTION OR TEAR-OFF - *ADHERED SYSTEMS*

Deck	Insulation/Substrate Attachment			Insulation/Substrate					Membrane Attachment		Membrane Type	
	Mech. Attached	Adhesive[7]	Hot Asphalt[1]	ISO	Gypsum Board	Wood Fiber/ Perlite	EPS[2]/ XPS[2]	None	Adhered		Smooth	Fleece (FB)
									Adhesive[6]	Hot Asphalt		
Steel	Yes			Yes	Yes	Yes[4]	Yes		Yes		Yes	
	Yes			Yes	Yes	Yes[4]	Yes					Yes[5]
	Yes			Yes	Yes	Yes	Yes			Yes		Yes
Wood	Yes	Yes	Yes[3]	Yes	Yes	Yes[4]	Yes	Yes	Yes		Yes	
	Yes	Yes	Yes[3]	Yes	Yes	Yes[4]	Yes	Yes				Yes[5]
	Yes	Yes	Yes[3]	Yes	Yes	Yes		Yes[3]		Yes		Yes
Structural Concrete & Gypsum	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes		Yes		Yes	
	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes	Yes				Yes[5]
	Yes	Yes	Yes	Yes	Yes	Yes[4]		Yes		Yes		Yes
Lightweight Insulating Concrete	Yes	Yes[8]	Yes[3]	Yes	Yes	Yes[4]	Yes		Yes		Yes	
	Yes	Yes[8]	Yes[3]	Yes	Yes	Yes[4]	Yes	Yes[5]				Yes[5]
	Yes	Yes[8]	Yes[3]	Yes	Yes	Yes[4]	Yes	Yes[3]		Yes		Yes
Cementitious Wood Fiber	Yes	Yes	Yes[3]	Yes	Yes	Yes[4]	Yes		Yes		Yes	
	Yes	Yes	Yes[3]	Yes	Yes	Yes[4]	Yes	Yes				Yes[5]
	Yes	Yes	Yes[3]	Yes	Yes	Yes	Yes	Yes[3]		Yes		Yes

[1] No hot attachment of XPS or EPS.
[2] Cover board required. Cover board cannot be attached with hot asphalt.
[3] Insulation/membrane can be installed in hot asphalt only when mopping to mechanically attached base sheet.
[4] Wood fiber only with bonding adhesives.
[5] Attachment of membrane must be with water-based adhesive.
[6] Includes Olybond500® Canister, LRF Adhesive O, LRF Adhesive M, LRF Adhesive M Low Temp, and GAF 2-Part Roofing Adhesive.
[7] Includes Olybond500® Canister, LRF Adhesive M, and GAF 2-Part Roofing Adhesive
[8] Moisture content must be less than 15%, otherwise a base sheet is required.

TPO SPECIFICATION TABLE - RE-COVER - *ADHERED SYSTEMS*

Existing Roofing System Type	Insulation/Substrate Attachment			Insulation/Substrate					Membrane Attachment		Membrane Type	
	Mech Fast.	Adhesive[7]	Hot Asphalt[1]	ISO	Gypsum Board	Wood fiber[3]/ Perlite[3]	EPS[2]/XPS[2]	None	Adhered		Smooth	Fleece (FB)
									Adhesive[6]	Hot Asphalt		
Smooth BUR/MB	Yes	Yes	Yes	Yes	Yes	Yes[5]	Yes		Yes		Yes	
	Yes	Yes	Yes	Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes
Single Ply Membrane	Yes			Yes	Yes	Yes[5]	Yes		Yes		Yes	
	Yes			Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes			Yes	Yes	Yes	Yes			Yes		Yes
Granule Surfaced BUR/MB	Yes	Yes	Yes[8]	Yes	Yes	Yes[5]	Yes		Yes		Yes	
	Yes	Yes	Yes[8]	Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes	Yes	Yes[8]	Yes	Yes	Yes	Yes	Yes		Yes		Yes
Gravel Surfaced BUR/MB	Yes	Yes		Yes	Yes	Yes[5]	Yes[9]		Yes		Yes	
	Yes	Yes		Yes	Yes	Yes[5]	Yes[9]					Yes[6]
	Yes	Yes		Yes	Yes	Yes	Yes			Yes		Yes
Standing Seam Metal[4]	Yes			Yes	Yes	Yes[5]	Yes		Yes		Yes	
	Yes			Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes			Yes	Yes	Yes	Yes			Yes		Yes

[1] No hot attachment of XPS or EPS.
[2] Cover board required.
[3] Roof moisture scan required for use of perlite/wood fiber in re-cover roof systems.
[4] XPS is the only material allowed as flute fill with cover board required.
[5] Wood fiber only with bonding adhesives.
[6] Includes Olybond500® Canister, LRF Adhesive O, LRF Adhesive M, LRF Adhesive M Low Temp, and GAF 2-Part Roofing Adhesive.
[7] Includes Olybond500® Canister, LRF Adhesive M, and GAF 2-Part Roofing Adhesive
[8] Prime with MATRIX™ 307 Premium Asphalt Primer.
[9] Fanfold is not acceptable.

PVC SPECIFICATION TABLE - NEW CONSTRUCTION OR TEAR-OFF - *ADHERED SYSTEMS*

Deck	Insulation/Substrate Attachment			Insulation/Substrate					Membrane Attachment		Membrane Type	
	Mech. Attached	Adhesive[7]	Hot Asphalt[1]	ISO	Gypsum Board	Wood Fiber/ Perlite	EPS[2]/ XPS[2]	None	Adhered		Smooth	Fleece (FB)
									Adhesive[6]	Hot Asphalt		
Steel	Yes	Yes		Yes	Yes	Yes[5]			Yes		Yes	
	Yes	Yes		Yes	Yes	Yes[5]	Yes					Yes[4]
	Yes	Yes		Yes	Yes	Yes	Yes			Yes		Yes
Wood	Yes	Yes	Yes[3]	Yes	Yes	Yes[5]		Yes	Yes		Yes	
	Yes	Yes	Yes[3]	Yes	Yes	Yes[5]	Yes	Yes				Yes[4]
	Yes	Yes	Yes[3]	Yes	Yes	Yes		Yes[3]		Yes		Yes
Structural Concrete & Gypsum	Yes	Yes	Yes	Yes	Yes	Yes[5]			Yes		Yes	
	Yes	Yes	Yes	Yes	Yes	Yes[5]	Yes	Yes				Yes[4]
	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes		Yes
Lightweight Insulating Concrete	Yes	Yes[8]	Yes[3]	Yes	Yes	Yes[5]			Yes		Yes	
	Yes	Yes[8]	Yes[3]	Yes	Yes	Yes[5]	Yes	Yes[4]				Yes[4]
	Yes	Yes[8]	Yes[3]	Yes	Yes	Yes	Yes	Yes[3]		Yes		Yes
Cementitious Wood Fiber	Yes	Yes	Yes[3]	Yes	Yes	Yes[5]			Yes		Yes	
	Yes	Yes	Yes[3]	Yes	Yes	Yes[5]	Yes	Yes				Yes[4]
	Yes	Yes	Yes[3]	Yes	Yes	Yes	Yes	Yes[3]		Yes		Yes

[1] No hot attachment of XPS or EPS.
[2] Cover board required.
[3] Insulation/membrane can be installed in hot asphalt only when mopping to mechanically attached base sheet.
[4] Membrane attachment must be with water-based adhesive.
[5] Wood fiber insulation only.
[6] Includes Olybond500® Canister, LRF Adhesive O, LRF Adhesive M, LRF Adhesive M Low Temp, and GAF 2-Part Roofing Adhesive.
[7] Includes Olybond500® Canister, LRF Adhesive M, and GAF 2-Part Roofing Adhesive
[8] Moisture content must be less than 15%, otherwise a base sheet is required.

PVC SPECIFICATION TABLE - RE-COVER - *ADHERED SYSTEMS*

Deck Type	Insulation/Substrate Attachment			Insulation/ Substrate					Membrane Attachment		Membrane Type	
	Mech Fast.	Adhesive[8]	Hot Asphalt[1]	ISO	Gypsum Board[4]	Wood Fiber[4]/ Perlite[4]	EPS[2]/ XPS[2]	None	Adhered		Smooth	Fleece (FB)
									Adhesive[7]	Hot Asphalt		
Smooth BUR/MB	Yes	Yes	Yes	Yes	Yes	Yes[5]			Yes		Yes	
	Yes	Yes	Yes	Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes
Single-Ply Membrane	Yes			Yes	Yes	Yes[5]			Yes		Yes	
	Yes			Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes			Yes	Yes	Yes	Yes			Yes		Yes
Granule Surfaced BUR/MB	Yes	Yes	Yes[9]	Yes	Yes	Yes[5]			Yes		Yes	
	Yes	Yes	Yes[9]	Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes	Yes	Yes[9]	Yes	Yes	Yes	Yes	Yes		Yes		Yes
Gravel Surfaced BUR/MB	Yes	Yes		Yes	Yes	Yes[5]			Yes		Yes	
	Yes	Yes		Yes	Yes	Yes[5]	Yes[10]					Yes[6]
	Yes	Yes		Yes	Yes	Yes	Yes[10]			Yes		Yes
Standing Seam Metal[3]	Yes			Yes	Yes	Yes[5]			Yes		Yes	
	Yes			Yes	Yes	Yes[5]	Yes					Yes[6]
	Yes			Yes	Yes	Yes	Yes			Yes		Yes

[1] No hot attachment of XPS or EPS.
[2] Cover board required.
[3] XPS only as flute fill material with overlay board.
[4] Roof moisture scan required for use of perlite/wood fiber in re-cover roofing systems.
[5] Wood fiber insulation only.
[6] Attachment of membrane must be with water-based adhesive.
[7] Includes Olybond500® Canister, LRF Adhesive O, LRF Adhesive M, LRF Adhesive M Low Temp, and GAF 2-Part Roofing Adhesive.
[8] Includes Olybond500® Canister, LRF Adhesive M, and GAF 2-Part Roofing Adhesive
[9] Prime with MATRIX™ 307 Premium Asphalt Primer.
[10] Fanfold is not acceptable.

INSULATION ATTACHMENT TABLE - *ADHERED SYSTEMS*

NUMBER OF FASTENERS								
Insulation Type	Board Size	Thickness	Standard Attachment Fasteners/Board			Attachment Fasteners/Board for 90 psf Uplift Resistance		
			Field	Perimeter	Corner	Field	Perimeter	Corner
Polyiso	4'x4' (1.2 m x 1.2 m)	1" - 1.4" (25 mm x 35.5 mm)	8	12	16			
	4'x4' (1.2 m x 1.2 m)	1.5" - 1.9" (38 mm x 48 mm)	6	8	12	8	12	16
	4'x4' (1.2 m x 1.2 m)	2" (52 mm) minimum	4	6	8	4	6	8
	4'x8' (1.2 m x 2.4 m)	.5" - 1.4" (13 mm x 36 mm)	16	24	32			
	4'x8' (1.2 m x 2.4 m)	1" - 1.4" (25 mm x 35.5 mm)	16	24	32			
	4'x8' (1.2 m x 2.4 m)	1.5" - 1.9" (38 mm x 48 mm)	11	16	22	16	24	32
	4'x8' (1.2 m x 2.4 m)	2" (52 mm) minimum	8	12	16	8	12	16
EPS/XPS[1]	4'x4' (1.2 m x 1.2 m)	1" - 1.4" (25 mm x 35.5 mm)	8	12	16			
	4'x4' (1.2 m x 1.2 m)	1.5" – 1.9" (38 mm x 48 mm)	6	8	12			
	4'x4' (1.2 m x 1.2 m)	2" (52 mm) minimum	4	6	8			
	4'x8' (1.2 m x 2.4 m)	1" - 1.4" (25 mm x 35.5 mm)	16	24	32			
	4'x8' (1.2 m x 2.4 m)	1.5" - 1.9" (38 mm x 48 mm)	11	16	22			
	4'x8' (1.2 m x 2.4 m)	2" (52 mm) minimum	8	12	16			
Gypsum Board	4'x8' (1.2 m x 2.4 m)	1/4" - 5/8" (6 mm x 16 mm)	16	24	32			
	4'x8' (1.2 m x 2.4 m)	1/2" (12 mm) minimum	16	24	32	21	32	42
Wood Fiber	4'x4' (1.2 m x 1.2 m)	1/2" (12 mm) minimum	6	8	12			
	4'x4' (1.2 m x 1.2 m)	1" (25 mm) minimum	4	6	8			
	4'x8' (1.2 m x 2.4 m)	1/2" (12 mm) minimum	16	24	32			

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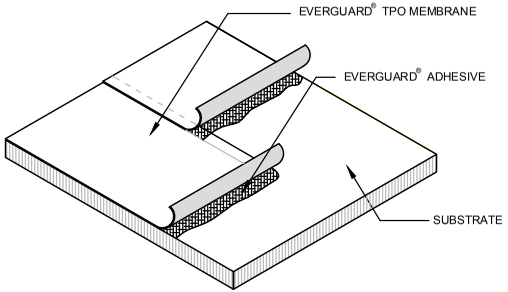
INSULATION ATTACHMENT TABLE - *ADHERED SYSTEMS* (CONT.)

TYPE OF INSULATION FASTENER			
Deck	**Fastener**	**Plate**	**Penetration (minimum)**
Steel (Min. 22 gauge)[2]	DRILL-TEC™ (#14) or Standard (#12)	3" (76 mm) Galvalume	3/4" (19 mm) through the deck
Wood – plank, OSB and plywood sheathing	DRILL-TEC™ (#14) or Standard (#12)	3" (76 mm) Galvalume	1" (25mm) thread into/through the deck
Structural Concrete	DRILL-TEC™ (#14) or DRILL-TEC CD-10	3" (76 mm) Galvalume	1" (25 mm) thread/shank into the deck
Insulating Concrete	DRILL-TEC™ (#14)	3" (76 mm) Galvalume	3/4" (19 mm) thread through steel form
Gypsum Concrete	DRILL-TEC™ Polymer GYPTEC™Fastener	3" (76 mm) Galvalume	1 1/2" (38 mm) thread into the deck
Cementitious Wood Fiber	DRILL-TEC™ Polymer GYPTEC™Fastener	3" (76 mm) Galvalume	1 1/2" (38 mm) thread into the deck

[1] Requires a coverboard.
[2]24-26 gauge decks require a GAF Field Services Manager's or Director's approval. GAF does not approve the use of metal panels as a roof deck.

Note: Attachment requirements to meet determined uplift resistance are dependent on deck type, specific fastener, etc.

INSULATED & NON-INSULATED TPO ADHERED SYSTEMS SPECIFICATION PLATE



GAF®

MEMBRANE TYPE	CONSTRUCTION TYPE	INSULATION
T = TPO	N = NEW R = RECOVER T = TEAR OFF (COMPLETE)	I = INSULATED N = NON-INSULATED

T FA R I 60FB

MEMBRANE ATTACHMENT
FA = ADHERED

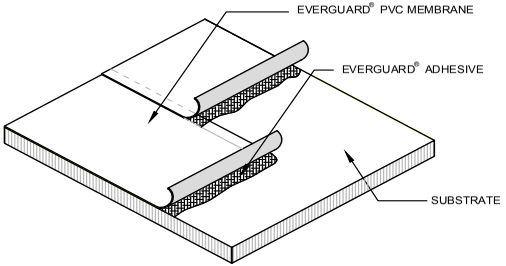
MEMBRANE (THICKNESS AND TYPE)	
45 =	45 MIL SMOOTH
60 =	60 MIL SMOOTH
80 =	80 MIL SMOOTH
45FB =	45 MIL FLEECE BACK
60FB =	60 MIL FLEECE BACK
80FB =	80 MIL FLEECE BACK
60EX =	60 MIL EXTREME
80EX =	80 MIL EXTREME
60EXFB=	60 MIL EXTREME FLEECE BACK
80EXFB=	80 MIL EXTREME FLEECE BACK

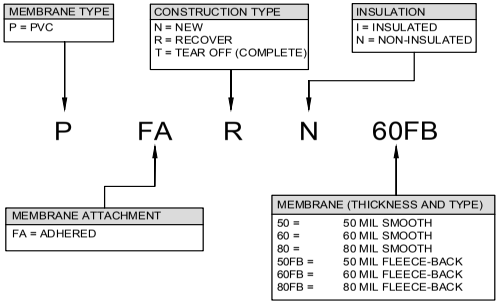
MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)			
				20	25[1]	30[1]	35[1]
T	FA	N R T	I N	45 45FB	60 60FB 50EX 50EXFB	80 80FB 60EX 60EXFB 70EX 70 EXFB	80EX 80EXFB
				MINIMUM MEMBRANE REQUIREMENTS			

1. New & Tear-off only. Minimum 2 layers of insulation. Refer to the Guarantee Requirements Table for additional requirements on extended-length guarantees.

EXCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC ADHERED SYSTEMS SPECIFICATION PLATE



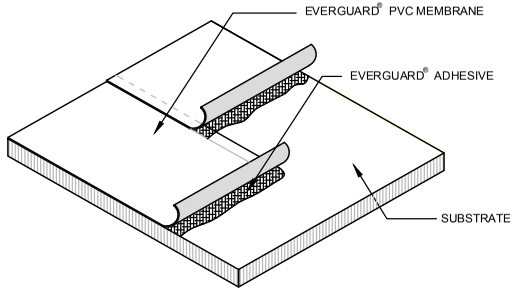


MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				15	20	25[2]
P	FA	N R T	I N	50 50FB	60 60FB	80 80FB
				MINIMUM MEMBRANE REQUIREMENTS		

1. For a non-insulated recover with smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield® Solo™ Fire-Resistant Slip Sheet.
2. New & Tear-off only. Refer to the Guarantee Requirements Table for additional requirements on extended length guarantees.

INCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC ADHERED SYSTEMS SPECIFICATION PLATE



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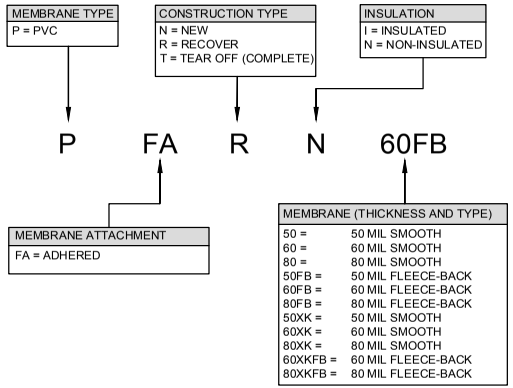

MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				12	15	20
P	FA	N R T	I N	50 50FB 50XK	60 60FB 60XK 60XKFB	80 80FB 80XK 80XKFB
				MINIMUM MEMBRANE REQUIREMENTS		

LOW-RISE FOAM (LRF) ADHESIVE SECUREMENT TABLE

Decks For Direct Adhesion To Fleece-Back Membranes Only		Notes
Structural Concrete (New)	Yes	28-day minimum cured time. Adhesion test required[1]
Structural Concrete – Reroof (structural concrete deck that had an existing roof and contains residual asphalt)	Yes	Adhesion test required[1]
Lightweight Structural Concrete	Yes	28-day cure on new poured decks. Adhesion test required[1]
Lightweight Insulating Concrete	Yes	Less than 15% moisture content. Adhesion test required[1]
Plywood (CDX) Or Oriented Strand Board (OSB)	Yes	
Wood Planking	Yes	
Poured Gypsum	Yes	Adhesion test required[1]
Pre-Cast Gypsum	Yes	Adhesion test required[1]
Cementitious Wood Fiber (Tectum)	Yes	Adhesion test required[1]
Steel	N/A	
Asphaltic Base Sheet**		
Unmodified Fiberglass / Asphalt Sand / Smooth Surface Base Sheet	Yes	Adhesion test required[1]
SBS Modified Asphalt Sand / Smooth Surface Base Sheets	Yes	Adhesion test required[1]
APP Modified Asphalt Sand / Smooth Surface Base Sheets	Yes	Adhesion test required[1]
Approved Insulations (May be adhered to each other or the decks listed above)		
Polyisocyanurate (flat / tapered)	Yes	Maximum board size is 4'x 4' (1.2 m x 1.2 m)
High-Density Polyiso Cover Board	Yes	4'x 8' (1.2 m x 2.4 m) boards approved
High-Density Wood Fiber	Yes	
DensDeck®	Yes	4'x 4' (1.2 m x 1.2 m) boards approved
DensDeck® Prime	Yes	4'x 4' (1.2 m x 1.2 m) boards approved
SECUROCK®	Yes	4'x 4' (1.2 m x 1.2 m) boards approved
Perlite Insulation	Yes	¾" (18 mm) minimum
Extruded Polystyrene (XPS)	Yes	
Expanded Polystyrene (EPS)	Yes	

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LOW-RISE FOAM (LRF) ADHESIVE SECUREMENT TABLE (CONT.)

Decks For Direct Adhesion To Fleece-Back Membranes Only		Notes
Direct Re-covery		
Asphalt Built-Up Roofs (Gravel must be removed)		
Existing Smooth Surface Built-Up Roof (with no coating)	Yes	Adhesion test required[1]
Existing Smooth Surface Built-Up Roof (with new asphalt glaze coat)	Yes	Adhesion test required[1]
Existing Smooth Surface Built-Up Roof (with any type of coating)	Yes	Adhesion test required[1, 5]
Existing Gravel-Surfaced Built-Up Roof (over existing insulation)	Yes	Loose gravel removed + new insulation and adhesion test required[1]
Existing Mineral-Surfaced Built-Up Roof	Yes	Adhesion test required[1]
Existing Roof Insulation (after removal of existing roof)	Yes	Contact GAF Technical Services. Must be an approved insulation that is secured and not wet or damaged.
SBS Modified Asphalt Roofs		
Smooth SBS Ply – Base or Cap Sheet (with sand surfacing with no granules or coating)	Yes	Adhesion test required[1]
Smooth SBS Ply – Base or Cap Sheet (with new asphalt glaze coat)	Yes	Adhesion test required[1]
Existing SBS Modified Bitumen Roofs (with any type of coating)	Yes	Adhesion test required[1, 5]
Existing Mineral-Surfaced SBS Modified Bitumen Roofs	Yes	Adhesion test required[1]

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LOW-RISE FOAM (LRF) ADHESIVE SECUREMENT TABLE (CONT.)

Decks For Direct Adhesion To Fleece-Back Membranes Only		Notes
APP Modified Asphalt Roofs		
Smooth APP Ply – Base or Cap Sheet (with sand surfacing with no granules or coating)	Yes	Adhesion test required[1]
Smooth APP Ply – Base or Cap Sheet (with polyethylene surfacing)	Yes	Contact GAF Technical Services
Existing APP Modified Bitumen Roofs (with any type of coating)	Yes	Adhesion test required[1,5]
Existing Mineral-Surfaced APP Modified Bitumen Roofs	Yes	Adhesion test required[1]
Coal Tar Built-Up Roof		
Gravel-Surfaced Coal Tar Pitch Roof	Yes	• Loose gravel removed & new insulation. • Adhesion test required[1] • 1" ISO min. required for TPO • 1.5" ISO min. required for PVC
EPDM Roof[3]	Yes	Spatter pattern only
Single-Ply Roof (TPO/ PVC)[4]	N/A	

The following is a list of approved low-rise foam adhesives and their applicable usage in roof assemblies:
- LRF Adhesive M (For adhering both membrane & insulation)
- TPO LRF Adhesive M Low Temp (For adhering TPO membrane & insulation)
- LRF Adhesive O (For adhering membrane only)
- OlyBond500® Adhesive (For adhering insulation)
- OlyBond500® Canister (For adhering both membrane & insulation)
- GAF 2-Part Roofing Adhesive (For adhering both membrane & insulation)
- GAF 2-Part Roofing Adhesive (Cold Weather) (For adhering insulation only)
- Refer to product data sheets for uses and application

[1] Adhesion test: An adhesion test is required to ensure substrate and adhesion quality.
[2] Contact GAF Technical Services 800-766-3411 when using LRF in conjunction with a base sheet installation.
[3] Refer to Technical Advisory Bulletin TAB-2014-23 for further requirements.
[4] The use of low-rise foam adhesives directly over an existing single-ply membrane is not acceptable by GAF. The use of LRF-M, OlyBond500® Canister, TPO LRF Adhesive M Low Temp and GAF 2-Part Roofing Adhesive can be utilized to attach new insulation/cover board to existing adhered polyiso insulation that has had its facer removed during the removal of an adhered single-ply roof system.
[5] Excludes silicone coatings.

PERIMETER SECUREMENT TABLE

Building Width	Building Height	Area Width	Adhesive Bead Spacing
<200' (61 m)	0-34' (0-10 m)	5' (1.5 m)	6" (152 mm)
	35'-100' (10-30 m)	10' (3 m)	6" (152 mm)
	>100' (30 m)	**Formula:** Perimeter area width is throughout the perimeter and corner region. The width of this region is defined as the least of the following two measurements: 0.1 x Building Width or 0.4 x Building Height **Note:** The minimum width is 5' (1.5 m)	

EVERGUARD® MEMBRANE ADHESION GUIDANCE TABLE

Adhesive Type[1]	Application Method[2]	EverGuard® TPO		EverGuard Extreme® TPO		EverGuard® PVC		EverGuard® PVC XK EverGuard® PVC KEE	
		Smooth	Fleece-back	Smooth	Fleece-back	Smooth	Fleece-Back	Smooth	Fleece-Back
EverGuard® WB 181 Bonding Adhesive	Roller	Yes[4]	Yes[3]	Yes[4]	Yes[3]	No	Yes[3]	No	Yes[3]
EverGuard® Low VOC TPO Bonding Adhesive	Roller	Yes[4]	No	Yes[4]	No	No	No	No	No
EverGuard® #1121 TPO Bonding Adhesive	Roller	Yes[4]	No	Yes[4]	No	No	No	No	No
EverGuard® #2331 PVC Bonding Adhesive	Roller	No	No	No	No	Yes[4]	No	Yes[4]	No
EverGuard® TPO 3 Square Low VOC Bonding Adhesive	Roller	Yes[4]	No	Yes[4]	No	No	No	No	No
LRF Adhesive M	Ribbon	No	Yes[3]	No	Yes[3]	No	Yes[3]	No	Yes[3]
TPO LRF Adhesive M Low Temp	Ribbon	No	Yes[3]	No	Yes[3]	No	No	No	No
LRF Adhesive O	Ribbon	No	Yes[3]	No	Yes[3]	No	Yes[3]	No	Yes[3]
GAF 2-Part Roofing Adhesive[5] (including Cold Weather Formula)	Ribbon	No	Yes[3]	No	Yes[3]	No	Yes[3]	No	Yes[3]
	Spatter								
OlyBond500® Canister	Ribbon	No	Yes[3]	No	Yes[3]	No	Yes[3]	No	Yes[3]
	Spatter								
Hot Asphalt	Mopped	No	Yes[3]	No	Yes[3]	No	Yes[3]	No	Yes[3]

[1] It is critical that the proper adhesive be used with each membrane type to prevent failure. Substitution of adhesives for different products and non-GAF branded adhesives is discouraged. Performance/adhesion failures due to adhesive substitutions will not be covered by the GAF Diamond Pledge™ NDL.
[2] Refer to the specific product label for the adhesive you are working with for specific application rates and instructions or contact Technical Services at 800-766-3411.
[3] One-sided application: adhesive applied to top of substrate only.
[4] Two-sided application: adhesive applied to both top of substrate and bottom of membrane.
[5] GAF 2-Part Roofing Adhesive (Cold Weather Formula) cannot be used for adhering single-ply fleece-back membranes.

Note: The EverGuard® Membrane Adhesion Guidance Table is for information purposes only, and is not a substitute for adhesion testing and verification by the building owner or its consultants to determine with certainty if the membrane is suitable for the particular needs of the building.

EVERGUARD® MEMBRANE ADHESIVE COVERAGE RATES GUIDANCE TABLE

Adhesive Type[1]	Application Method[2]		Approximate Coverage Rates[3]	
			Smooth[4]	Fleece-back[5]
EverGuard® WB 181 Bonding Adhesive[6]	Roller		1/2 gallon per 100 – 120 square feet (3.4 – 4.1 Liter/ 10 m^2)	1 gallon per 100 – 120 square feet (3.4 – 4.1 Liter/ 10 m^2)
EverGuard® Low VOC TPO Bonding Adhesive	Roller		1/2 gallon per 100 – 120 square feet (3.4 – 4.1 Liter/ 10 m^2)	Not Approved
EverGuard® #1121 TPO Bonding Adhesive	Roller		1/2 gallon per 50 – 60 square feet (6.8 – 8.2 Liter/ 10 m^2)	Not Approved
EverGuard® #2331 PVC Bonding Adhesive	Roller		1/2 gallon per 50 – 60 square feet (6.8 – 8.2 Liter/ 10 m^2)	Not Approved
EverGuard® TPO 3 Square Low VOC Bonding Adhesive	Roller		1/2 gallon per 50 – 60 square feet (6.8 – 8.2 Liter/ 10 m^2)	Not Approved
LRF Adhesive M[7] (Including Low Temp) [8]	1" (25 mm) Wide Continuous Wet Bead @ 12" (305 mm) o.c. Ribbon Spacing	Cartridge	Not Approved	400 – 600 ft^2 (37 – 56 m^2)
		Bag-In-Box (A+B)	Not Approved	1,800 – 2,200 ft^2 (167 – 204 m^2)
		Drum	Not Approved	20,000 – 25,000 ft^2 (1,858 – 2,322 m^2)
LRF Adhesive O[7]	1" (25 mm) Wide Continuous Wet Bead @ 12" (305 mm) o.c. Ribbon Spacing	Cartridge	Not Approved	400 – 600 ft^2 (37 – 56 m^2)
		Bag-In-Box (A+B)	Not Approved	1,700 – 2,000 ft^2 (158 – 186 m^2)
OlyBond500™ Canister[7]	Spatter Method	Canister-In-Box (A+B)	Not Approved	3.75 lb. /100 ft^2 (0.18 kg/ m^2)
GAF 2-Part Roofing Adhesive[7, 9]	Spatter Method	Canister-In-Box (A+B)	Not Approved	3.75 lb. /100 ft^2 (0.18 kg/ m^2)
Hot Asphalt	Mopped		Not Approved	25 lb. /100 ft^2 (1.22 kg/ m^2)

(Notes continued next page)

EVERGUARD® MEMBRANE ADHESIVE COVERAGE RATES GUIDANCE TABLE (CONT.)

[1] It is critical that the proper adhesive be used with each membrane type to prevent failure. Substitution of adhesives for different products and non-GAF branded adhesives is discouraged. Performance/adhesion failures due to adhesive substitutions will not be covered by the GAF Diamond Pledge™ NDL.
[2] Refer to the specific product label for the adhesive you are working with for specific application rates and instructions or contact Technical Services at 800-766-3411.
[3] The coverage rate will vary depending on the porosity of the roof substrate surface.
[4] Apply to BOTH roof substrate surface and to underside of membrane.
[5] Apply to the roof substrate surface ONLY.
[6] Do not apply with EverGuard® Smooth PVC membranes.
[7] Refer to the Low-Rise Foam Perimeter Securement Table within this Guide for further perimeter bead spacing requirements.
[8] TPO LRF Adhesive M Low Temp cannot be used for adhering fleece-back PVC membranes.
[9] GAF 2-Part Roofing Adhesive (Cold Weather Formula) cannot be used for adhering single-ply fleece-back membranes.

Note: The EverGuard® Membrane Adhesive Coverage Rates Guidance Table is for information purposes only, and is not a substitute for adhesion testing and verification by the building owner or its consultants to determine with certainty if the membrane is suitable for the particular needs of the building. Refer to the EverGuard® Membrane Adhesion Guidance Table for further information for membrane and adhesion compatibility.

TPO SPECIFICATION TABLE - NEW CONSTRUCTION OR TEAR-OFF - *BALLASTED SYSTEMS*

Deck Type	Insulation/Substrate Attachment	Insulation/Substrate							Membrane Type	
	Loose Laid	ISO	Gypsum Board	Wood Fiber/ Perlite	EPS/ XPS	3 oz or 6 oz Polymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Steel	Yes	Yes	Yes	Yes	Yes				Yes	
	Yes	Yes	Yes	Yes	Yes					Yes
Wood	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Structural Concrete & Gypsum	Yes	Yes	Yes	Yes	Yes	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Lightweight Insulating Concrete	Yes	Yes	Yes	Yes	Yes	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Cementitious Wood Fiber	Yes	Yes	Yes	Yes	Yes	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes

TPO SPECIFICATION TABLE - RE-COVER - *BALLASTED SYSTEMS*

Existing Roofing System Type	Insulation/Substrate Attachment	Insulation/Substrate							Membrane Type	
	Loose Laid	ISO	Gypsum Board	Wood Fiber/ Perlite[1]	EPS/ XPS	3 oz or 6 oz Polymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Smooth BUR/ MB	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Single-Ply Membrane	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Granule Surfaced BUR/MB	Yes	Yes	Yes	Yes	Yes	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Gravel Surfaced BUR/MB[2]	Yes	Yes	Yes	Yes	Yes				Yes	
	Yes	Yes	Yes	Yes	Yes					Yes

[1] Roof moisture scan required for use of wood fiber/perlite in re-cover roofing systems.
[2] Re-cover over coal tar pitch roofs is not allowed.

PVC SPECIFICATION TABLE - NEW CONSTRUCTION OR TEAR-OFF - *BALLASTED SYSTEMS*

Deck Type	Insulation/Substrate Attachment	Insulation/Substrate							Membrane Type	
	Loose Laid	ISO	Gypsum Board	Wood Fiber/ Perlite	EPS/ XPS	3 oz or 6 ozPolymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Steel	Yes	Yes	Yes	Yes	Yes[1]	Yes[1]			Yes	
	Yes	Yes	Yes	Yes	Yes					Yes
Wood	Yes	Yes	Yes	Yes	Yes[1]	Yes	Yes		Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Structural Concrete & Gypsum	Yes	Yes	Yes	Yes	Yes[1]	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Lightweight Insulating Concrete	Yes	Yes	Yes	Yes	Yes[1]	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Cementitious Wood Fiber	Yes	Yes	Yes	Yes	Yes[1]	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes

[1] EPS/XPS in combination with a minimum 3 oz./sq. yd. (102 g/sq. m.) Polymat separator for smooth PVC membrane.

PVC SPECIFICATION TABLE - RE-COVER - *BALLASTED SYSTEMS*

Existing Roofing System Type	Insulation/Substrate Attachment	Insulation/Substrate							Membrane Type	
	Loose Laid	ISO	Gypsum Board	Wood Fiber/ Perlite[1]	EPS/ XPS	3 oz or 6 ozPolymat	VersaShield® Solo™	None	Smooth	Fleece (FB)
Smooth BUR/MB	Yes	Yes	Yes	Yes	Yes[2]	Yes	Yes		Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Single-Ply Membrane	Yes	Yes	Yes	Yes	Yes[2]	Yes	Yes		Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Granule Surfaced BUR/MB	Yes	Yes	Yes	Yes	Yes[2]	Yes			Yes	
	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Gravel Surfaced BUR/MB[4]	Yes	Yes	Yes	Yes	Yes[2]	Yes[3]			Yes	
	Yes	Yes	Yes	Yes	Yes					Yes

[1] Roof moisture scan required for use of perlite/wood fiber in re-cover roofing systems.
[2] EPS/XPS in combination with a minimum 3 oz./sq. yd. (102 g/sq. m.) Polymat separator with smooth PVC membrane.
[3] Must be used with EPS/XPS insulation.
[4] Re-cover over coal tar pitch roofs is not allowed.

BALLAST TYPE AND APPLICATION REQUIREMENTS

BALLAST TYPE	BALLAST WEIGHT/SQ. FT.	MEMBRANE PROTECTION
ASTM D448, No. 4, 3/4" to 1-1/2" diameter (19 - 37 mm)	10 lbs./sq. ft. (49 kg./sq. m.)	3 oz./sq. yd. (102 g./sq. m.) poly separation layer if ballast is reused
ASTM D448, No. 2, 1" to 2-1/2" diameter (25 - 63 mm)	13 lbs./sq. ft. (64 kg./sq. m.)	3 oz./sq. yd. (102 g./sq. m.) poly separation layer if ballast is reused
Interlocking extruded or autoclaved concrete pavers	12 lbs./sq. ft. (59 kg./sq. m.)	3 oz./sq. yd. (102 g./sq. m.) poly separation layer
Heavyweight non-interlocking extruded or autoclaved concrete pavers	25 lbs./sq. ft. (122 kg./sq. m.)	6 oz./sq. yd. (203 g./sq. m.) poly cushioning layer

STANDARD BALLAST SCHEDULE

FOR BUILDINGS 34 FT. (10 M) OR LESS IN HEIGHT.
– Urban, suburban, or rural exposure (no coastal areas).

PARAPET HEIGHT	CORNER	PERIMETER	FIELD
2"-12" (51 - 305 mm)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)
12"-24" (305 - 610 mm)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)
24"-36" (610 - 914 mm)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)
36"-72" (914 mm - 1.8 m)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)

Note: For No. 2 stone, approved lightweight interlocking concrete pavers or heavyweight standard concrete pavers are acceptable alternatives for No. 4 stone.

STANDARD BALLAST SCHEDULE

FOR BUILDINGS 35 FT. TO 69 FT. (11 M TO 21 M) IN HEIGHT.

– Urban, suburban, or rural exposure (no coastal areas).

PARAPET HEIGHT	CORNER	PERIMETER	FIELD
2”-12” (51 - 305 mm)	13 lbs./sq. ft No. 2 (64 kg./sq. m.)	13 lbs./sq. ft No. 2 (64 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)
12”-24” (305 - 610 mm)	13 lbs./sq. ft No. 2 (64 kg./sq. m.)	13 lbs./sq. ft No. 2 (64 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)
24”-36” (610 - 914 mm)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)
36”-72” (914 mm - 1.8 m)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)

Note: Approved lightweight interlocking concrete pavers or heavyweight standard concrete pavers are acceptable alternatives for No. 2 and No. 4 stone.

STANDARD BALLAST SCHEDULE

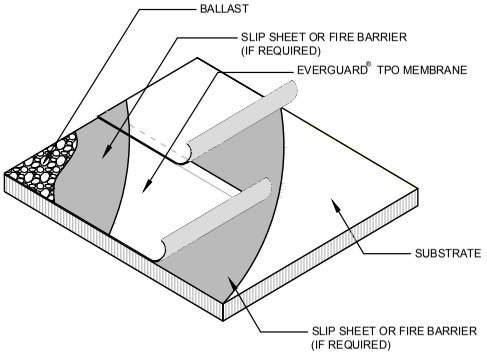
FOR BUILDINGS 78 FT. TO 100 FT. (21 M TO 30 M) IN HEIGHT.

– Urban, suburban, or rural exposure (no coastal areas).

PARAPET HEIGHT	CORNER	PERIMETER	FIELD
2”-12” (51 - 305 mm)	Interlocking Pavers	Interlocking Pavers	Interlocking Pavers
12”-24” (305 - 610 mm)	Interlocking Pavers	Interlocking Pavers	Interlocking Pavers
24”-36” (610 - 914 mm)	13 lbs./sq. ft No. 2 (64 kg./sq. m.)	13 lbs./sq. ft No. 2 (64 kg./sq. m.)	13 lbs./sq. ft No. 2 (64 kg./sq. m.)
36”-72” (914 mm - 1.8 m)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)	10 lbs./sq. ft No. 4 (49 kg./sq. m.)

Note: Approved lightweight interlocking concrete pavers or heavyweight standard concrete pavers are acceptable alternatives for No. 2 and No. 4 stone. Approved lightweight interlocking concrete pavers installed over entire roof area requires special approval by Technical Services and by paver manufacturer.

INSULATED & NON-INSULATED TPO BALLAST APPLIED SYSTEMS SPECIFICATION PLATE



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MEMBRANE TYPE	CONSTRUCTION TYPE	INSULATION
T = TPO	N = NEW R = RECOVER T = TEAR OFF (COMPLETE)	I = INSULATED N = NON-INSULATED

T BA R I 60FB

MEMBRANE ATTACHMENT
BA = BALLAST APPLIED

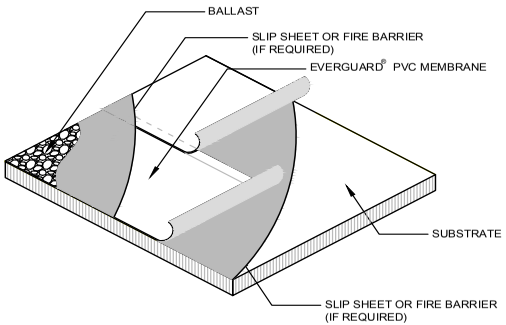
MEMBRANE (THICKNESS AND TYPE)	
45 =	45 MIL SMOOTH
60 =	60 MIL SMOOTH
80 =	80 MIL SMOOTH
45FB =	45 MIL FLEECE BACK
60FB =	60 MIL FLEECE BACK
80FB =	80 MIL FLEECE BACK
60EX =	60 MIL EXTREME
80EX =	80 MIL EXTREME
60EXFB=	60 MIL EXTREME FLEECE BACK
80EXFB=	80 MIL EXTREME FLEECE BACK

MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)			
				20	25[1]	30[1]	35[1]
T	BA	N R T	I N	45 45FB	60 60FB 50EX 50EXFB	80 80FB 60EX 60EXFB 70EX 70 EXFB	80EX 80EXFB
				MINIMUM MEMBRANE REQUIREMENTS			

1. New & Tear-off. Minimum 2 layers of insulation. Refer to the Guarantee Requirements Table for additional requirements on extended-length guarantees.
Note: If reusing ballast: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield ®Solo ™ Fire-Resistant Slip Sheet.

EXCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC BALLAST APPLIED SYSTEMS SPECIFICATION PLATE



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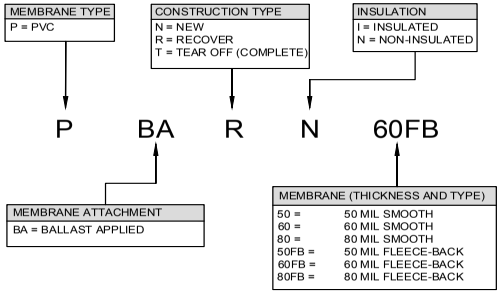
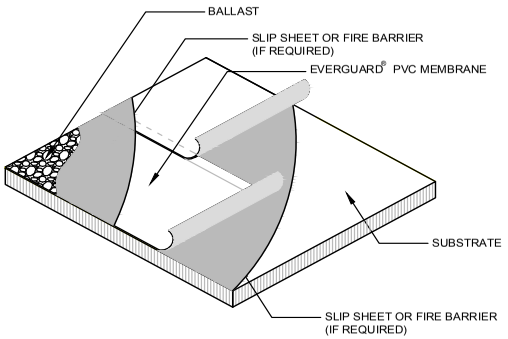


MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				15	20	25[2]
P	BA	N R[1] T	I N	50 50FB	60 60FB	80 80FB
				MINIMUM MEMBRANE REQUIREMENTS		

1. For a non-insulated re-cover smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield® Solo™ Fire-Resistant Slip Sheet.
2. New & Tear-off only. Refer the to Guarantee Program section for additional requirements on extended length guarantees.

INCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC BALLAST APPLIED SYSTEMS SPECIFICATION PLATE



GAF

MEMBRANE TYPE	CONSTRUCTION TYPE	INSULATION
P = PVC	N = NEW R = RECOVER T = TEAR OFF (COMPLETE)	I = INSULATED N = NON-INSULATED

P BA R N 60FB

MEMBRANE ATTACHMENT
BA = BALLAST APPLIED

MEMBRANE (THICKNESS AND TYPE)	
50 =	50 MIL SMOOTH
60 =	60 MIL SMOOTH
80 =	80 MIL SMOOTH
50FB =	50 MIL FLEECE-BACK
60FB =	60 MIL FLEECE-BACK
80FB =	80 MIL FLEECE-BACK
50XK =	50 MIL SMOOTH
60XK =	60 MIL SMOOTH
80XK =	80 MIL SMOOTH
60XKFB =	60 MIL FLEECE-BACK
80XKFB =	80 MIL FLEECE-BACK

MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				12	15	20
P	BA	N R[1] T	I N	50 50FB 50XK	60 60FB 60XK 60XKFB	80 80FB 80XK 80XKFB
				MINIMUM MEMBRANE REQUIREMENTS		

1. For a non-insulated re-cover smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield® Solo™ Fire-Resistant Slip Sheet.

TPO OR PVC SPECIFICATION TABLE - NEW CONSTRUCTION OR TEAR-OFF - *RHINOBOND® SYSTEMS*

Deck	Insulation/ Substrate Attachment	Insulation/Substrate						Membrane Type
	Mechanically[1]	ISO	Gypsum Board	Wood Fiber/ Perlite	EPS/ XPS[2]	VersaShield® Solo™	None	Smooth
Steel[3]	Yes	Yes	Yes	Yes	Yes			Yes
Wood[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Structural Concrete[5]	Yes	Yes	Yes	Yes	Yes		Yes	Yes

[1] Insulation is mechanically attached using the Drill-Tec™ RhinoBond® Attachment System.
[2] Cover board required for EPS/XPS. The use of this board in the assembly is acceptable, but not as the top layer unless RhinoBond® cardboard disc is used.
[3] Minimum 22-gauge steel deck required.
[4] Minimum 3/4" (19 mm) plywood or 2" (51 mm) wood plank required.
[5] Extreme care must be taken to remove all concrete debris and dust prior to roof system installation.

TPO OR PVC SPECIFICATION TABLE - RE-COVER - *RHINOBOND® SYSTEMS*

Existing Roofing System Type	Insulation/Substrate Attachment	Insulation/Substrate							Membrane Type
	Mechanically[1]	ISO	Gypsum Board	Wood Fiber/ Perlite[2]	EPS/XPS[3]	Fanfold[4]	VersaShield® Solo™	None	Smooth
Smooth BUR/MB	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Single-Ply Membrane	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Granule- Surfaced BUR/MB	Yes	Yes	Yes	Yes	Yes	Yes			Yes
Gravel- Surfaced BUR/MB[5]	Yes	Yes	Yes	Yes	Yes	Yes			Yes
Standing Seam Metal (22 ga.)	Yes	Yes	Yes	Yes	Yes				Yes

[1] Insulation is mechanically attached using the Drill-Tec™ RhinoBond® Attachment System.
[2] Roof moisture scan required for use of perlite/wood fiber in re-cover systems.
[3] Cover board required for EPS/XPS. The use of this board in the assembly is acceptable, but not as the top layer unless RhinoBond® cardboard disc is used.
[4] Cover board required for Fanfold. The use of this board in the assembly is acceptable, but not as the top layer.
[5] All loose gravel must be removed.

DRILL-TEC™ RHINOBOND® ATTACHMENT SYSTEM - ATTACHMENT TABLE

Deck Type[1]	Min. Pull-out Values[2]	Fastener Type	Plate Type[3]	Min. Penetration	Fastening Pattern[4] (Field, Perimeter, Corner)		
					GAF Guarantee	60 psf Uplift 90 psf Uplift	105 psf Uplift 120 psf Uplift
3/4" (19mm) Plywood	525 lbf (238 kgf)	Drill-Tec™ HD #14	3" (76 mm) Drill-Tec™ RhinoBond® Plate	1" (25 mm) Thru Deck	8, 12, 16	N/A	N/A
2" (51mm) Wood Plank	800 lbf (363 kgf)	Drill-Tec™ HD #14	3" (76 mm) Drill-Tec™ RhinoBond® Plate	1" (25 mm) Into Deck	8, 12, 16	N/A	N/A
22-ga. Steel Deck (33 ksi)	450 lbf (204 kgf)	Drill-Tec™ XHD #15	3" (76 mm) Drill-Tec™ RhinoBond® Plate	3/4" (19 mm) Thru Deck	6, 9, 12	6, 10, 15	N/A
	600 lbf (272 kgf)	Drill-Tec™ SXHD #21		1" (25 mm) Thru Deck	6, 9, 12	6, 10, 15	
22-ga. Steel Deck (80 ksi)	450 lbf (204 kgf)	Drill-Tec™ XHD #15	3" (76 mm) Drill-Tec™ RhinoBond® Plate	3/4" (19 mm) Thru Deck	6, 9, 12	N/A	8, 15, 20
	750 lbf (340 kgf)	Drill-Tec™ SXHD #21		1" (25 mm) Thru Deck	6, 9, 12		8, 15, 20
Structural Concrete [Min. 2,500 psi (98,066 kilogram-force/ cm²)]	700 lbf (317 kgf)	Drill-Tec™ HD #14	3" (76 mm) Drill-Tec™ RhinoBond® Plate	1" (25 mm) Into Deck [3/16" (4.7 mm) Pre-drilled hole required]	6, 9, 12	6, 10, 15	8, 15, 20
					6, 9, 12		
	900 lbf (408 kgf)	Drill-Tec™ CD-10	3" (76 mm) Drill-Tec™ RhinoBond® Plate	1" (25 mm) Into Deck [7/32" (5.5 mm) Pre-drilled hole required]	6, 9, 12	6, 10, 15	8, 15, 20
					6, 9, 12		

[1] The Drill-Tec™ RhinoBond® Attachment System is not acceptable for gypsum, lightweight insulating concrete, cementitious wood fiber, or OSB substrates, but it is acceptable over structural 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] Pull tests should always be conducted to determine proper fastener selection.

[3] The Drill-Tec™ RhinoBond® 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] Consult FM-Approvals, ROOFNAV listings, and FM LPDS 1-28 and 1-29 for detailed installation requirements and recommendations for FM-approved installations.

DRILL-TEC™ RHINOBOND® ATTACHMENT SYSTEM - METAL ROOF RETROFIT

Max. Purlin & Fastener Row Spacing	Uplift[1]	Purlin Type[2]	Drill-Tec™ Purlin Fastener & Drill-Tec™ RhinoBond® TPO XHD Plate Spacing (o.c.)[3]		
			Field	Perimeter	Corner
5 ft. (1.52 m)	60 psf	Min. 16 ga. (50 ksi)	18" (452 mm)	10.5" (267 mm)	7" (178 mm)
	75 psf	Min. 16 ga. (50 ksi)	12" (305 mm)	7" (178 mm)	4.5" (114 mm)
		Min. 14 ga. (50 ksi) Min. 12 ga. (36 ksi)	18" (452 mm)	10.5" (267 mm)	7" (178 mm)
	90 psf	Min. 14 ga. (50 ksi) Min. 12 ga. (36 ksi)	12" (305 mm)	7" (178 mm)	4.5" (114 mm)
6 ft. (1.83 m)	135 psf	Min. 16 ga. (50 ksi)	6" (152 mm)	Additional purlins may be required	
	195 psf	Min. 14 ga. (50 ksi) Min. 12 ga. (36 ksi)	6" (152 mm)		

[1] Consult FM Approvals, ROOFNAV listings, and FM LPDS 1-28 and 1-29 for detailed installation requirements.

[2] Membrane must be attached to the Drill-Tec™ RhinoBond® Plates that are installed directly into structural purlins with appropriate Drill-TecTM Purlin Fastener. 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.

[3] Fastener pull-out testing must be conducted by the roof fastener manufacturer. Minimum 1" (25 mm) Drill-Tec™ Purlin Fastener embedment is required.

DRILL-TEC™ RHINOBOND® ATTACHMENT SYSTEM - WOOD PURLINS

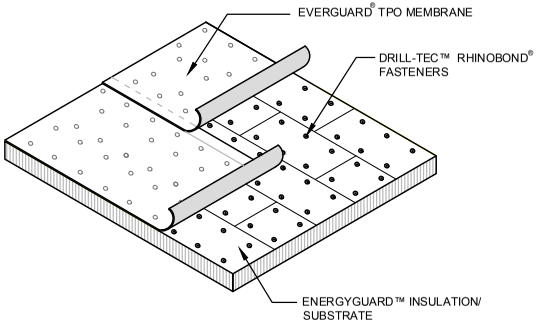
Fastener Spacing Along Wood Joist	Wood Joist Spacing[1]	Plate[2]	Contributory Area Per Fastener	Fastener	Fastener Embedment[3]	Uplift	Membranes Qualified
12 in. (305 mm)	96 in. (2.44 m)	Drill-Tec™ RhinoBond® TPO XHD	8 ft² (.743 m²)	Drill-Tec™ #14	1.0 in. (25 mm) into 2 x 8 in. (51 x 203 mm) support [1.5 in. (38 mm) through plywood decking joint and into lumber]	60 psf	EverGuard® TPO, EverGuard Extreme® TPO
24 in. (610 mm)	48 in. (1.22 m)	Drill-Tec™ RhinoBond® TPO XHD	8 ft² (.743 m²)	Drill-Tec™ #14	1.0 in. (25 mm) into 2 x 8 in. (51 x 203 mm) support [1.5 in. (38 mm) through plywood decking joint and into lumber]	75 psf	EverGuard® TPO, EverGuard Extreme® TPO
36 in. (914 mm)	24 in. (610 mm)	Drill-Tec™ RhinoBond® TPO XHD	6 ft² (.557 m²)	Drill-Tec™ #14	0.75 in. (19 mm) into 2 x 8 in. (51 x 203 mm) support [1.25 in. (32 mm) through plywood decking joint and into lumber]	105 psf	EverGuard® TPO, EverGuard Extreme® TPO
24 in. (610 mm)	24 in. (610 mm)	Drill-Tec™ RhinoBond® TPO XHD	4 ft² (.372 m²)	Drill-Tec™ #14	0.75 in. (19 mm) into 2 x 8 in. (51 x 203 mm) support [1.25 in. (32 mm) through plywood decking joint and into lumber]	150 psf	EverGuard® TPO, EverGuard Extreme® TPO
18 in. (452 mm)	24 in. (610 mm)	Drill-Tec™ RhinoBond® PVC XHD	3 ft² (.279 m²)	Drill-Tec™ #14	0.75 in. (19 mm) into 2 x 8 in. (51 x 203 mm) support [1.25 in. (32 mm) through plywood decking joint and into lumber]	165 psf	EverGuard® PVC Smooth, EverGuard® PVC XK, EverGuard® TPO, EverGuard Extreme® TPO

[1] Drill-Tec™ RhinoBond® test results with fasteners driven into 2 x 8 in. (51 x 203 mm) wood joists over 15/32" (11.9 mm) plywood.

[2] Membrane must be attached to the Drill-TecTM RhinoBond® Plates that are installed directly into structural wood joists with Drill-Tec™ #14 Fasteners. 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.

[3] Fastener pull-out testing must be conducted by the roof fastener manufacturer.

INSULATED & NON-INSULATED TPO DRILL-TEC™ RHINOBOND®ATTACHMENT SYSTEM SPECIFICATION PLATE



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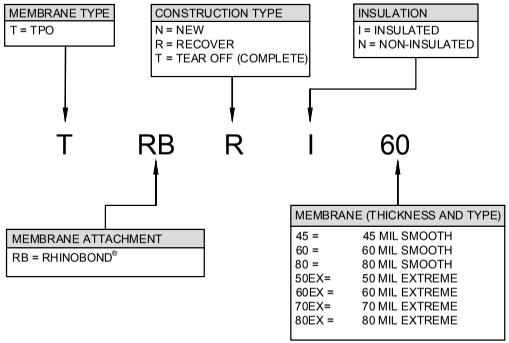
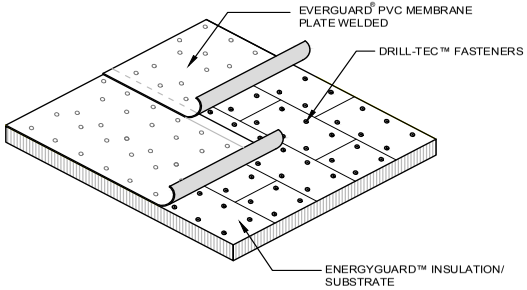


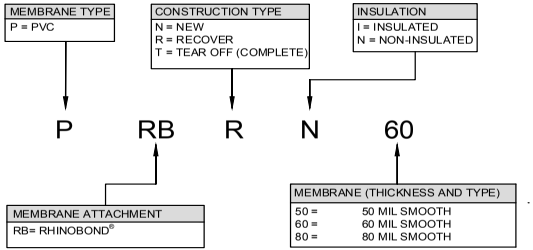
MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)			
				20	25[1]	30[1]	35[1]
T	RB	N R T	I N	45	60 50EX	80 60EX 70EX	80EX
				MINIMUM MEMBRANE REQUIREMENTS			

1. New & Tear-off only. Minimum 2 layers of insulation. Refer to the Guarantee Requirements Table for additional requirements on extended-length guarantees.

EXCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC DRILL-TEC™ RHINOBOND® ATTACHMENT SYSTEM SPECIFICATION PLATE



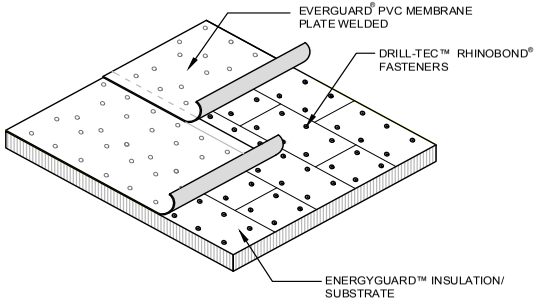


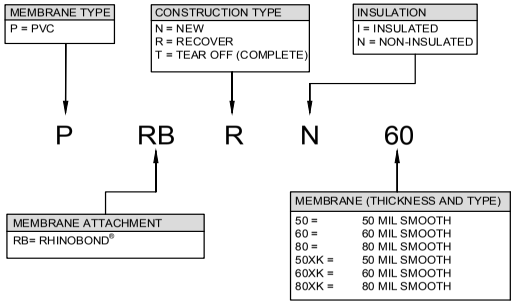
MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				15	20	25[2]
P	PW	N R[1] T	I N	50	60	80
				MINIMUM MEMBRANE REQUIREMENTS		

1. For a non-insulated re-cover smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield® Solo™ Fire-Resistant Slip Sheet.
2. New & Tear-off only. Refer to Guarantee Program section for additional requirements on extended length guarantees.

INCLUDES COLORED MEMBRANES AND THE STATE OF FLORIDA

INSULATED & NON-INSULATED PVC DRILL-TEC™ RHINOBOND ®ATTACHMENT SYSTEM SPECIFICATION PLATE





MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	GUARANTEE LENGTH UP TO (YEARS)		
				12	15	20
P	PW	N R[1] T	I N	50 50XK	60 60XK	80 80XK
				MINIMUM MEMBRANE REQUIREMENTS		

1. For a non-insulated re-cover smooth membrane only: Slip sheet or fire barrier required; 3 or 6 oz./sq. yd. (102 or 203 g./sq.m.) polymat or VersaShield® Solo™ Fire-Resistant Slip Sheet.

TPO ATTACHMENT TABLE - NEW CONSTRUCTION OR TEAR-OFF - *EVERGUARD® FREEDOM™ SYSTEMS*

Deck	Insulation/Substrate Attachment			Insulation/Substrate				
	Mech. Fast.	Adhesive[1]	Hot Asphalt	ISO	Gypsum Board[2]	Wood Fiber[3]	EPS/ XPS[4]	None[5]
Steel	Yes			Yes	Yes	Yes	Yes	
Wood	Yes	Yes	Yes[6]	Yes	Yes	Yes	Yes	Yes
Structural Concrete & Gypsum	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Lightweight Insulating Concrete	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cementitious Wood Fiber	Yes	Yes	Yes[2]	Yes	Yes	Yes	Yes	Yes

[1] Includes Olybond500® Canister, LRF-M, and GAF 2-Part Roofing Adhesive.
[2] For faced boards, glass mat facer required for self-adhered membranes.
[3] For base insulation only. Do not adhere Freedom directly to wood fiber.
[4] Overlay board required with EPS/XPS, unless StormSafe® Anchor Sheet is used.
[5] Requires the installation of mechanically attached StormSafe® Anchor Sheet over the deck.
[6] Insulation can be installed in hot asphalt only when mopping to mechanically attached base sheet.

TPO ATTACHMENT TABLE - RE-COVER - *EVERGUARD® FREEDOM™ SYSTEMS*

Existing Roofing System Type	Insulation/Substrate Attachment			Insulation/Substrate			
	Mech Fast.	Adhesive[1]	Hot Asphalt	ISO	Gypsum Board[2]	Wood Fiber[3]	EPS/XPS[4]
Smooth BUR/MB	Yes	Yes	Yes	Yes	Yes	Yes[5]	Yes
Single-Ply Membrane	Yes			Yes	Yes	Yes[5]	Yes
Granule- Surfaced BUR/ MB	Yes	Yes	Yes	Yes	Yes	Yes[5]	Yes
Gravel- Surfaced BUR/MB	Yes	Yes	Yes	Yes	Yes	Yes[5]	Yes
Standing Seam Metal[5]	Yes			Yes	Yes	Yes[6]	

[1] Includes OlyBond500®, LRF-M, and GAF 2-Part Roofing Adhesive.
[2] For faced boards, glass mat facer required for self-adhered membranes.
[3] Roof moisture scan required for use of wood fiber in re-cover roof systems.
[4] Overlay board required with EPS/XPS, unless StormSafe® Anchor Sheet is used.
[5] XPS is the only material allowed as flute fill with overlay board required.
[6] For base insulation only. Do not adhere Freedom directly to wood fiber.

INSULATION ATTACHMENT TABLE - FREEDOM™ SYSTEMS

NUMBER OF FASTENERS								
Insulation Type	Board Size	Thickness	Standard Attachment Fasteners/Board			FM Attachment Fasteners/Board		
			Field	Perimeter	Corner	Field	Perimeter	Corner
Polyiso	4'x4' (1.2 m x 1.2 m)	1" - 1.4" (25 mm x 36 mm)	8	12	16			
	4'x4' (1.2 m x 1.2 m)	1.5" - 1.9" (38 mm x 48 mm)	6	8	12	8	12	16
	4'x4' (1.2 m x 1.2 m)	2" (51 mm) minimum	4	6	8	4	6	8
	4'x8' (1.2 m x 2.4 m)	.5" - 1.4" (13 mm x 36 mm)	16	24	32			
	4'x8' (1.2 m x 2.4 m)	1.5" - 1.9" (38 mm x 48 mm)	11	18	22	16	24	32
	4'x8' (1.2 m x 2.4 m)	2" (51 mm) minimum	8	12	16	8	12	16
EPS/XPS[1]	4'x4' (1.2 m x 1.2 m)	1" - 1.4" (25 mm x 36 mm)	8	12	16			
	4'x4' (1.2 m x 1.2 m)	1.5" - 1.9" (38 mm x 48 mm)	6	8	12			
	4'x4' (1.2 m x 1.2 m)	2" (51 mm) minimum	4	6	8			
	4'x8' (1.2 m x 2.4 m)	1" - 1.4" (25 mm x 36 mm)	16	24	32			
	4'x8' (1.2 m x 2.4 m)	1.5" - 1.9" (38 mm x 48 mm)	11	18	22			
	4'x8' (1.2 m x 2.4 m)	2" (51 mm) minimum	8	12	16			

[1] Requires a coverboard

(continued next page)

INSULATION ATTACHMENT TABLE FOR FREEDOM™ SYSTEMS (CONT.)

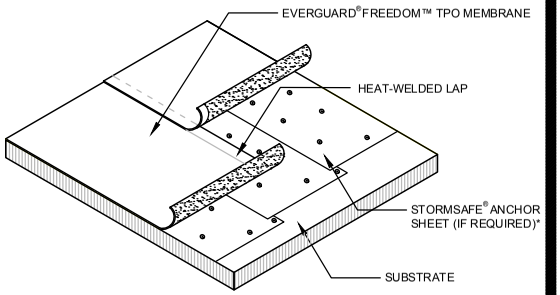
NUMBER OF FASTENERS								
Insulation Type	Board Size	Thickness	Standard Attachment Fasteners/Board			FM Attachment Fasteners/Board		
			Field	Perimeter	Corner	Field	Perimeter	Corner
Gypsum Board[1]	4'x8' (1.2 m x 2.4 m)	1/4" - 5/8" (6 mm x 16 mm)	16	24	32			
	4'x8' (1.2 m x 2.4 m)	1/2" (13 mm) minimum	16	24	32	21	33	42
Wood Fiber	4'x4' (1.2 m x 1.2 m)	1/2" (13 mm) minimum	6	8	12			
	4'x4' (1.2 m x 1.2 m)	1" (25 mm) minimum	4	6	8			
	4'x8' (1.2 m x 2.4 m)	1/2" (13 mm) minimum	16	24	32			

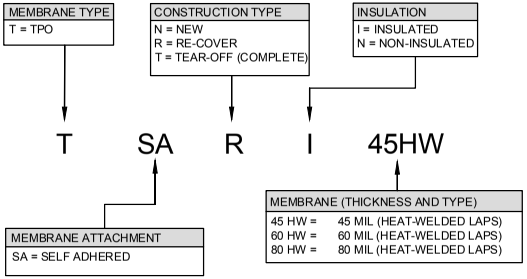
TYPE OF INSULATION FASTENER			
Deck	Fastener	Plate	Penetration (minimum)
Steel (Min. 22 gauge)[2]	DRILL-TEC™ HD (#14) or Standard (#12)	DRILL-TEC™ 3" (76 mm) Galvalume	3/4" (19 mm) through the deck
Wood – plank and sheathing	DRILL-TEC™ HD (#14) or Standard (#12)	DRILL-TEC™ 3" (76 mm) Galvalume	1" (25 mm) thread into/ through the deck
Structural Concrete	DRILL-TEC™ HD (#14) or DRILL-TEC Spike	DRILL-TEC™ 3" (76 mm) Galvalume	1" (25 mm) thread/shank into the deck
Insulating Concrete	DRILL-TEC™ HD (#14)	DRILL-TEC™ 3" (76 mm) Galvalume	3/4" (19 mm) thread through steel form
Gypsum Concrete	DRILL-TEC™ Polymer Screw	DRILL-TEC™ 3" (76 mm) GypTec™Plate	1 1/2" (38 mm) thread into the deck
Cementitious Wood Fiber	DRILL-TEC™ Polymer Screw	DRILL-TEC™ 3" (76 mm) GypTec™Plate	1 1/2" (38 mm) thread into the deck

[1] Includes approved DensDeck® and SECUROCK® Roof Board products.
[2] 24-26 gauge decks require a GAF Field Services Manager's or Director's approval. GAF does not approve the use of metal panels as a roof deck.

Note: Attachment requirements to meet determined uplift resistance are dependent on deck type, specific fastener, etc.

INSULATED & NON-INSULATED EVERGUARD® FREEDOM™ TPO SELF ADHERED SYSTEMS SPECIFICATION PLATE

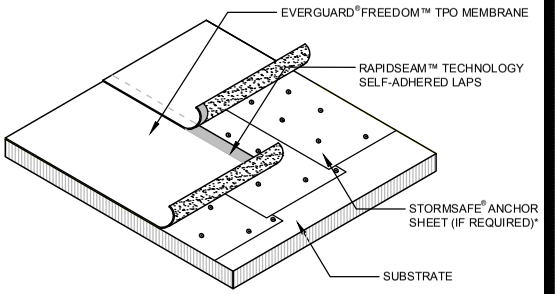




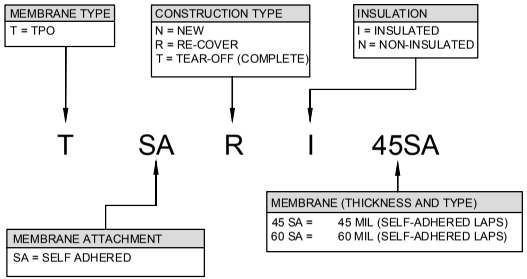
MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	MEMBRANE LAPS	GUARANTEE LENGTH UP TO (YEARS)	
					15	20
T	SA	N R T	I N	HW	45	60 80
					MINIMUM MEMBRANE REQUIREMENTS	

* Refer to the EverGuard® Freedom™ Self-Adhered Systems Manual for detailed anchor sheet requirements.

INSULATED & NON-INSULATED EVERGUARD®FREEDOM ™TPO SELF ADHERED SYSTEMS SPECIFICATION PLATE



GAF®



MEMBRANE TYPE	MEMBRANE ATTACHMENT	CONSTRUCTION TYPE	INSULATION	MEMBRANE LAPS	GUARANTEE LENGTH UP TO (YEARS)
					10
T	SA	N R T	I N	SA	45 60
					MINIMUM MEMBRANE REQUIREMENTS

* Refer to the EverGuard® Freedom™ Self-Adhered Systems Manual for detailed anchor sheet requirements.

Section 4: Installation

INSTALLATION TIPS

Before You Start Roofing…

- Evaluate the site conditions for any unusual or specialized conditions. Before beginning any roofing, inspect site conditions that might affect productivity or present problem.
- Inspect the building structure. If there are any concerns or issues, a licensed engineer should be retained to make sure the building structure is capable of carrying the weight of a new roofing system.
- Verify adequate slope-to-drain conditions. Make sure there is positive drainage. Add new drains where necessary to eliminate ponding, which can lead to membrane damage and possible roof collapse.
- Correct all defects in the deck. Replace damaged decking or substrate that can lessen the overall roof performance.

Note: The roofing contractor is responsible for the acceptance of the roof deck/substrate surface. In order to install a roofing system that will perform properly, the deck or substrate must be:

- Clean
- Dry
- Smooth
- Sound

SURFACE PREPARATION

Roof area preparation is important. Prepare for new roof installations properly. New roofs will have fewer problems and perform longer if the proper preparation is done.

Use The Following Guidelines:

- Remove all existing roofing materials unless they are to remain and are in good condition.
- Remove wet or damaged materials to ensure a good roof installation and avoid interior damage.
- Clean substrate surfaces of all contaminants.
- If leaving the existing roof in place, remove blisters and ridges to provide a smooth surface.
- Cut existing membrane away from penetrations and perimeters. This will allow new membrane to expand and contract independently of existing membrane.
- Inspect substrate condition and perform fastener pull-out tests and moisture surveys if needed (or required) to determine substrate condition.
- Confirm equipment support heights as they must be a minimum of 8” (203 mm) to allow proper flashing heights.
    - Raise flashing height as necessary.
    - Flashings that are lower than 8” (203 mm) have increased potential for moisture intrusion in the roof system from rain and/or snow.

ADHESION TESTING GUIDELINES AND PROCEDURES

Purpose

- Testing is required to ensure foam adhesive will bond to a given substrate.
- GAF requires roofing contractors (or a qualified third party) to conduct an adhesion test prior to registering a GAF Diamond Pledge™ Guarantee.

Guidelines

- Do not use adhesive to install roofing materials on any roof deck or other substrate that shows signs of deterioration or loss of integrity.
- GAF recommends that contractors keep test results on file to be submitted to GAF upon request. Submission of results to GAF is not required in the ordinary course; however, GAF may request them on a job-to-job basis. Failure to perform the required testing or to be able to produce the test results may delay or prevent the issuance of a GAF Diamond Pledge™ Guarantee.
- GAF may at its sole discretion require additional testing prior to the job start or prior to issuance of a GAF Diamond Pledge™ Guarantee in accordance with ANSI/SPRI IA-1 2010 Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates - V2.

Procedures:
Acceptable Adhesion Test Methods are outlined below:

1. GAF Preferred Test Method: "Shovel Test"
Materials:

- Adhesive - Low Rise Foam (LRF)
    - GAF 2-Part Roofing Adhesive
    - LRF Adhesive M
    - LRF Adhesive O
    - TPO LRF Adhesive M Low Temp
    - OlyBond500® Canister
    - Or other GAF approved adhesive(s)
- Square edge shovel or similar
- Minimum 12" x 12" (305 mm x 305 mm) piece(s) of minimum 1 ½" (38 mm) EnergyGuard™ polyiso roof insulation or minimum 15/32" (25 mm) plywood

Frequency:

- Minimum of 4 tests for the first 50,000 square feet [500 sqs.] (4,650 square meters) of roof surface area.
- 2 additional tests for each additional 50,000 square feet [500 sqs.] (4,650 square meters) of roof surface.
- Tests should not be performed in close proximity to each other.

Directions:

- Install low-rise foam adhesive on roof deck or roof substrate in accordance with GAF or other GAF-approved manufacturer's requirements.
- Place a minimum 12" x 12" (305 mm x 305 mm) piece of polyiso roof insulation or plywood in the foam adhesive (ribbons or spatter pattern) over the roof deck or roof substrate that is being tested. One or more ribbons are required.
- Allow adhesive to cure for a minimum of 1 hour.
- Pull up on the adhered board by placing a shovel under the corner or end of the board. The direction of the adhesive ribbon(s) should not affect adhesion results. Make sure that the shovel* is placed squarely under the board. (Fig. 4-1)

*If the existing substrate is insulation, GAF requires that a piece of plywood be placed under the bottom of the shovel in order to not crush the underlying insulation. Failure to do so can lead to inaccurate test results.

- Gently push down on shovel until the bond between the board and substrate is broken. (Fig. 4-2)
- Examine the board and substrate to determine the location of the bond failure. (Fig. 4-3 & 4-4)
    - Failure should be within the adhesive or board.
    - If the foam adhesive has separated from the substrate, this is unacceptable and foam adhesive should not be used to bond the new roof to this substrate.
    - When testing adhesion to a deck, if the failure occurs in the deck, the deck is not suitable for use with foam adhesive to bond the roof to the deck.
- Record mode of failure and place in project file with:
    - Photographs
    - Date, time & air temperature

Fig. 4-1: Shovel Placement

Fig. 4-3: Broken Bond

Fig. 4-2: Push Down On Shovel

Fig. 4-4: Bond Failure

2. **ANSI/SPRI IA-1 2010** Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates - **V2, modified using a 12” x 12” (305 mm x 305 mm) test size**

3. **ANSI/SPRI IA-1 2010** Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates - **V2 (no modifications)**

THERMOPLASTIC MEMBRANE SEAM CLEANING GUIDELINES

Proper preparation of the area to be heat-welded is critical to forming a good, long-lasting seam. Heat-welding uses the thermoplastic nature of the material to melt two pieces of material together, fusing it into a single piece. In order to properly fuse two pieces of material together, the pieces must be clean and dry. If not clean and dry, contaminants will interfere with the weld and result in a poor or false weld.

General

- Satisfactory heat-welding requires that the membrane be clean of dirt and contaminates, and free from dew, rain, and other sources of moisture.
- Factory-fresh new membrane should be clean when unwrapped and unrolled on the job site. Typically, the new membrane will not require cleaning prior to welding, provided that welding is performed immediately after placement of the membrane. Therefore, any material rolled out and put into place should be welded the same day, including welding of any detail work.
- Membrane will require cleaning if it has been exposed for a longer period of time (e.g., for more than 12 hours or overnight) or has become dirty due to foot traffic or other contamination. Cleaning methods will depend on the type of contamination present.

Cleaning recommendations depend on the type of contamination. The following are types of contamination that may be encountered with membrane:

- **Light Contamination:** Membrane that has been exposed for a few days or less to air-borne debris, foot traffic, or dew or light precipitation can usually be cleaned with a cloth moistened with EverGuard® TPO Seam Cleaner or EverGuard® CleanWeld™ Conditioner (low VOC) for TPO membranes. For PVC membranes, MEK (methyl ethyl ketone) or acetone can be used. Be sure to wait for solvent to flash-off prior to welding.

- **Dirt-Encrusted Contamination:** Membrane that is dirt-encrusted will require the use of a low-residue cleaner such as Formula 409® and a mildly abrasive scrubbing pad to remove the dirt. Rinse area thoroughly with clean water and allow to dry. This must be followed by cleaning with a cloth moistened with EverGuard® TPO Seam Cleaner or EverGuard® CleanWeld™ Conditioner (low VOC) for TPO membranes. For PVC membranes, MEK (methyl ethyl ketone) or acetone can be used. Be sure to wait for solvent to flash-off prior to welding.

- **Weather or Oxidized Contamination:** Membrane that is weathered/ oxidized will require the use of a low-residue cleaner such as Formula 409® and a mildly abrasive scrubbing pad to remove the dirt. This must be followed by cleaning with a cloth moistened with EverGuard® TPO Seam Cleaner or EverGuard® CleanWeld™ Conditioner (low VOC) for TPO membranes. For PVC membranes, MEK (methyl ethyl ketone) or acetone can be used. Be sure to wait for solvent to flash-off prior to welding.

- **Chemical Based Contamination:** Membrane that is contaminated with bonding adhesive, asphalt, flashing cement, grease and oil, and most other contaminants usually cannot be cleaned sufficiently to allow an adequate heat-weld to the membrane surface. Removal and replacement of the membrane is indicated in these situations.

Summary of Cleaning Recommendations

Type of Contamination	Membrane Cleaner	Method	General Cleaning/Tips
Light	▪ **TPO:** EverGuard® TPO Seam Cleaner or EverGuard® CleanWeld™ Conditioner (low VOC) ▪ **PVC:** MEK or acetone	▪ Clean with cloth moistened with membrane cleaner. ▪ Allow solvents to flash off.	▪ Rinse area thoroughly with clean water. ▪ Use white terry cloth; avoid use of industrial cleaning cloths. ▪ Colored cloths can transfer the dye in the cloth to the area to be welded and should not be used. ▪ Do not over-use cloths; dispose of cloths when dirty. ▪ Use scrub brushes sparingly as they can damage the membrane. ▪ Drying time for cleaner increases 3-5 minutes for every 10°F (-12.2°C) drop in temperature.
Dirt-Encrusted	▪ **TPO:** EverGuard® TPO Seam Cleaner or EverGuard® CleanWeld™ Conditioner (low VOC) ▪ **PVC:** MEK or acetone	▪ Scrub with low-residue cleaner (409®) using a mildly abrasive pad. ▪ Clean with cloth moistened with membrane cleaner. ▪ Allow solvents to flash off.	
Weather or Oxidized	▪ **TPO:** EverGuard® TPO Seam Cleaner or EverGuard® CleanWeld™ Conditioner (low VOC) ▪ **PVC:** MEK or acetone	▪ Scrub with low-residue cleaner (409®) using a mildly abrasive pad. ▪ Clean with cloth moistened with membrane cleaner. ▪ Allow solvents to flash off.	
Chemical Based	▪ Not Recommended; consult GAF	▪ Remove and replace membrane	

Note: Ambient conditions are a key variable in the time it takes for the cleaner to dry prior to welding.

HEAT-WELDING THERMOPLASTIC MEMBRANE GUIDELINES

Successful hot air welding requires the use of specialized, properly maintained and adjusted equipment operated by experienced personnel familiar with hot air welding techniques. Achieving consistent welds is a function of ensuring that the roofing membrane surface is clean and prepared for heat-welding, conducting test welds to determine proper equipment settings, and evaluating weld quality after welding has been completed.

Equipment

Welding equipment consists of three main components: power supply, hot air welder (either automatic or hand-held), and extension cords. The newest automatic welding equipment provides improved control of speed, temperature, pressure, and membrane. The use of the latest model of automatic welder is highly recommended. Older models may not achieve consistent welds. Follow the equipment manufacturer's recommendations regarding correct equipment operation and adjustment.

- Current generation automatic hot-air welder (recommended)
  - Minimum Power Supply: 220 volts, 30 amps, 10,000 watt continuous
- Current generation hand-held hot-air welder (recommended)
  - Minimum Power Supply: 110 volts, 15 amps, 2500 watt continuous
- Commercial Grade 10,000-watt voltage-controlled generator (minimum)
  - THD (Total Harmonic Distortion) rating should be six (6) or less for quality welds
  - 240v & 120v Outlets
  - GFCI Line Cords
  - Volt Meters
- Extension Cords
  - Automatic Welders - #10 wire with a standard plug configuration. Maximum 100' (30.5 m) in length.
  - Hand-Held Welders - #12 wire with a standard plug configuration. Maximum 100' (30.5 m) in length.
  - For longer lengths, consult an electrician for line voltage drop. Heavier-gauge extension cords are likely to be required.
- Silicone Hand Roller (used in conjunction with hand-held welders)
  - Ensure that the roller is in good condition. Rollers with rounded edges should be replaced.

A stable power supply of adequate wattage and consistent voltage is critical to obtaining consistent hot air welds and to prevent damage to the welder. The use of a contractor-supplied portable generator is recommended, although house-supplied power may be acceptable as well for hand-welding. Do not connect to a power source that is:

- Used for other equipment that cycles on and off.
- Is subject to momentary disruptions or power surges.

- Incapable of providing sufficient power.
    - THD greater than six (6) may lead to fluctuations which may impact welding

Note: Outdated welding equipment and inadequate or fluctuating electrical power are the most common causes of poor seam welds.

Equipment Maintenance

- Owner maintenance of welding equipment includes keeping the equipment safe from physical abuse and damage from the elements, keeping the welding nozzles clean from membrane residue, keeping the air filters free from clogging, and replacing heating elements when needed.
- Follow the equipment manufacturer's recommendations regarding other aspects of equipment maintenance and repair (i.e., motor brushes, switches, belts, etc.).
- Store welding equipment in weather tight tool boxes. Tool boxes for automatic welders in particular should be fitted with cushioning foam material to protect the welder during transit and hoisting operations.
- Clean welding nozzles on a daily basis with a wire brush. Nozzles have a tendency to retain membrane residue on their surfaces. This buildup of residue can interfere with welding practices if not removed.
- Clean air filters on a weekly basis. Clogged air filters restrict air flow. This prevents the welding tool from operating efficiently, and can cause the fan motor to overheat.
- Heating elements are readily field-replaceable. Heating elements are vulnerable to both physical and thermal shock, particularly if the welder is shut off without first being allowed to cool down.

Equipment Settings

Setting up a hot air robotic welder properly is key to having a properly installed roof and performing test welds is one of the most important steps. Making appropriate adjustments before you begin the final welding process assures that the correct combinations are achieved.

- The correct speed and temperature settings for automatic welders are determined by preparing test welds at various settings. The welds are tested by application of pressure causing the seam to peel apart. A satisfactory weld will fail by exposing the scrim reinforcement called a "film tearing bond." A deficient weld fails by separating between the two layers of the membrane.

- Adjustments to Equipment Settings—many factors will affect the settings: thicker membranes, lower air temperatures, and overcast skies will generally require a slower speed than would be required with thinner membranes, higher air temperatures, and sunny skies. The slower speed provides additional heat energy to compensate for heat-draining conditions. For initial automatic air welder setting, use the formula below:
    - Speed Formula: (ambient temp/10)+2 = FPM (Feet Per Minute)
    - Example: (80/10)+2=10FPM for an 80°F (26°C) day.

Note: This formula serves as an initial starting point. Adjustments may need to be made accordingly.

- Test welds should be performed at the beginning of every work period.
  - Just before welding in the morning
  - Upon returning from lunch in the afternoon
  - When there's been a significant change in weather (e.g., air temperature, wind speed, cloud cover, etc.)

Cautions and Warnings

- Do not touch the welding nozzle and heat shield, and avoid keeping unprotected skin in the flow of hot air. The welding nozzle, heat shield, and hot air being expelled from hot air welders is very hot and can result in severe burns.
- A robotic welder at a speed greater than 16 ft. (9.6 m)/min. may be too fast for safe operation and may result in defective seam welds.
- Setting the speed of the welder too fast can also pose potential problems with the ability of the operator to maintain control of the welder. This is particularly true in reroofing or over uneven substrates.
- Robotic welders running too fast may not allow the operator to monitor the weld width and ensure that critical T-joint areas have been correctly creased.
- The operator must keep in mind the relationship between ambient temperature, automatic air welder speed, heat setting and how much weight is on the machine in order to achieve a film tearing bond (weld).

Automatic Hot Air Welding of Seams

Successful automatic welding is primarily a function of proper machine adjustment and ensuring a consistent power supply.

- Membrane MUST be cleaned and free from all dirt and debris prior to hot air welding of seams.
- Verify correct power supply voltage with a voltmeter.
- Determine proper welder speed and temperature settings by performing the test weld procedure.
- Mark all locations where automatic welding starts and stops to identify locations of possible weld discontinuities. These areas should be carefully probed and repaired as required.
- The weld must provide a maximum film-tearing bond of 1.5" (38 mm) and a minimum 1" (25 mm) film-tearing bond.
- Membrane laps must be heat-welded together. All welds must be continuous, without voids or partial welds.
- Attend to all T-joints by carefully pressing each joint down by silicone roller edge or other hard-edged tool immediately after the T-joint has emerged from the automatic welder.
  - 60, 70 & 80 mil TPO membrane T-joints require the installation of a heat-welded membrane cover patch.
  - 80 mil PVC membrane T-joints require the installation of a heat-welded membrane cover patch.

- Welds must be free of burns or scorch marks. However, seaming of PVC membrane should exhibit bleed-out when properly welded.
- All reinforced TPO and PVC field seams should be made using an automatic hot air welder.
- All cut edges of TPO reinforced membranes must be sealed with EverGuard® TPO Cut Edge Sealant. PVC reinforced membranes do not require EverGuard® TPO Cut Edge Sealant.

Hand-Held Welding of Seams

Successful hand-welding is a skill that involves individual technique, normally developed and refined over time. Operator should be proficient in different nozzle configurations. Correct selection of welder temperature and nozzle width can have an effect on the quality of the hand-weld. Hand-held welding should only be done when automatic hot air welding cannot be used.

- Membrane MUST be cleaned and free from all dirt and debris prior to hand-welding.
- During basic hand-welding, the hot air welder is held in one hand, and a hard silicone roller is typically held in the other hand. When hand-welding with a roller, finger pressure is often used to place and tack the upper piece of membrane in position. However, a silicone roller must always be used for final welding. Tack welding is not permitted in the field welding of seams.
- The membrane must be heat-welded together using the “two-pass method.” Weld from the interior on the first pass and finish the weld with the second pass.
- The welding nozzle is introduced between the two layers of membrane, and the silicone roller is rolled back and forth perpendicular to the nozzle mouth to press the membrane together and accomplish the weld. The roller should remain flat to ensure proper compression.
- All welds must be continuous, without voids or partial welds.
- There should be no bleed out on TPO. TPO welds must be free of burns or scorch marks. However, seaming of PVC membrane should exhibit bleed-out when properly welded.
- The ability to achieve satisfactory welds with the hot air welder being held in either hand facilitates welding at various angles and in various situations.
- The weld must provide a maximum film-tearing bond of 1.5” (38 mm) and a minimum 1” (25 mm) film-tearing bond.
- Depending on the type of welding being performed, the temperature setting will vary, as will the width of the welding nozzle.
    - Welding Seams, Prefabricated Flashings and Repair Patches – Use a temperature setting that the roofer is comfortable with.
    - Welding Field-Fabricated Pipe and Corner Flashings – Use a temperature setting that the roofer is comfortable with.

Cooler Weather

Many factors will affect the settings, including overcast skies and lower air temperatures. This will generally require a slower speed and lower heat settings. The slower speed and heat provides the additional heat energy to compensate for heat-draining conditions.

- The correct speed and temperature settings for automatic welders are determined by preparing test welds at various speed and heat settings.
- Hand-welding during colder temperatures also needs to be adjusted.
    - Perform test welds on membrane you will be using that day
    - Do not use scrap material to create test welds
    - A daily quality control including probing and checking seams at the end of the day

During cooler temperatures it is even more critical to perform test welds in the morning, after any extended break such as lunch, or after significant change in weather (e.g., air temperature, wind speed, cloud cover, etc.).

Quality Control Procedures

- There are three basic methods of evaluating the quality of a heat-weld: visual inspection, physical probing, and test cuts. All heat-welds must be visually inspected and physically probed.
    - **Visual inspection** can determine adequacy of weld width, presence of fasteners and plates within the weld area, overheating or tearing within the weld area, indications of special sealing at T-joints, and gross under heating or skipping of seam areas. Properly welded PVC seams will exhibit a slight [i.e., 1/8" (3 mm)] bleed-out of the bottom membrane layer. TPO should exhibit no bleed out.
    - **Physical probing** involves the use of a blunt pointed seam probe such as a dulled cotter pin puller. The weld must be allowed to cool before being probed. The probe tool is pressed with some force against the weld edge and drawn along the seam. The probe tool will enter into the heat-weld area between the two layers of membrane at locations where the seams are partially welded when a "void" is found. The probe tool can then be used to open up the seam area until a solid weld is encountered.
      Note: Seams must be probed prior to the application of EverGuard® cut edge sealant on TPO.
    - **Seam test cuts** involve removing a small portion of a welded seam once it has cooled and peeling the seam apart. Cut a sample strip across the seam approximately 1" (25 mm) wide by 10" (254 mm) long. Apply even pressure to peel the seam apart and evaluate the weld. A satisfactory weld fails by exposing the scrim reinforcement. A deficient weld fails by separating between the two layers of membrane.
- Defects may be corrected by heat-welding a piece of UN-55 membrane over the deficient weld area the same day. The deficient weld may be re-welded only if the seam interior has not been contaminated by the presence of dirt, bonding adhesive, asphalt, etc.

TEST WELDING GUIDELINES

Setting up a hot air robotic welder properly is key to having a properly installed roof and performing test welds is one of the most important steps. Making appropriate adjustments before you begin the final welding process assures that the correct combinations are achieved.

Test welds should be performed at the beginning of every work period.

- Just before welding in the morning
- Upon returning from lunch in the afternoon
- When there's been a significant change in weather (e.g., air temperature, wind speed, cloud cover, etc.)

Procedure

- Take 2 pieces of "bag fresh" EverGuard® membrane approximately 18" (457 mm) long.
- Set your automatic welder's speed and heat.
- For full size welders, such as the BAK LarOn, GAF suggests starting at the following settings:
    - Temperature between 800˚F (427˚C) and 1,148˚F (620˚C)
    - Speed 10-16 feet (3.05-4.88 m) per minute. New equipment may run faster and hotter.
    - For an initial setting, use the formula below as a general guideline:
        - **Speed Formula:** ambient temp/10+2 =FPM (Feet Per Minute)
        - **Example Scenario:** Start out by setting the speed at 10 FPM and the temperature at 600°F (315˚C) degrees and do a test weld. Bump temperature up 100°F (38˚C) to 700°F (371˚C) keeping same 10 FPM. Perform another test weld. Continue doing this in 100°F (38˚C) degree increments keeping speed the same until machine is maxed out [typically 1,148˚F (620˚C)] and find the weld window. Set up machine in the middle of the weld window.

Note: Remember, settings required for a good weld will change based on equipment type, weather conditions and membrane thickness.

- Weld the 18" (457 mm) pieces together and then allow the membrane to cool for at least 10 minutes.
- Cut 1" (25 mm) wide strips across the welded material.
- The welds are tested by application of pressure causing the seam to peel apart.

Results

- Acceptable welds – only those with full film tearing bonds (Fig 4-5)
- Unacceptable welds – may have partial welds or may be cold welds (Figs 4-6 & 4-7)

Fig. 4-5: Acceptable Weld

Fig. 4-6: Partial Weld

Fig. 4-7: Unacceptable Weld

Adjustments to the Hot Air Robotic Welder Settings

- Only make one change at a time and avoid changing heat and speed together.
- If you are welding at 1,148˚F (620˚C) and do not get a good weld, do not automatically adjust the speed because the temperature may be too high. Lowering the temperature or increasing speed may be a necessary adjustment.
- If the weld is greater than 1.5” (38 mm), you may have the temperature too high and this could lead to a failed weld over time.
- Having too much weight on the automatic hot-air welder combined with too high of a speed setting can potentially cause wrinkle issues in the weld area.

SEAM PROBING GUIDELINES

Seam probing is the physical inspection of a hot air weld area by running a suitable blunt probe along the length of a seam with horizontal pressure applied into the bottom edge of the weld. Seam probing checks the integrity of the weld to help ensure a water-tight roofing system and is critical to locating small skips in a welded lap. Seam probing is **NOT** a replacement for conducting test welds.

All hot air welded seams must be physically probed with a blunt or dull cotter key puller hand tool (sharp points or edges must be filed down).

- Contractors are responsible for initial probing of their welds. Do **NOT** wait for a GAF Field Service Representative to find issues with the welds during the roof inspection after the roof is already completed. This could lead to more difficult and costly repairs requiring re-inspection by GAF.
- Probing **MUST** be conducted daily.
- Initial probing should be done on hands and knees.
- Subsequent probing may be completed with a cotter key hand tool that can be affixed to standard extension handle, which allows the tool to be used from a standing position.

GAF seam probing guidelines should be followed:

- Exercise care when handling and walking with the seam probe to avoid injuries from the point end.
- Continuous use of the probe will cause it to become sharper. Ensure that the point is blunted/rounded off at all times.
- Allow the seam to cool down at least 30 minutes or to ambient temperature before probing. Premature probing can damage seams because the welds may still be warm.
- Run the probing tool parallel to the edge of the seam applying ample pressure at the base of the weld. Use caution to avoid damaging the membrane surface with the point of the probing tool (Fig. 4-8).
- When probing, extra attention must be given to all membrane seam intersections, heat-welded seams above insulation joints and areas where the robotic welder stops and starts again.
- Mark all voids, open welds or cold-welds using a water-soluble marker or crayon so repairs can be made (Fig. 4-9).
- Repair all voids, open welds or cold-welds routinely throughout the day but no later than the end of each workday using a hand-welder.
- To make a minor repair on a seam, use a T-Joint Cover Patch, UN-55 Detailing Membrane, or the same material type being used for the field sheet.
- If repairs are needed for an entire open seam, use reinforced membrane a minimum of 4" (102 mm) wide. Finish the detail by heat-welding T-Joint Cover Patches at each corner. Any damage caused to the field sheet (not in the seams) must be patched with reinforced membrane.
- All repaired seams should be probed after they have cooled completely to determine if the weld is acceptable. If the repaired seam is not acceptable, repair areas as necessary until corrected.
- Apply GAF EverGuard® Cut-Edge Sealant on all TPO reinforced membrane cut edges after seam probing is completed. EverGuard® Cut-Edge Sealant is not required when using PVC.

Fig. 4-8: Seam Probing

Fig. 4-9: Marking Voids

WALKWAY INSTALLATION

Rooftop traffic can be harmful to the completed roofing. Protect completed roofing from other trades and routine maintenance traffic on the roof.

- Installation of walkway pads are required at the roof's egress but can be also used at other locations on the roof such as high traffic and mechanical areas.
- Pads need to be placed 6” (152 mm) away from seam welds, so these welds can be inspected, and 6” (152 mm) from each other for drainage. (Fig. 4-10)
- Walkway pads are constructed from EverGuard® Walkway Rolls. EverGuard® Walkway Rolls are cut into smaller manageable pads.
- Membrane MUST be cleaned and free from all dirt and debris prior to installation. When installing the walkway pads remember these are thick and require different settings of the robot welder.

Note: Because of this thickness especially on thinner mil membrane, there is a very real possibility of overheating the roof membrane or actually burning the membrane. For that reason you may not accomplish a “film-tearing” bond when welding.

Welding Method

- Walkway rolls contain non-textured edges. These should be used for the robot welding. (Fig. 4-11)
- Weld along both non-textured ends. Set up the welder with a lower heat setting and adjust the speed accordingly. This way you won’t overheat the membrane and you will achieve a tight seam weld.
- The interior of the pads must be hand-welded. Use the two-pass method, welding from the interior on the first pass. (Fig. 4-12)
- Finish the weld with the second pass.
- Repeat the hand-weld “two-pass” method for all remaining pads.

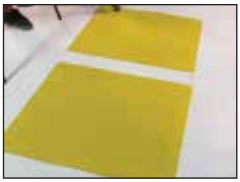


Fig. 4-10: Pads placed 6" (152 mm) apart

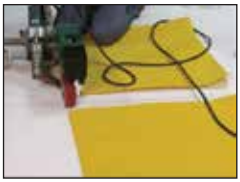


Fig. 4-11: Welding along non-textured ends

Fig. 4-12: Hand-welding

Seam Tape Method

- EverGuard® TPO walkway roll may also be installed with TPO primer and 3" (76 mm) seam tape.
- First, roll or brush the TPO primer on the back of the TPO roll along the edges and down the middle of length of the roll.
- Clean and prime the roof membrane where the roll will be installed.
- Install tape to the back of the roll where cleaned (edges and middle) and roll in with a silicone hand roller.
- Remove the release paper and install the taped rolls directly onto the roof membrane.
- Secure the rolls by rolling into place.

COLD STORAGE

GAF defines cold storage as a building or portion of a building or structure designed to promote extended shelf life of products or commodities and typically has year-round temperatures below 50˚ F (10˚ C). **It is the responsibility of the design professional to specify the appropriate cold storage system.**

Extremes in internal temperature/humidity are often associated with cold storage/freezer buildings and food processing plants. What makes these building applications unusual is that the pronounced difference in vapor pressure between the building interior and the exterior can cause a pronounced vapor flow through the roof assembly. This can result in a significant build-up of condensation within the roof assembly, and severe deterioration of both the roof assembly itself and the structural deck.

Relevant design considerations include:

- Attention to vapor-tight seal between roof and side walls/penetrations;
- Utilization of closed-cell foam insulation and stainless steel fasteners to minimize potential for condensation related degradation of roof system;
- Limitation of penetrations through roof deck; and
- Avoidance of roof system attachment through any vapor retarder.

Refer to GAF's Cold Storage Guidelines for further information.

The following requirements and restrictions apply:

1. Available for adhered and ballasted membrane roofing systems only.

2. Available for new and tear-off systems only. Not available for recover systems.

3. Minimum 2 layers of insulation is required. The top layer of insulation is to be adhered and may be an approved cover board.

4. Best roofing practices must be followed. Building envelope specifications provided by the designer for sealing of all penetrations and edges must be followed.

5. EverGuard® TPO accessories must be used with EverGuard® TPO systems only.

6. EverGuard Extreme® TPO accessories must be used with EverGuard Extreme® TPO systems only.

7. EverGuard® PVC accessories must be used with EverGuard® PVC systems only.

8. Requires inspection after all work is completed.

9. EverGuard® TPO 45 mil and PVC 50 mil membranes are not eligible for guarantee coverage when used over cold storage.

10. For additional information on cold storage installations, please consult GAF Technical Services.

INSPECTION ISSUES

System Type:
- TPO/PVC

Roof Area:
1-Seams
2-Insulation/Fastening
3-Wall/Curb Flashings
4-Perimeter Metal/Scuppers
5-Pipe Flashings/ Pitch Pans
6-Drains
7-Terminations
8-Field of roof
9-Corners
10-Ballast
11-Other Conditions

The following tables list potential problems that may be identified and provide a remedy to correct the problem.

Area 1	Description of Problem	Corrective Action
Seams	Voids found when probing fields	Clean/repair to spec. Use unsupported membrane.
	Voids in seam at T-joint intersections	Clean/repair to spec. Use unsupported membrane.
	Cut edge of reinforced TPO not sealed	Clean and install TPO Cut Edge Sealant.
	Excessive bleed out caused damage to sheet	Clean/repair to spec.
	Seams not positioned properly/correct overlapping	Clean/repair to spec.
	Bonding adhesive contaminating welded seam	Clean/repair to spec.
	Missing in-seam fastener or spaced incorrectly	Add fasteners to meet spec. Clean and patch accordingly.
	In-seam spec not installed per spec.	Install discs to spec. Clean and patch accordingly.
	Wrinkle or air pockets found in 1.5” (38 mm) seam	Clean/repair to spec.
	Missing 1/2 sheets per system requirements.	Install fastening at 5' (1.5 M) intervals to meet requirement. Clean and strip to spec.

INSPECTION ISSUES (CONT.)

Area 2	Description of Problem	Corrective Action
Insulation/ Fastening	Wet insulation	Remove & replace insulation/ membrane.
	Incorrect number of fasteners	Reinstall to spec. Call GAF Field Services Manager for written instructions.
	Incorrect type of fastener or wrong sized plates	Call GAF Field Services Manager for written instructions.
	Fastener penetration of less than 1" (25 mm) spec.	Call GAF Field Services Manager for written instructions.
	Unsecured or insufficiently installed fasteners	Remove and replace fastener. Clean/repair to spec.
	Bowing or damaged insulation boards	Remove and replace insulation boards. Refasten if necessary. Clean/repair to spec.
	Unapproved Insulation	Call GAF Field Services Manager for written instructions.
	Isocyanurate insulation facer delaminating	Remove and replace insulation. Install new insulation to spec.
	Unadhered field sheet on fully adhered system	Remove membrane and insulation. Install new insulation and membrane to spec.

Area 3	Description of Problem	Corrective Action
Wall/Curb Flashings	Voids found when probing flashing seams	Clean/repair to spec.
	Voids found at T-joints	Clean/repair to spec. Use unsupported membrane.
	Cut edge of reinforced TPO not sealed	Clean and install TPO Cut Edge Sealant.
	Excessive bridging at angle change	Cut out bridged areas. Clean and flash in affected area. Probe and check all seams.
	Water trapped behind membrane	Cut flashing and completely dry the area. Reinstall flashing to spec.
	Flashing seam is less than 2" (51 mm) past seam plate	Clean/repair to spec.
	Curb/wall flashing is missing base attachment	Install base attachment to spec. Clean and strip-in to spec.
	Conduits or other penetration protruding the wall/curb flashing	Install field fabricate pipe flashing or pipe boot.
	High wall flashing is missing attachment	Install mechanical attachment 12" (305 mm) o.c. over wall flashing. Strip in attachment
	Missing in-seam fastener or spaced incorrectly	Add fasteners to meet spec. Clean/repair to spec.
	Unadhered wall flashing	Cut open affected area. Clean/repair to spec.

INSPECTION ISSUES (CONT.)

Area 4	Description of Problem	Corrective Action
Perimeter Metal/ Scuppers	Voids, wrinkles, burns at coated metal weld	Clean/repair to spec.
	Continuous clip missing behind face of metal	Face fasten metal 12” (305 mm) o.c. Use approved fastener.
	No nailer present under metal flange	Remove perimeter metal, insulation and install appropriate sized nailer.
	Termination bar not installed	Install to spec (i.e. fastener spacing, caulk missing).
	Flashing does not extend a min. of 2” (51 mm) past flange onto deck	Install proper edge detail flashings to spec.
	6" (152 mm) wide strip of EverGuard® Detailing Membrane missing at TPO tape overlaps	Install 6" (152 mm) wide strip of EverGuard® Detailing Membrane to spec.
	Caulk or Cut Edge Sealant missing at metal overlaps and t-joint patches	Install EverGuard® FlexSeal Caulking to spec.
	Bridged TPO tape at angle change	Cut bridged tape and clean/patch to spec.
	Fishmouths in TPO tape due to wrinkles or changes in height of TPO deck sheet	Install TPO cover tape patch over effected area, caulk entirely.
	Poor adhesion of TPO cover tape	Remove all poorly adhered TPO tape, clean, prime and install to spec.
	Improperly fastened	Install approved fastener 12” (305 mm) o.c.
	Non-hemmed edge in contact with TPO/PVC	Remove all metal, install slipsheets under metal, reinstall to spec.
	Missing drip edge at gutter	Replace with gravel stop, scuppers.
	Seam in metal sleeve installed on deck	Install slightly smaller new scupper and flash into spec.
	Unsecured flanges	Face fasten through membrane into substrate. Clean/repair to spec.
	Open corners including top corners	Clean/repair to spec.
	Scupper not sealed where it protrudes through outside of building	Properly seal the void between the wall and scupper.
	Scupper missing or existing being reused	Install new scupper to spec.

INSPECTION ISSUES (CONT.)

Area 5	Description of Problem	Corrective Action
Drains	Waterblock or FlexSeal Caulking missing, non-approved caulking	Install one full tube of waterblock, reinstall drain ring to spec.
	Missing, broken or untightened bolts or clamps	Replace and/or drill out and recap and tighten all bolts.
	Broken drain ring bowl	Replace any broken drain parts.
	Seam runs through drain ring or sump	Install target patch to spec. If not leaking, clean and strip in with 8" flashing strip.
	Insulation not properly tapered around drain	Install tapered insulation and drain target to spec.

Area 6	Description of Problem	Corrective Action
Pipe Flashings/ Pitch Pans	Voids found when probing flashing seams	Clean/repair to spec.
	Void found at T-joints	Clean/repair to spec., use unsupported membrane.
	Cut edge of reinforced TPO not sealed	Clean and install TPO Cut Edge Sealant.
	Field fabricated pipe flashing less than 8" (203 mm)	Extend pipe wrap to 8" (203 mm).
	Field fabricated pipe flashing missing target	Remove wrap, install target, rewrap pipe flashing.
	Pipe boots and field fabricated missing waterstop, clamps or caulking	Install to spec.
	Lead flashing left on pipe	Remove pipe flashing and lead, reinstall new pipe flashing to spec.
	Pipe boots and field fabricated pipe flashing under tension	Remove clamp, release tension, reinstall clamp and caulk.
	New pipes added	Flash in new pipes to spec.
	Pitch pan filler not set up	Dig out soft filler and repour to current spec.
	Non-GAF filler used	Completely remove filler and refill to GAF spec.
	Pan not filled to top	Clean existing filler, prime and fill to top.
	Filler poured around line insulation	Cut out insulation and filler around line and repour.
	Less than 1" (25 mm) separation between lines and sides of pan	Remove existing filler, separate lines, refill.

INSPECTION ISSUES (CONT.)

Area 7	Description of Problem	Corrective Action
Terminations	Missing backer rod or insufficient compression	Install backing rod twice the size of the opening.
	Missing vertical terminating at end wall	Install termination bar or L-shaped metal to spec.
	Missing caulking on vertical termination bars	Clean and install caulking on all sides of bar and fastener holes.
	Missing caulking on horizontal termination bars	Clean and install caulking to spec.
	Missing counterflashing on curbs/walls	Install counterflashing and fasten 12" (305 mm) o.c.
	Incorrect placement of termination bar (i.e. above weep holes, etc.)	Remove and relocate termination bar/counter- flashing and reinstall termination to spec.
	Voids in caulking on top edge of termination bar/counterflashing	Clean and caulk the top edge of termination.
	Excess flashing extends past termination bar/counterflashing	Remove caulk and trim excess membrane below kick, re-caulk.
	Missing or incomplete termination	Terminate all membrane to spec.
	Non-approved GAF caulking used on termination bar	Remove existing caulk and re-caulk with GAF caulking.
	Termination bar is not GAF	Warning given this job only.
	Incorrect use of termination bar (over siding, wood or non-watertight surfaces)	Replace with appropriate counterflashing.

Area 8	Description of Problem	Corrective Action
Field of Roof	Holes or damage to field sheets	Clean/repair to spec.
	Splits or contamination on field sheets	Cut out spills or contaminants and repair to spec.
	Missing slip sheets under wood blocking, pavers, sleepers or satellite dish	Install approved slip sheet.
	Debris on roof	Remove debris and check for damage.
	Excessive gravel or other sharp objects under field sheet	Cut out debris and repair.
	Walkways displaced	Realign walkways and weld to spec.
	Walkways deteriorated	Replace deteriorated walkways.
	Walkways needed at roof access point	Install walkways as indicated.

INSPECTION ISSUES (CONT.)

Area 9	Description of Problem	Corrective Action
Corners	Voids found when probing inside corners	Clean/repair to spec.
	Bridging on inside corner	Cut out bridging, clean/repair to spec.
	Damaged outside corner, torn by electrical cords etc.	Clean/repair to spec. Use unsupported membrane.
	Bridges or over stretched corner	Cut out bridging. Clean/repair to spec. Use unsupported membrane.
	Voids found when probing outside corners	Clean/repair to spec. Use unsupported membrane.
	Missing inside and/or outside corner	Install pre-fabricated or unsupported field fabricated corner.

Area 10	Description of Problem	Corrective Action
Ballast	Ballast too small	Call GAF Field Services Manager for written instructions.
	Inconsistent coverage	Redistribute ballast, add if necessary (10# per square foot minimum).
	Non-approved ballast or no rock mat	Call GAF Field Services Manager for written instructions.
	Slip sheet, wood blocking and/or pavers installed on top of ballast	Sweep TPO free of ballast and fines, reinstall slip sheet, push back ballast.

Area 11	Description of Problem	Corrective Action
Other Conditions	Spills or contaminates on field sheets	Contractor to notify building owner of condition.
	Clogged drains	Contractor to notify building owner of condition.
	Mortar joints deteriorated	Contractor to notify building owner of condition.
	Grease vents discharging grease on membrane	Contractor to notify building owner of condition.
	Sealant joints deteriorated	Contractor to notify building owner of condition.
	Roof top units leaking	Contractor to notify building owner of condition.

FIELD QUALITY CONTROL

- Field quality control should be performed in accordance with NRCA's *Quality Control and Quality-assurance Guidelines for the Application of Membrane Roof Systems*.
- Inspect completed roof sections on a daily basis. It is the contractor's responsibility to probe all heat-welded seams and to perform an adequate number of seam cuts to ascertain seam consistency.
- Immediately correct all defects, irregularities, and deficiencies identified during inspections. All voids that are found must be patched over per specifications. Do NOT re-weld seam voids more than 24 hours after initial welding of the seam.
- Remedial work must be performed with like materials and in a manner consistent with the balance of the roofing installation so as to minimize the number of repair patches.
- Excessive patchwork will require replacement of the entire affected membrane section from lap to lap.

MAINTENANCE

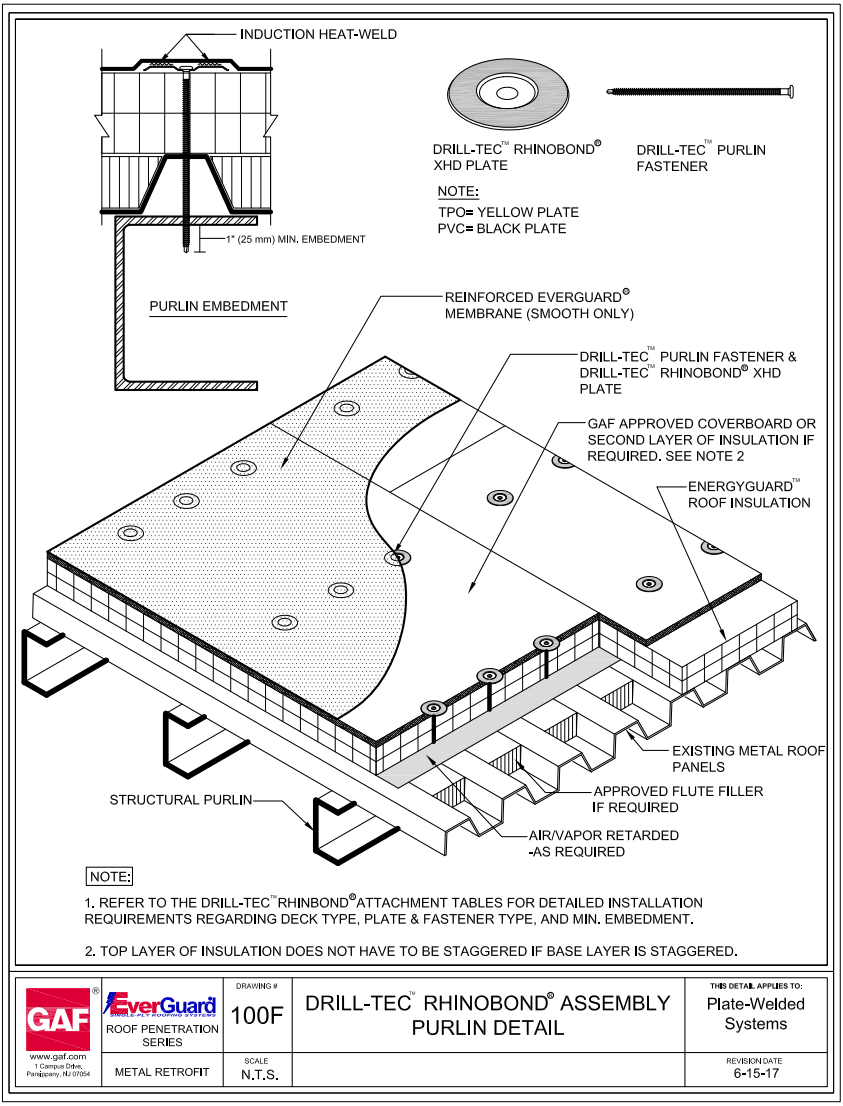
- Upon completion of the roofing system, the owner should establish a semi-yearly inspection and maintenance program in accordance with standard good roofing practice and guarantee requirements.
- Repair cuts, punctures, and other membrane damage by cleaning membrane, followed by heat-welding a membrane repair patch of sufficient size to extend a minimum of 2" (51 mm) beyond the damaged area. If heat-welding to the top surface of the existing membrane is ineffective, the patch must be heat-welded to the underside of the existing sheet after proper preparation.
- Any damage to adhered membrane areas or at locations of mechanical attachment, including insulation, must be repaired so that the repaired area remains adhered or mechanically attached.

Section 5: Architectural Detail Drawings

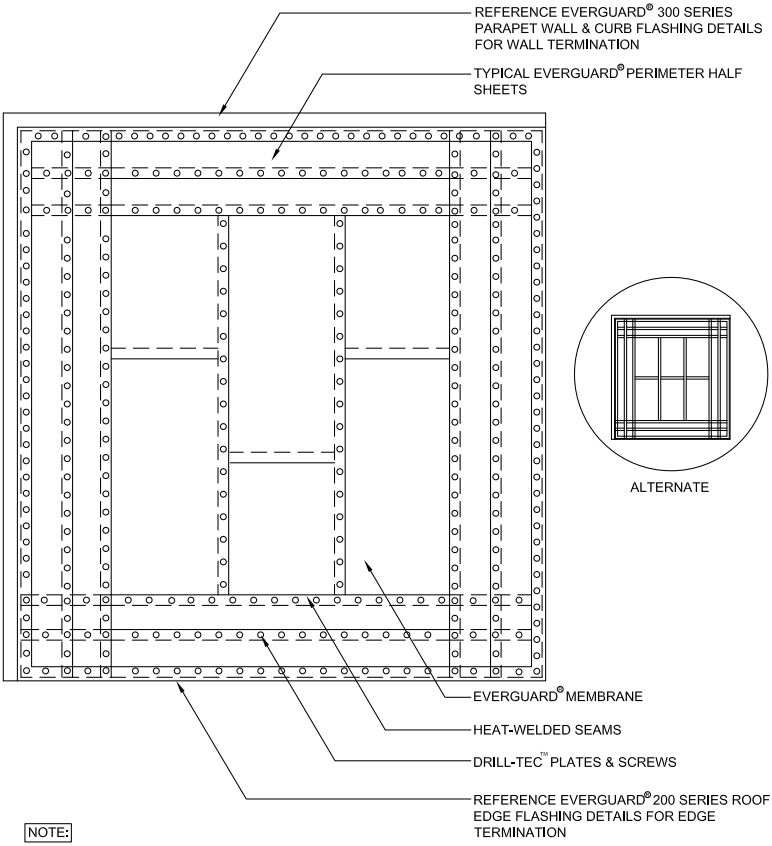
SMART DETAILS

Quick access to installation videos and detail drawings for EverGuard® single-ply systems.

Visit http://www.gaf.com/roofing/commercial/smart_details for further information.



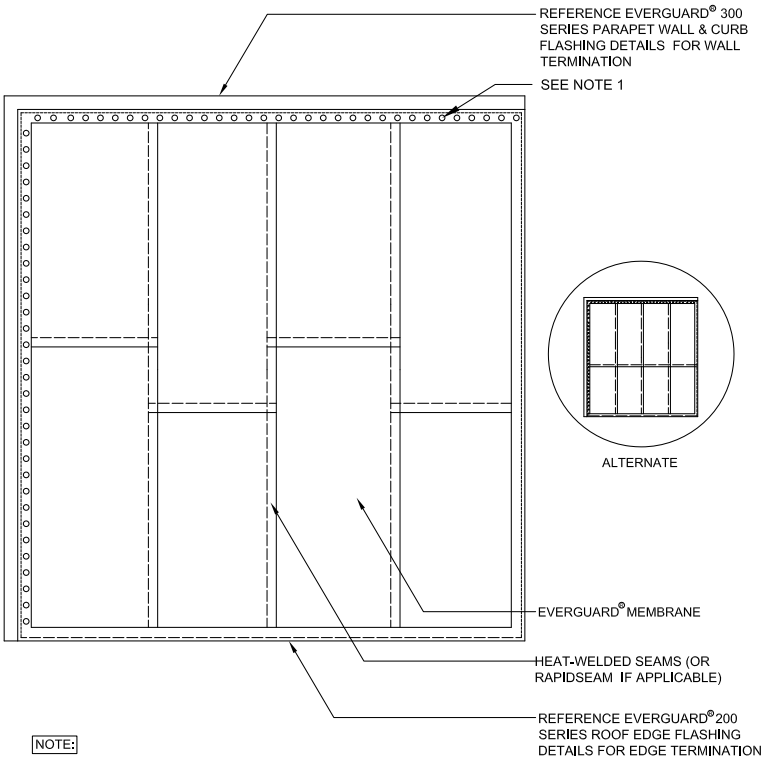
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 100F	DRILL-TEC™ RHINOBOND® ASSEMBLY PURLIN DETAIL	THIS DETAIL APPLIES TO: Plate-Welded Systems
	METAL RETROFIT	SCALE N.T.S.		REVISION DATE 6-15-17



NOTE:

1. SEE EVERGUARD® MECHANICALLY ATTACHED SYSTEM GUIDELINES TO DETERMINE FASTENER SPACING FOR VARIOUS DECK TYPES AND WIND UPLIFT REQUIREMENTS, AND FOR REQUIRED NUMBER OF PERIMETER HALF SHEETS.
2. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A COVER BOARD IS REQUIRED ON MECHANICALLY ATTACHED SYSTEMS ONLY.

GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard FIELD OF ROOF SERIES	DRAWING # 101A	ROOF MEMBRANE LAYOUT DETAIL	THIS DETAIL APPLIES TO: Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 6-15-17

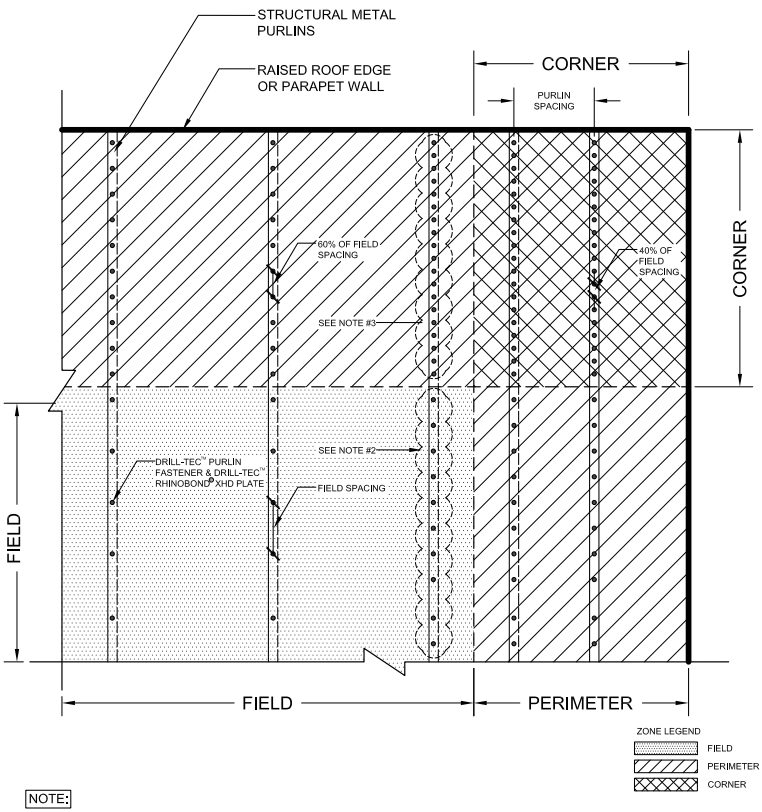


NOTE:

1. SEE EVERGUARD® SYSTEM GUIDELINES IN APPROPRIATE MINI MANUAL TO DETERMINE PERIMETER AND PENETRATION FASTENER SPACING FOR VARIOUS DECK TYPES AND WIND UPLIFT REQUIREMENTS.

2. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY ATTACHED SYSTEMS ONLY.

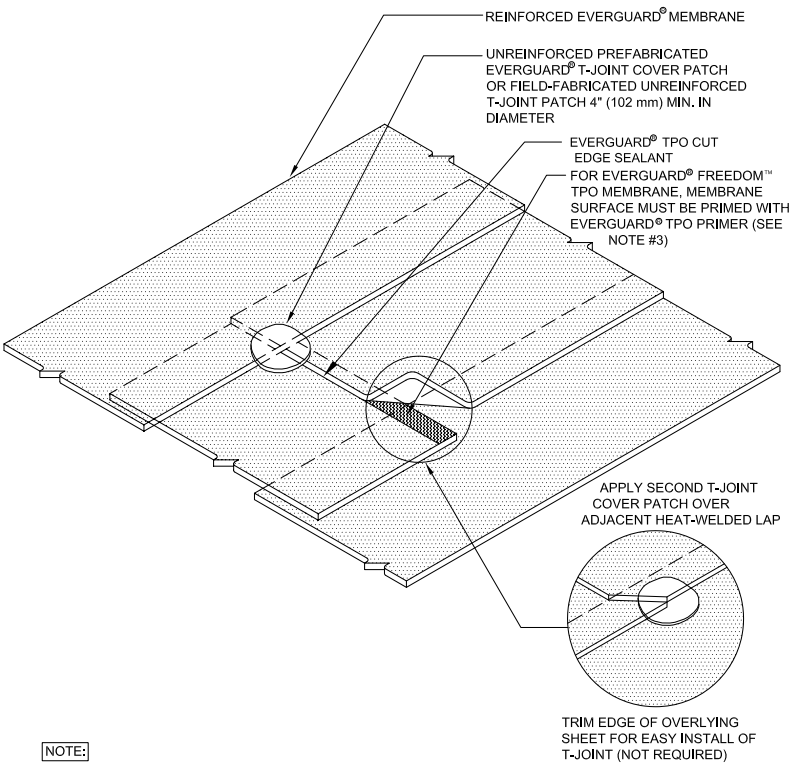
GAF® 1361 Alps Rd. Wayne, NJ 07470 www.gaf.com	EverGuard® FIELD OF ROOF SERIES	DRAWING # 101B	ROOF MEMBRANE LAYOUT DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Ballasted Systems RhinoBond Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 6-26-17



NOTE:

1. SEE EVERGUARD© SYSTEM GUIDELINES IN SPEC MANUAL TO DETERMINE PERIMETER AND PENETRATION FASTENER SPACING FOR VARIOUS DECK TYPES AND WIND UPLIFT REQUIREMENTS.
2. DEFAULTS TO PERIMETER FASTENING RATE.
3. DEFAULTS TO CORNER FASTENING RATE.

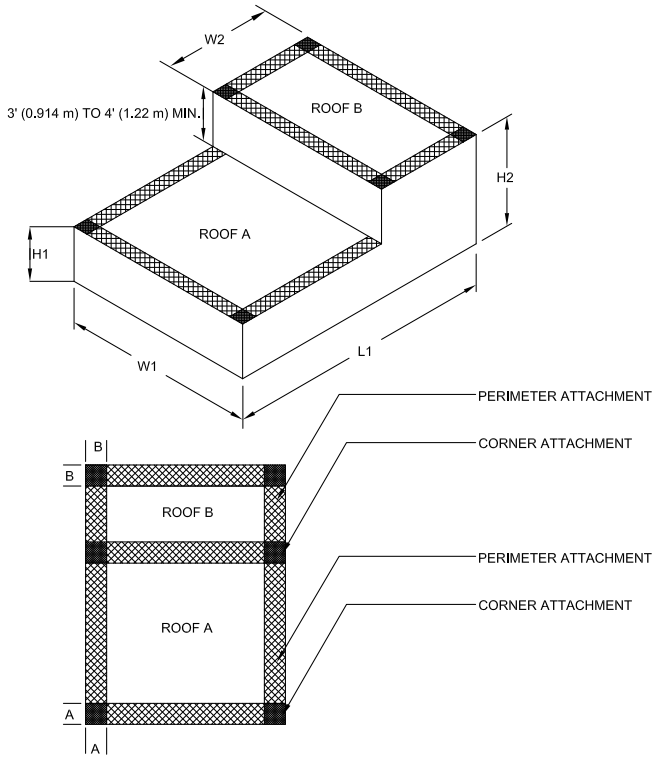
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard FIELD OF ROOF SERIES	DRAWING # 101F	PURLIN FASTENING ZONES	THIS DETAIL APPLIES TO: Plate Welded Systems
	METAL RETROFIT	SCALE N.T.S.		REVISION DATE 4-16-17



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. T-JOINT IS TO BE USED FOR 60, 70 & 80 MIL TPO AND 80 MIL PVC ONLY.
3. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

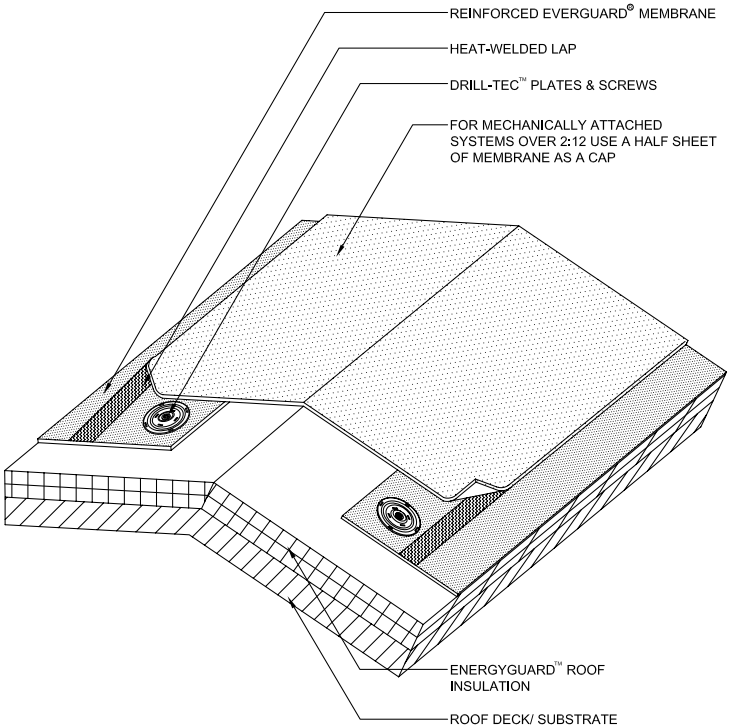
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard FIELD OF ROOF SERIES	DRAWING # 105A	T-JOINT COVER PATCH DETAIL	THIS DETAIL APPLIES TO: Adhered Systems, Ballasted Systems, RhinoBond Systems, Mechanically Attached Systems
		SCALE N.T.S.	FOR 60 THRU 80 MIL TPO AND 80 MIL PVC MEMBRANES ONLY	REVISION DATE 6-26-17



NOTE:

1. WIDTH OF PERIMETER TREATMENT (A OR B) SHALL BE 10% OF THE BUILDING'S NARROWEST WIDTH (W) OR 40% OF THE BUILDING EAVE HEIGHT (H), WHICHEVER IS LESS, WITH 4' (1.22 m) BEING THE MIN. FOR STANDARD GAF GUARANTEE REQUIREMENTS. SEE HALF-SHEET REQUIREMENTS IN MECHANICALLY ATTACHED SECTION.
2. FOR ADHERED, SELF-ADHERED, AND RHINOBOND SYSTEMS, SEE INSULATION TABLE FOR ENHANCEMENTS.

GAF / www.gaf.com, 1 Campus Drive, Parsippany, NJ 07054	EverGuard FIELD OF ROOF SERIES	DRAWING # 106	ROOF AREA ZONE LAYOUT DETAIL	THIS DETAIL APPLIES TO: Adhered Systems, Ballasted Systems, Mechanically Attached Systems, Self - Adhered Systems, Rhino Bond Systems
		SCALE N.T.S.		REVISION DATE 6-1-16



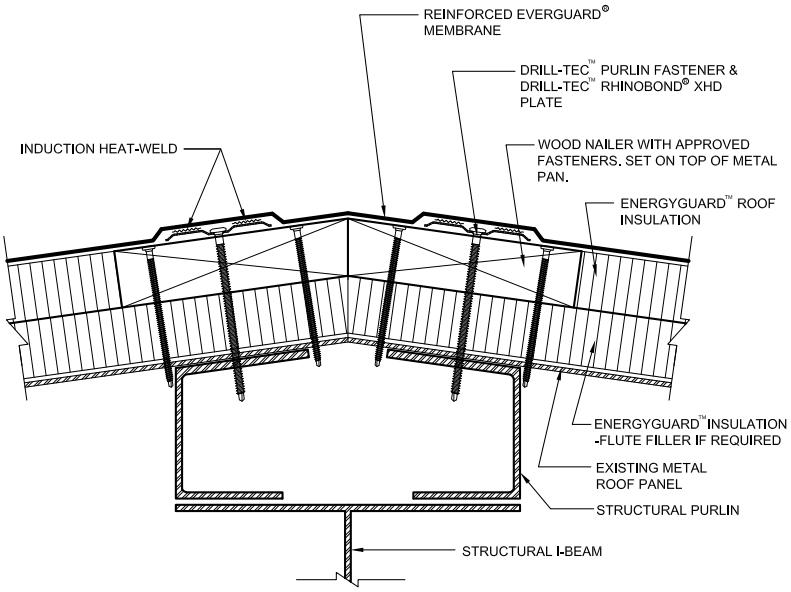
NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

2. DO NOT RUN CAP SHEET INTO THE PERIMETER HALF SHEET REGION IN MECHANICALLY ATTACHED SYSTEMS.

3. APPLY EVERGUARD© TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD© DETAIL 115).

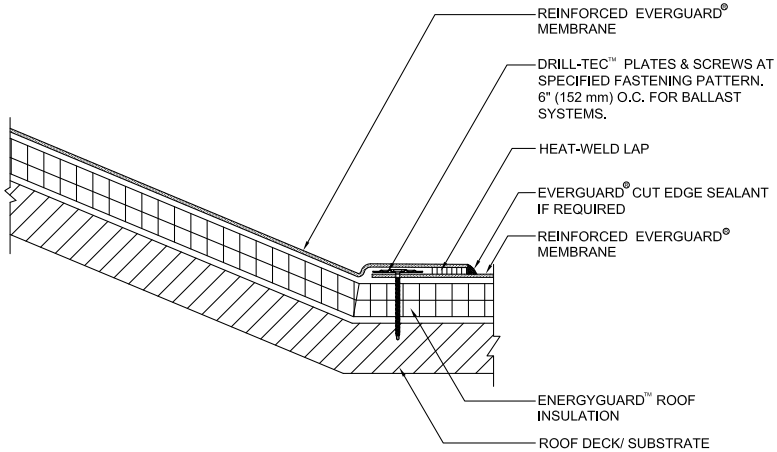
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® FIELD OF ROOF SERIES	DRAWING # 110A	RIDGE DETAIL	THIS DETAIL APPLIES TO: Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 6-20-16



NOTE:

1. REFER TO THE DRILL-TEC™ RHINBOND® ATTACHMENT TABLES FOR DETAILED INSTALLATION REQUIREMENTS REGARDING DECK TYPE, PLATE & FASTENER TYPE, AND MIN. EMBEDMENT.

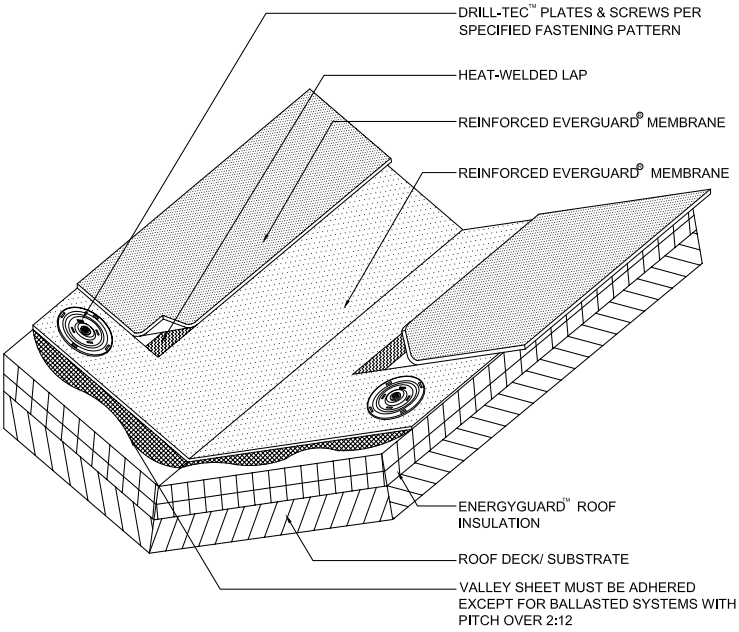
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® FIELD OF ROOF SERIES	DRAWING # 110F	METAL ROOF RIDGE DETAIL	THIS DETAIL APPLIES TO: Plate-Welded Systems
	METAL RETROFIT	SCALE N.T.S.		REVISION DATE 6-15-17



NOTE:

1. ANYTHING 1:12 OR GREATER NEEDS TO BE FASTENED AT ANGLE CHANGE.
2. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

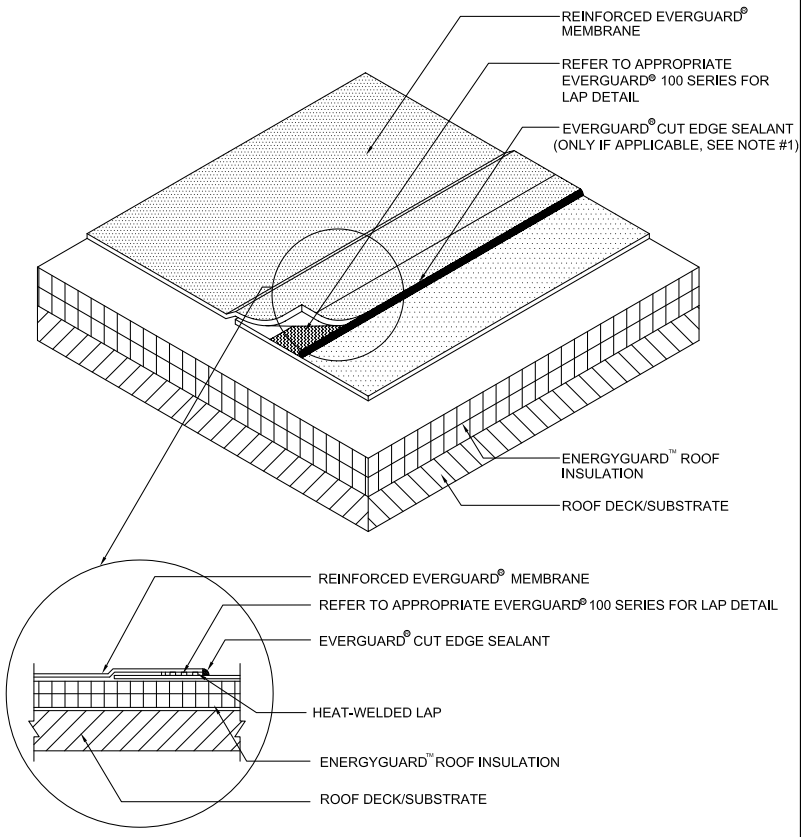
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard FIELD OF ROOF SERIES	DRAWING # 112	CHANGE OF DECK PLANE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems RhinoBond Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 6-1-16



NOTE:

1. FOR MECHANICALLY ATTACHED SYSTEMS, VALLEYS MUST BE ADHERED USING APPROVED SPECIFIC EVERGUARD® ADHESIVE.

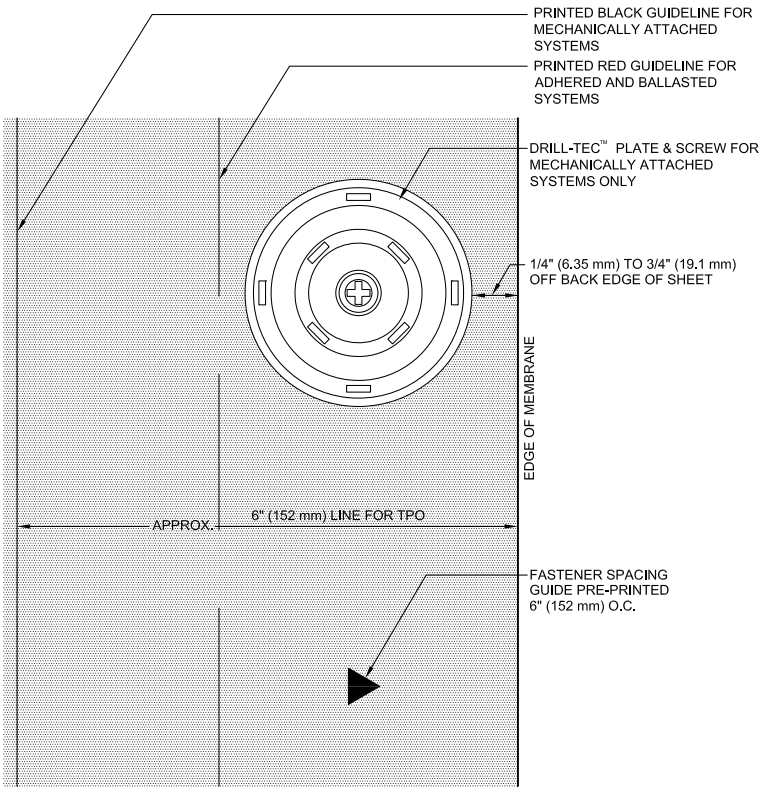
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard FIELD OF ROOF SERIES	DRAWING # 113A	VALLEY DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Ballasted Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 6-28-17



NOTE:

1. EVERGUARD© CUT EDGE SEALANT MUST BE USED ON ANY TPO CUT EDGES (REINFORCED ONLY).
2. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

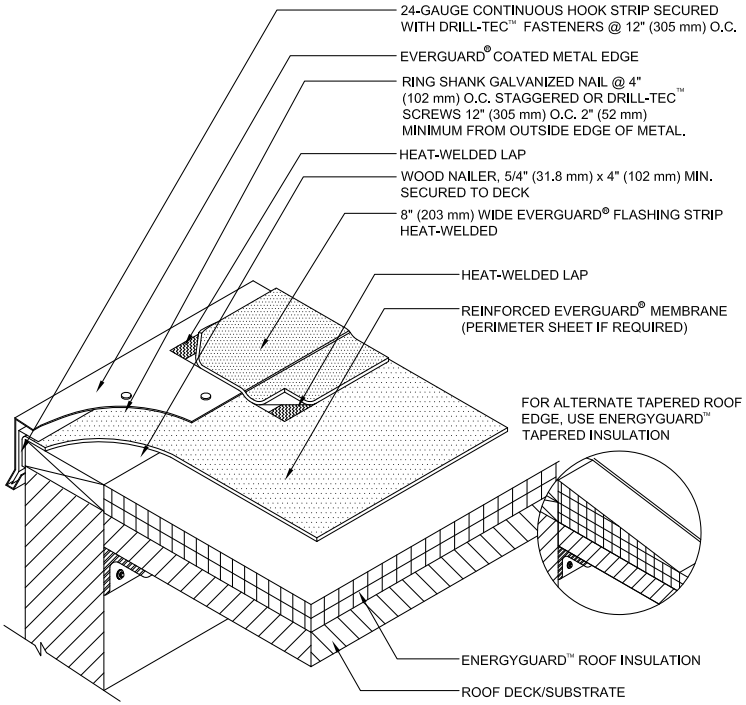
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® FIELD OF ROOF SERIES	DRAWING # 115	CUT EDGE SEALANT DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Ballasted Systems Self - Adhered Systems Mechanically Attached Systems
		SCALE N.T.S.	EVERGUARD© TPO MEMBRANE ONLY	REVISION DATE 6-28-17



NOTE:

1. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® FIELD OF ROOF SERIES	DRAWING # 116A	MEMBRANE EDGE DETAIL	THIS DETAIL APPLIES TO: Ballasted Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 6-26-17

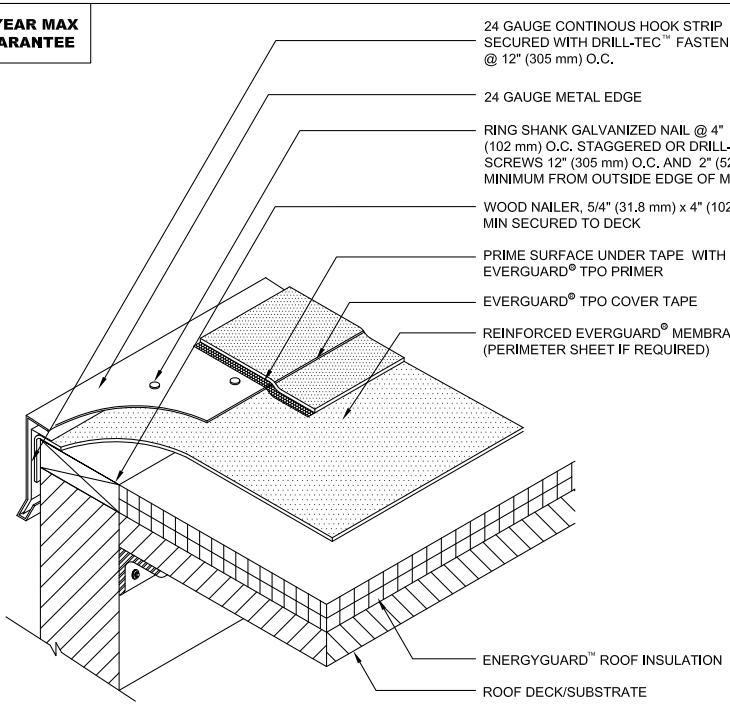


NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY FASTENED SYSTEMS ONLY.
2. 25-YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
3. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF EDGE SERIES	DRAWING # 202A	COATED METAL ROOF EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Self - Adhered Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 6-28-17

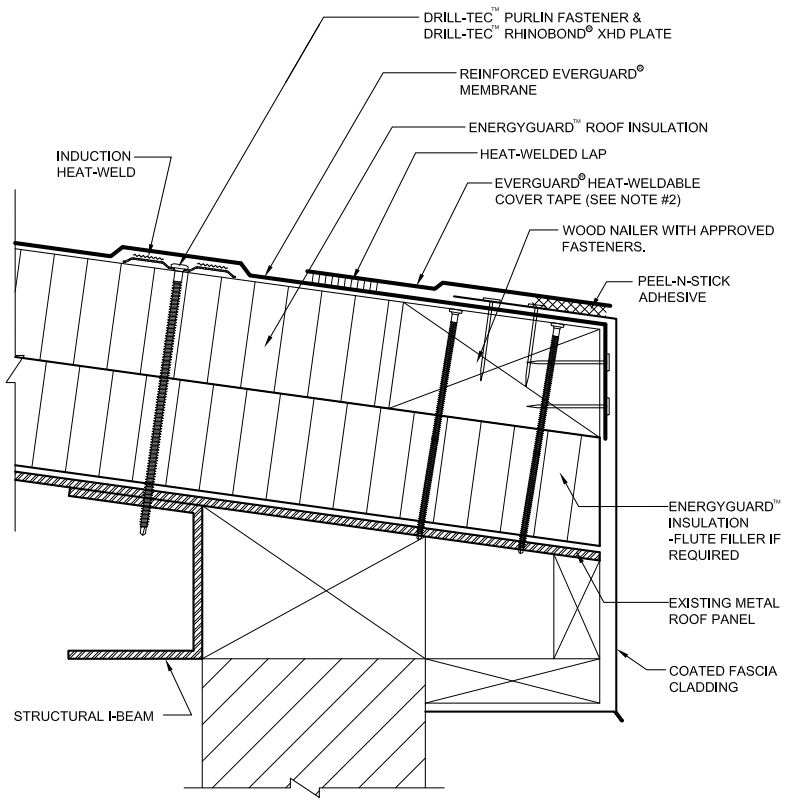
15-YEAR MAX GUARANTEE



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. CLEAN METAL AND MEMBRANE WITH EVERGUARD®TPO SEAM CLEANER AND ALLOW TO DRY BEFORE PRIMING.
3. EVERGUARD®TPO COVER TAPE ONLY TO BE USED WITH TPO MEMBRANE SYSTEMS.
4. THIS DETAIL IS **NOT** TO BE USED ON SLOPES GREATER THAN 1:12. FOR SLOPES GREATER THAN 1:12, REFER TO EVERGUARD®DETAIL 218 OR 219 .

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF EDGE SERIES	DRAWING # 202B	ROOF EDGE WITH TPO COVER TAPE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Mechanically Attached Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 10-3-17

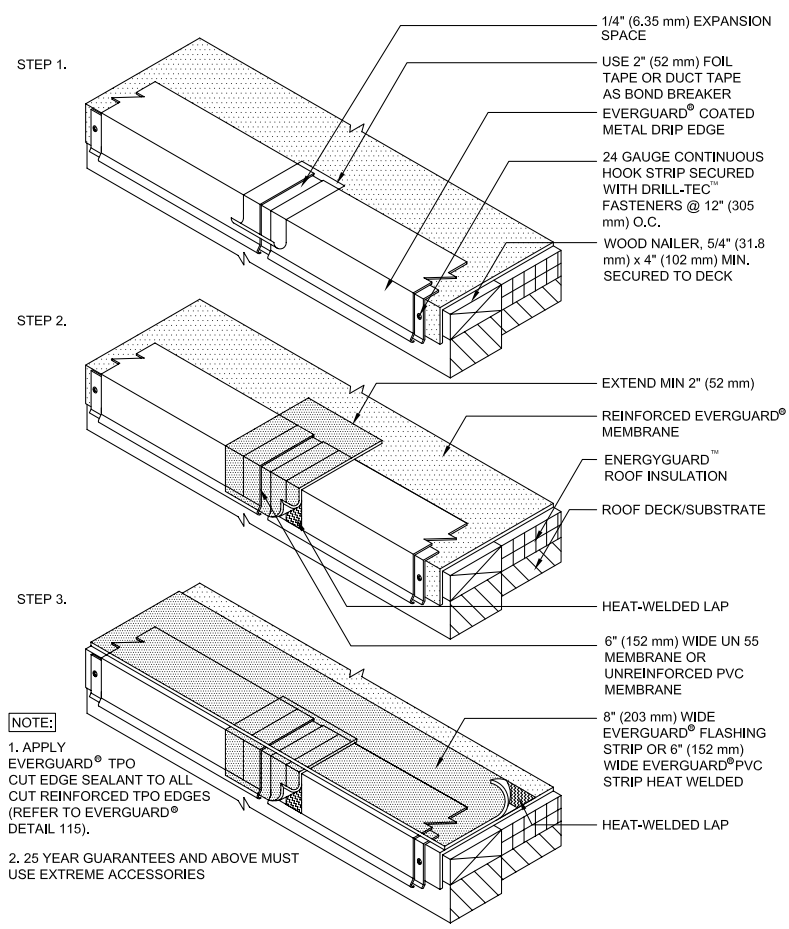


NOTE:

1. REFER TO THE DRILL-TEC™ RHINBOND® ATTACHMENT TABLES FOR DETAILED INSTALLATION REQUIREMENTS REGARDING DECK TYPE, PLATE & FASTENER TYPE, AND MIN. EMBEDMENT.

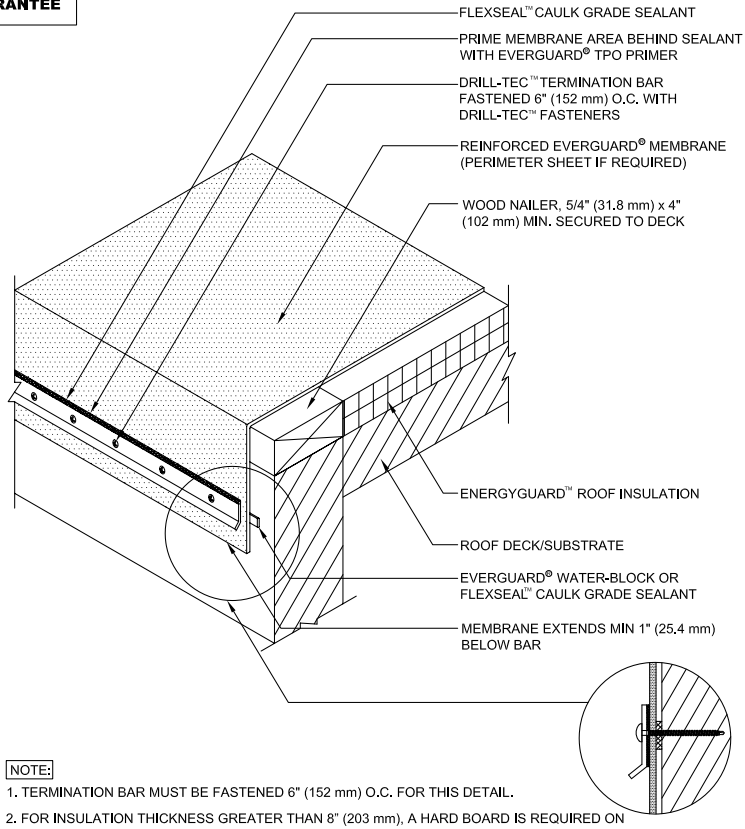
2. USE STRIPPING DETAIL APPROPRIATE TO THE METAL TYPE AND GUARANTEE PERIOD. REFER TO EVERGUARD®200 SERIES DETAILS

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF EDGE SERIES	DRAWING # 202F	METAL ROOF EDGE DETAIL	THIS DETAIL APPLIES TO: Plate-Welded Systems
	METAL RETROFIT	SCALE N.T.S.		REVISION DATE 6-15-17



GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF EDGE SERIES	DRAWING # 204	COATED METAL JOINT DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Mechanically Attached Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 6-28-17

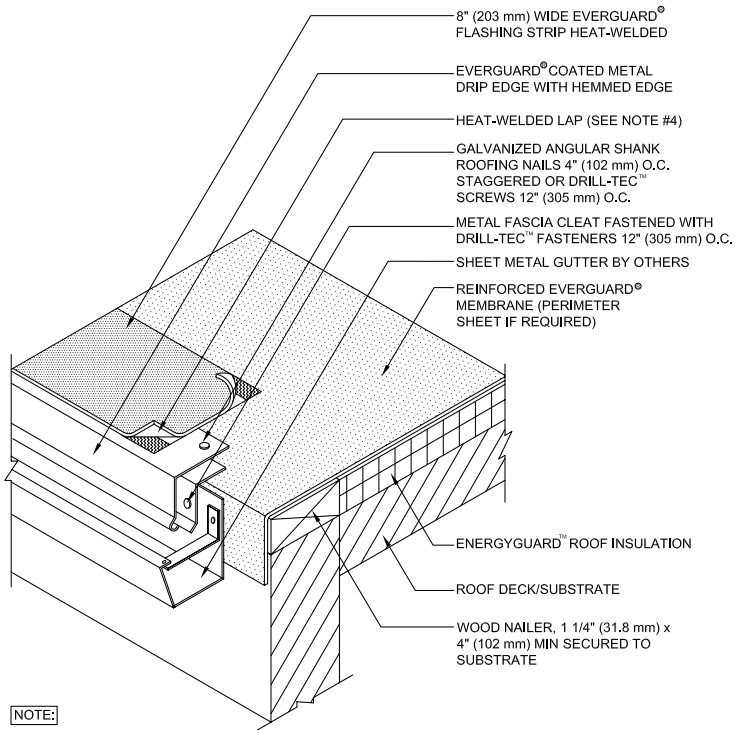
20-YEAR MAX GUARANTEE



NOTE:

1. TERMINATION BAR MUST BE FASTENED 6" (152 mm) O.C. FOR THIS DETAIL.
2. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY FASTENED SYSTEMS ONLY.
3. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF EDGE SERIES	DRAWING # 208	TERMINATION BAR ROOF EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Self - Adhered Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 10-3-17



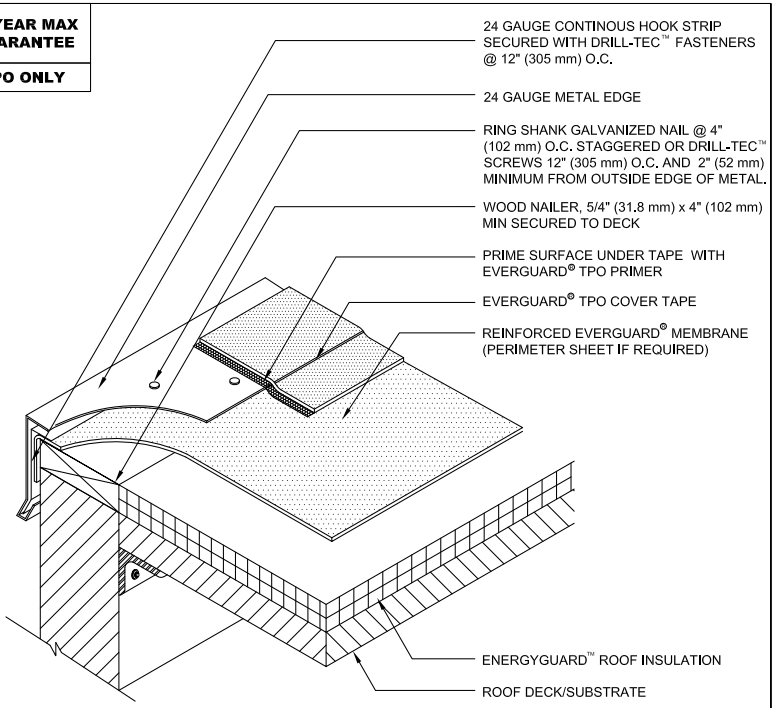
NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY FASTENED SYSTEMS ONLY.
2. REFER TO EVERGUARD® DETAIL 204 FOR COATED METAL JOINTS.
3. A CONTINUOUS METAL CLEAT IS REQUIRED.
4. FOR SELF-ADHERED RAPIDSEAM™ TECHNOLOGY SYSTEMS, SEE EVERGUARD® DETAIL 330 FOR LAP APPLICATION.
5. 25-YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF / EverGuard	DRAWING #		THIS DETAIL APPLIES TO:
ROOF EDGE SERIES	211	GUTTER WITH COATED METAL EDGE DETAIL	Adhered Systems Self - Adhered Systems Mechanically Attached Systems
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	SCALE N.T.S.		REVISION DATE 6-26-17

15-YEAR MAX GUARANTEE

TPO ONLY



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

2. CLEAN METAL AND MEMBRANE WITH EVERGUARD ®TPO SEAM CLEANER AND ALLOW TO DRY. ONCE DRY, PRIME METAL AND MEMBRANE WITH EVERGUARD ®TPO PRIMER BEFORE INSTALLING EVERGUARD ®TPO COVER TAPE.

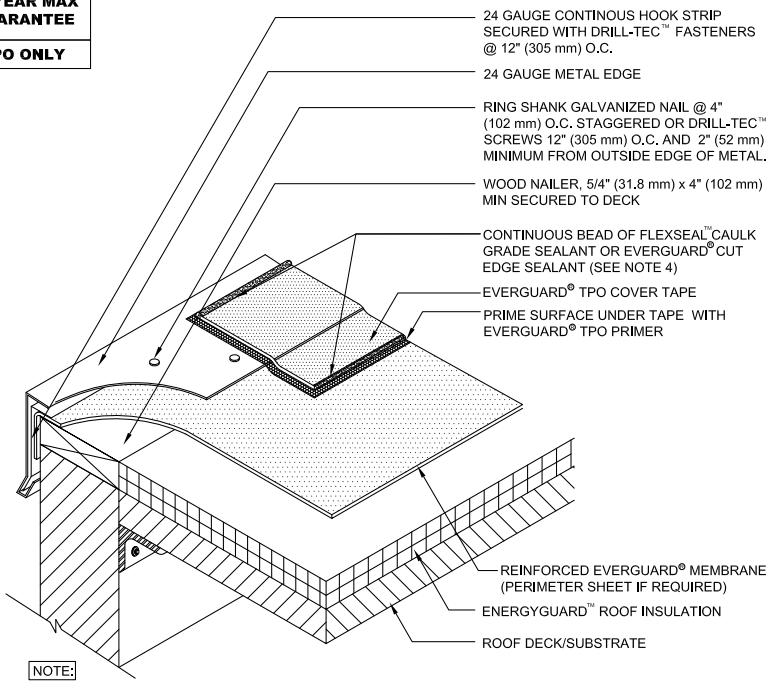
3. THIS DETAIL IS **NOT** TO BE USED ON SLOPES GREATER THAN 1:12. FOR SLOPES GREATER THAN 1:12, REFER TO EVERGUARD DETAIL 218 OR 219 .

4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF EDGE SERIES	DRAWING # 213A	COVER TAPE AT ROOF EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Mechanically Attached Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 8-28-17

20-YEAR MAX GUARANTEE

TPO ONLY



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

2. CLEAN METAL AND MEMBRANE WITH EVERGUARD® TPO SEAM CLEANER AND ALLOW TO DRY. ONCE DRY, PRIME METAL AND MEMBRANE WITH EVERGUARD® TPO PRIMER BEFORE INSTALLING EVERGUARD® TPO COVER TAPE.

3. THIS DETAIL IS **NOT** TO BE USED ON SLOPES GREATER THAN 1:12. FOR SLOPES GREATER THAN 1:12, REFER TO EVERGUARD DETAIL 218 OR 219 .

4. FLEXSEAL™ CAULK GRADE SEALANT SHOULD BE FEATHERED OUT AND APPLIED TO BOTH INSIDE AND OUTSIDE EDGES. ENSURE PRIMER EXTENDS UNDER FLEXSEAL™ CAULK GRADE SEALANT.

5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054

EverGuard® ROOF EDGE SERIES

DRAWING # 213B

COVER TAPE AT ROOF EDGE DETAIL

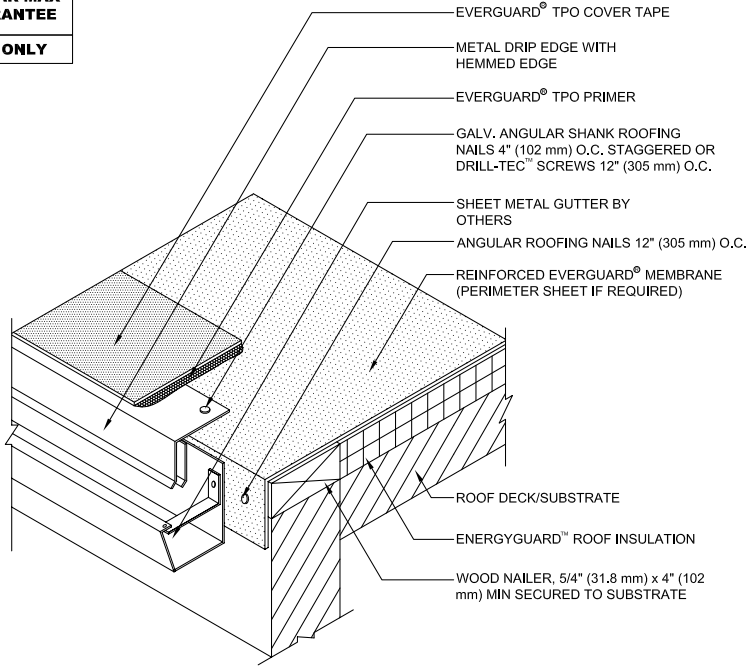
THIS DETAIL APPLIES TO: Adhered Systems, Mechanically Attached Systems, Self - Adhered Systems

SCALE N.T.S.

REVISION DATE 12-12-17

15-YEAR MAX GUARANTEE

TPO ONLY



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

2. CLEAN METAL AND MEMBRANE WITH EVERGUARD® TPO SEAM CLEANER AND ALLOW TO DRY. ONCE DRY, PRIME METAL AND MEMBRANE WITH EVERGUARD® TPO PRIMER BEFORE INSTALLING EVERGUARD® TPO COVER TAPE.

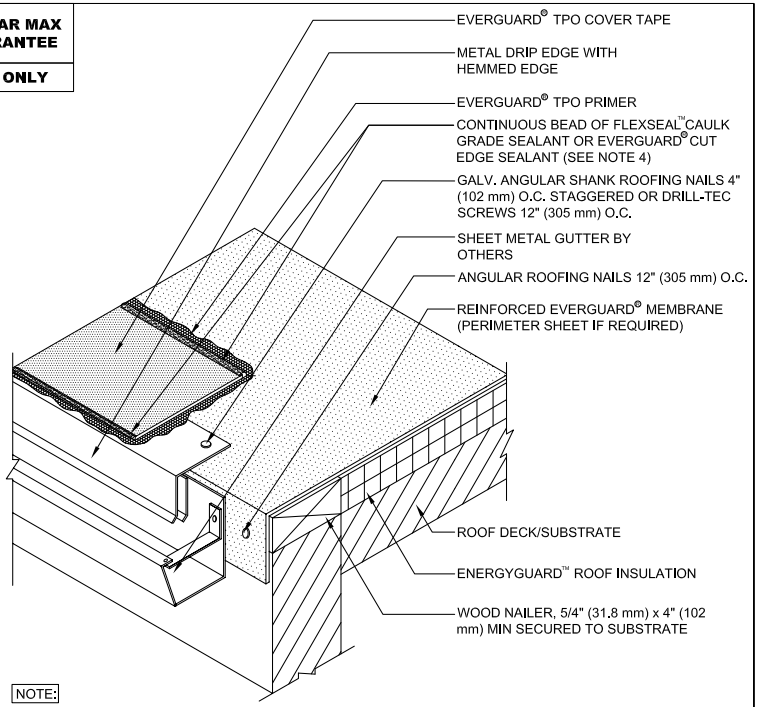
3. THIS DETAIL IS **NOT** TO BE USED ON SLOPES GREATER THAN 1:12. FOR SLOPES GREATER THAN 1:12, REFER TO EVERGUARD DETAIL 218 OR 219 .

4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF EDGE SERIES	DRAWING # 214A	COVER TAPE AT GUTTER EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Mechanically Attached Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 12-12-17

20-YEAR MAX GUARANTEE

TPO ONLY



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

2. CLEAN METAL AND MEMBRANE WITH EVERGUARD® TPO SEAM CLEANER AND ALLOW TO DRY. ONCE DRY, PRIME METAL AND MEMBRANE WITH EVERGUARD® TPO PRIMER BEFORE INSTALLING EVERGUARD® TPO COVER TAPE.

3. THIS DETAIL IS **NOT** TO BE USED ON SLOPES GREATER THAN 1:12. FOR SLOPES GREATER THAN 1:12, REFER TO EVERGUARD DETAIL 218 OR 219 .

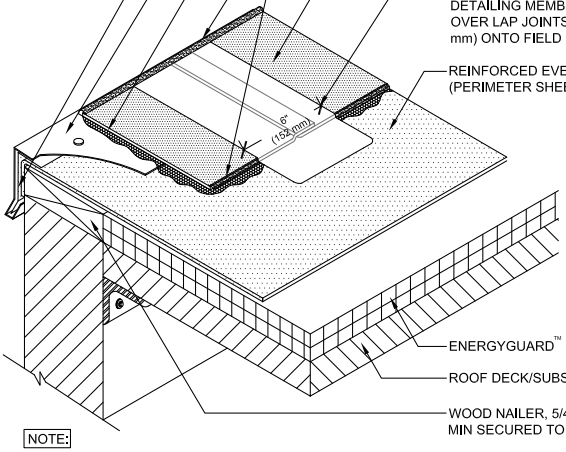
4. FLEXSEAL™ CAULK GRADE SEALANT SHOULD BE FEATHERED OUT AND APPLIED TO BOTH INSIDE AND OUTSIDE EDGES. ENSURE PRIMER EXTENDS UNDER FLEXSEAL™ CAULK GRADE SEALANT.

5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF EDGE SERIES	DRAWING # 214B	COVER TAPE AT GUTTER EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Mechanically Attached Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 10-3-17

20-YEAR MAX GUARANTEE

TPO ONLY



24 GAUGE CONTINOUS HOOK STRIP SECURED WITH DRILL-TEC ™ FASTENERS @ 12" (305 mm) O.C.

24 GAUGE METAL EDGE

EVERGUARD® TPO PRIMER

CONTINUOUS BEAD OF FLEXSEAL™ CAULK GRADE SEALANT OR EVERGUARD® CUT EDGE SEALANT (SEE NOTE 4)

EVERGUARD® TPO COVER TAPE

6" (152 mm) WIDE STRIP OF EVERGUARD® DETAILING MEMBRANE HEAT-WELDED OVER LAP JOINTS AND EXTENDED 2" (52 mm) ONTO FIELD MEMBRANE

REINFORCED EVERGUARD® MEMBRANE (PERIMETER SHEET IF REQUIRED)

ENERGYGUARD™ ROOF INSULATION

ROOF DECK/SUBSTRATE

WOOD NAILER, 5/4" (31.8 mm) X 4" (102 mm) MIN SECURED TO SUBSTRATE

NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

2. CLEAN METAL AND MEMBRANE WITH EVERGUARD® TPO SEAM CLEANER AND ALLOW TO DRY. ONCE DRY, PRIME METAL AND MEMBRANE WITH EVERGUARD® TPO PRIMER BEFORE INSTALLING EVERGUARD® TPO COVER TAPE.

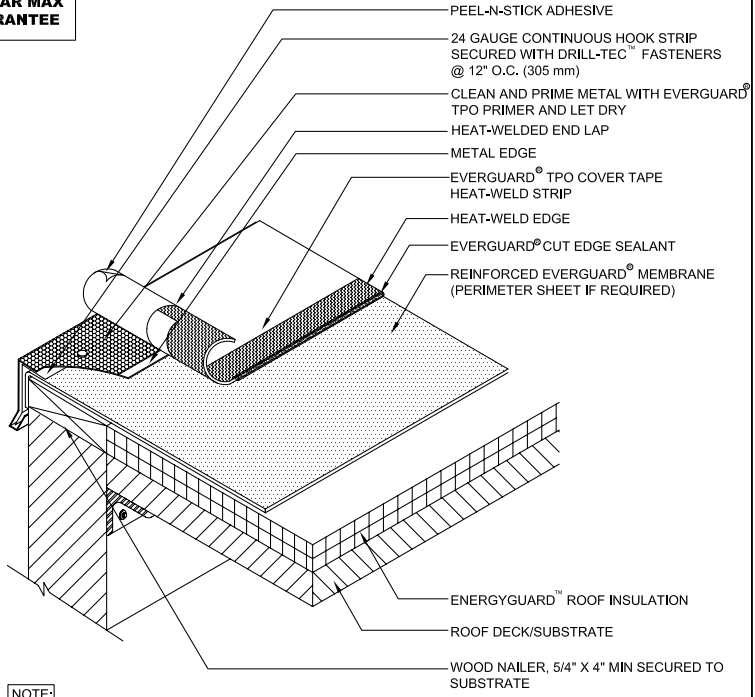
3. THIS DETAIL IS **NOT** TO BE USED ON SLOPES GREATER THAN 1:12. FOR SLOPES GREATER THAN 1:12, REFER TO EVERGUARD DETAIL 218 OR 219 .

4. FLEXSEAL™ CAULK GRADE SEALANT SHOULD BE FEATHERED OUT AND APPLIED TO BOTH INSIDE AND OUTSIDE EDGES. ENSURE PRIMER EXTENDS UNDER FLEXSEAL™ CAULK GRADE SEALANT.

5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF EDGE SERIES	DRAWING # 215B	COVER TAPE OVERLAP AT ROOF EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Mechanically Attached Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 12-12-17

20-YEAR MAX GUARANTEE

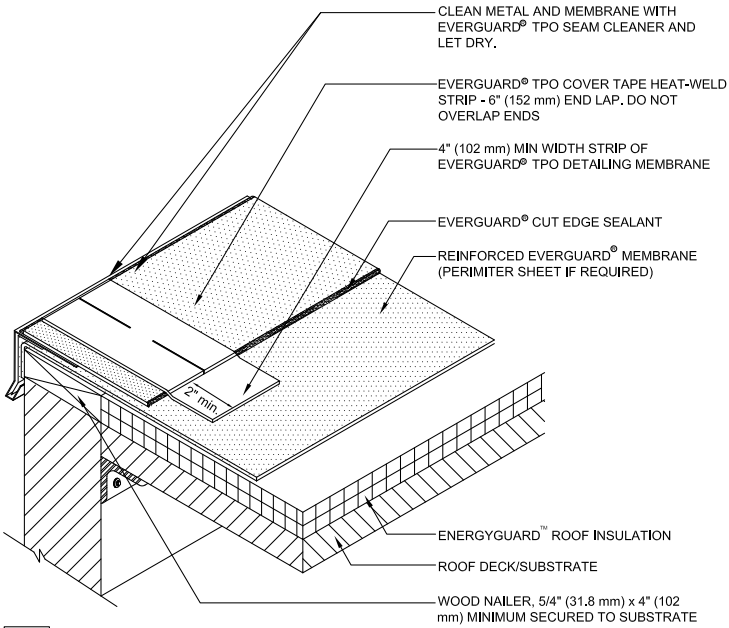


NOTE:

1. EVERGUARD® TPO COVER TAPE HEAT-WELD ONLY TO BE USED WITH EVERGUARD® TPO MEMBRANE.
2. 25-YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
3. PRIME THE METAL ONLY WITH EVERGUARD® TPO PRIMER. DO NOT SPILL PRIMER ON WELDED SEAM AREA.
4. HEAT-WELD THE MEMBRANE (NON-ADHESIVE SIDE ONLY) TO MEMBRANE AREA USING EITHER A ROBOTIC OR HAND WELDER TO SPEC.
5. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY FASTENED SYSTEMS ONLY.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF WWW.GAF.COM 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF EDGE SERIES	DRAWING # 218	TPO COVER TAPE HEAT-WELD STRIP OVERLAP AT ROOF EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 12-12-17

20 YEAR MAX GUARANTEE

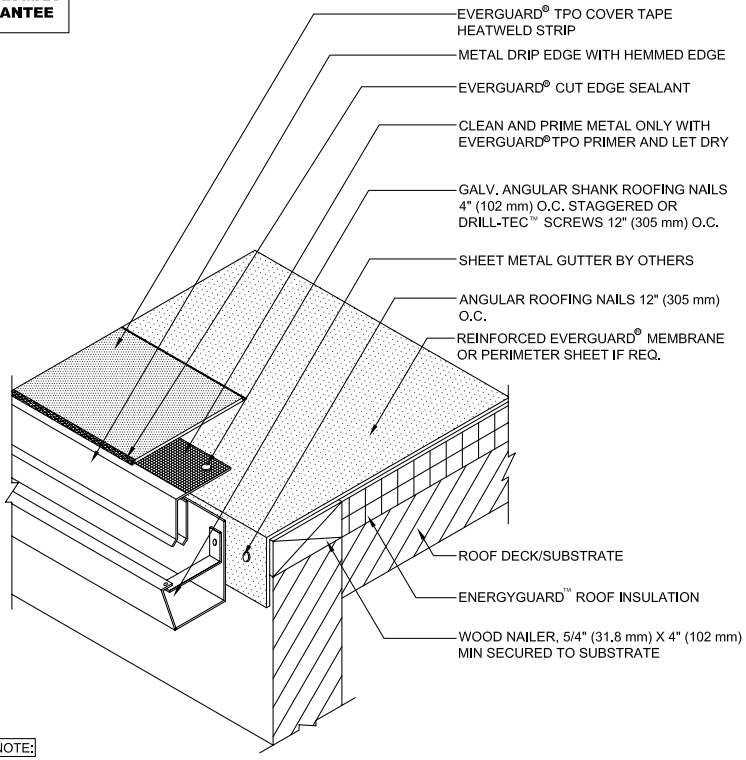


NOTE:

1. EVERGUARD® TPO COVER TAPE HEATWELD STRIP ONLY TO BE USED WITH TPO MEMBRANE SYSTEMS ONLY.
2. PRIME THE METAL ONLY WITH EVERGUARD TPO PRIMER. DO NOT SPILL PRIMER ON WELDED SEAM AREA.
3. HEAT WELD THE MEMBRANE (NON-ADHESIVE SIDE ONLY) TO MEMBRANE AREA USING EITHER A ROBOTIC OR HAND WELDER TO SPEC.
4. REFER TO DETAIL 218 FOR EVERGUARD® COVER TAPE HEATWELD ROOF EDGE INSTALLATION.
5. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY FASTENED SYSTEMS ONLY.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF EDGE SERIES	DRAWING # 219	COVER TAPE HEATWELD STRIP END JOINT AT ROOF EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Self - Adhered Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 12-12-17

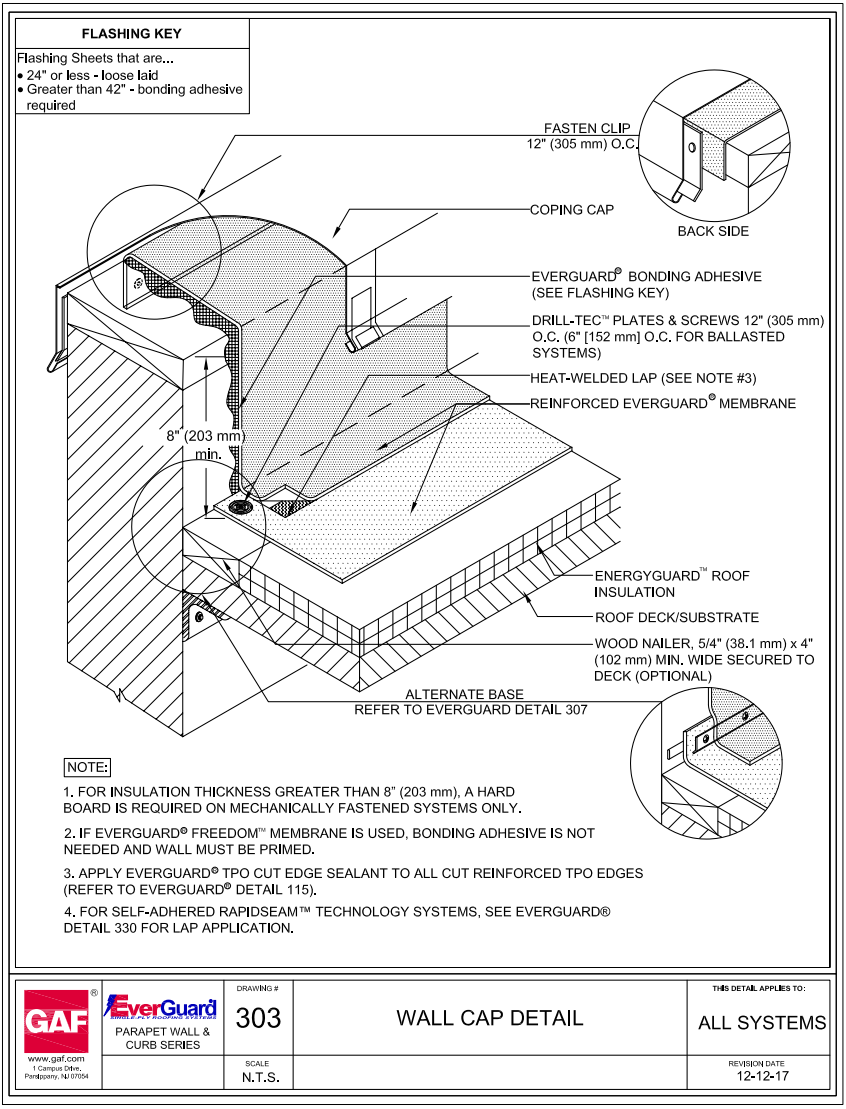
20-YEAR MAX GUARANTEE



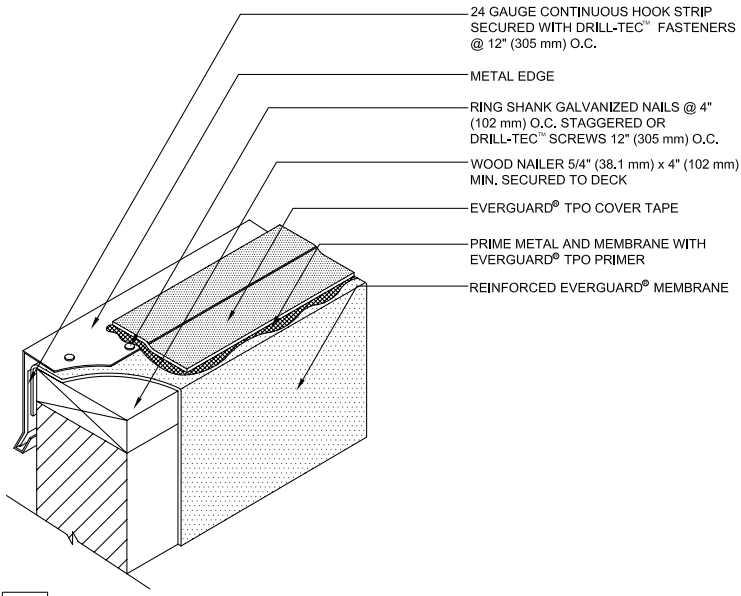
NOTE:

1. EVERGUARD® TPO COVER TAPE HEATWELD STRIP TO BE USED WITH TPO MEMBRANE SYSTEMS ONLY.
2. PRIME THE METAL ONLY WITH EVERGUARD TPO PRIMER. DO NOT SPILL PRIMER ON WELDED SEAM AREA.
3. HEAT WELD THE MEMBRANE (NON-ADHESIVE SIDE ONLY) TO MEMBRANE AREA USING EITHER A ROBOTIC OR HAND WELDER TO SPEC.
4. REFER TO DETAIL 218 FOR EVERGUARD® COVER TAPE HEATWELD ROOF EDGE INSTALLATION.
5. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY FASTENED SYSTEMS ONLY.

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF EDGE SERIES	DRAWING # 220	COVER TAPE HEAT-WELD STRIP AT GUTTER EDGE DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Self - Adhered Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 12-12-17


FLASHING KEY
Flashing Sheets that are...
• 24" or less - loose laid
• Greater than 42" - bonding adhesive required
FASTEN CLIP
12" (305 mm) O.C.
BACK SIDE
COPING CAP
EVERGUARD® BONDING ADHESIVE
(SEE FLASHING KEY)
DRILL-TEC™ PLATES & SCREWS 12" (305 mm) O.C. (6" [152 mm] O.C. FOR BALLASTED SYSTEMS)
HEAT-WELDED LAP (SEE NOTE #3)
REINFORCED EVERGUARD® MEMBRANE
8" (203 mm) min.
ENERGYGUARD™ ROOF INSULATION
ROOF DECK/SUBSTRATE
WOOD NAILER, 5/4" (38.1 mm) x 4" (102 mm) MIN. WIDE SECURED TO DECK (OPTIONAL)
ALTERNATE BASE
REFER TO EVERGUARD DETAIL 307
NOTE:
1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICALLY FASTENED SYSTEMS ONLY.
2. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
3. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).
4. FOR SELF-ADHERED RAPIDSEAM™ TECHNOLOGY SYSTEMS, SEE EVERGUARD® DETAIL 330 FOR LAP APPLICATION.
GAF
www.gaf.com
1 Campus Drive, Parsippany, NJ 07054
EverGuard
PARAPET WALL & CURB SERIES
DRAWING #
303
WALL CAP DETAIL
THIS DETAIL APPLIES TO:
ALL SYSTEMS
SCALE
N.T.S.
REVISION DATE
12-12-17

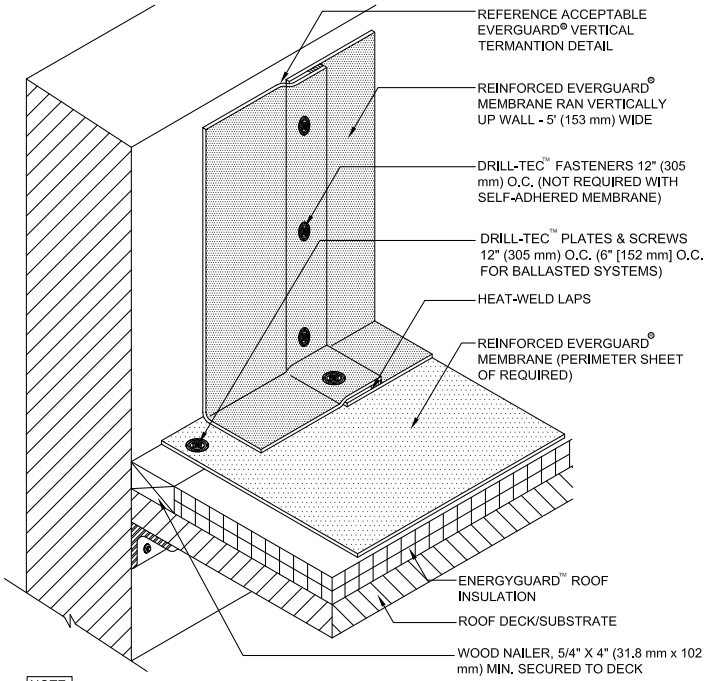
20-YEAR MAX GUARANTEE



NOTE:

1. METAL JOINTS ON THE ROOF SIDE CAN BE CAULKED USING EVERGUARD® CUT EDGE SEALANT. DO NOT RUN TAPE UP CANTED METAL OF GRAVEL STOP.
2. EVERGUARD® TPO COVER TAPE TO BE USED ONLY ON EVERGUARD® TPO MEMBRANE SYSTEMS.
3. EVERGUARD® TPO COVER TAPE TO BE USED ONLY ON HORIZONTAL SURFACES, NOT TURNED VERTICALLY.
4. EVERGUARD® TPO COVER TAPE HEAT-WELD USED FOR LONGER GUARANTEES.
5. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD DETAIL 115).

GAF / EverGuard	DRAWING #		THIS DETAIL APPLIES TO:
PARAPET WALL & CURB SERIES	316	PARAPET WALL WITH METAL EDGE AND TPO COVER TAPE DETAIL	ALL SYSTEMS
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	SCALE N.T.S.		REVISION DATE 12-12-17

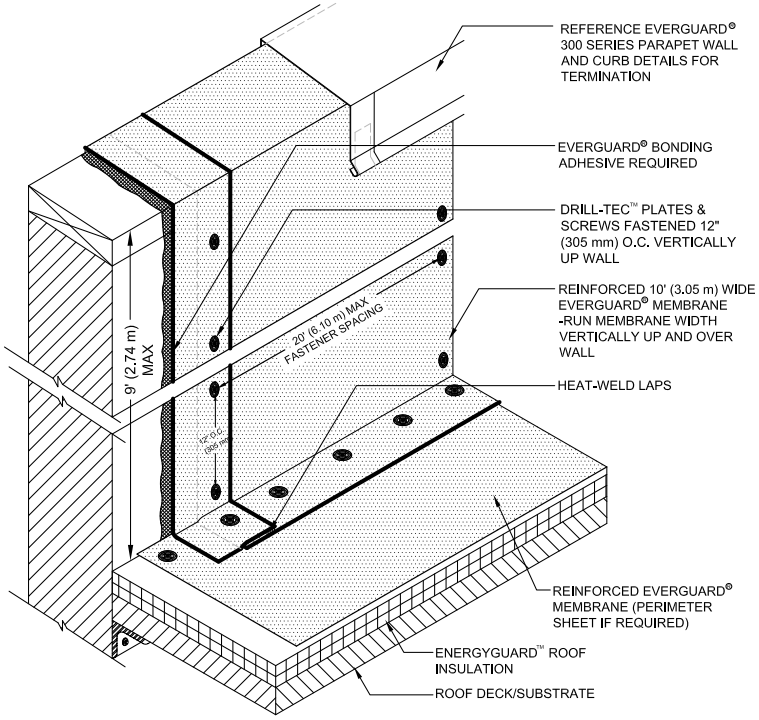


NOTE:

1. DETAIL TO BE USED IN CONJUNCTION WITH STANDARD GUIDE SPECIFICATION CONTAINING REQUIREMENTS FOR NAILERS, INSULATION ETC.
2. VERTICAL FLASHINGS TO BE FULLY ADHERED (MANDATORY).
3. SELF ADHERED MEMBRANE MAY BE BONDED DIRECTLY TO AN ACCEPTABLE VERTICAL SUBSTRATE PRIMED WITH EVERGUARD® TPO PRIMER.
4. FOR SELF-ADHERED RAPIDSEAM™ TECHNOLOGY SYSTEMS, UP TO 10-YR. MAXIMUM GUARANTEE ONLY.
5. FOR SELF-ADHERED HEAT-WELDED SYSTEMS, UP TO 15-YR. MAXIMUM GUARANTEE ONLY.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF 1361 Alps Rd. Wayne, NJ 07470 www.gaf.com	EverGuard PARAPET WALL & CURB SERIES	DRAWING # 317	ALTERNATE HIGH WALL FLASHING DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Ballast Applied Systems Mechanically Attached Systems Self - Adhered Systems
		SCALE N.T.S.		REVISION DATE 6-26-17

REFERENCE EVERGUARD DETAIL 317D
FOR VERTICAL SHEET LAYOUT



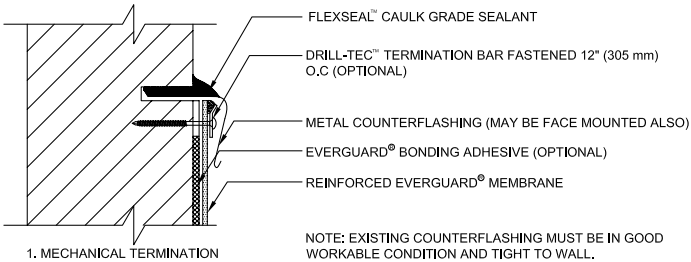
NOTE:

1. MUST BE FASTENED VERTICALLY ON THE WALL A MINIMUM 10' (3.05 m) FROM ALL ENDS OR CORNERS OF WALL, THEN MAX 20' (6.10 m) THEREAFTER. DRILL-TEC™ FASTENERS SPACED 12" (305 mm) O.C.

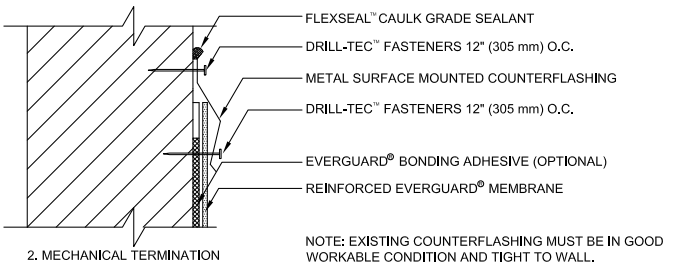
2. MAX PARAPET WALL HEIGHT NOT TO EXCEED THE WIDTH OF A 10' (3.05 m) SHEET. PARAPET WALL SHOULD BE NO TALLER THAN 9' (2.74 m) TO USE A FULL 10' (3.05 m) SHEET OF MEMBRANE AS FLASHING.

3. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

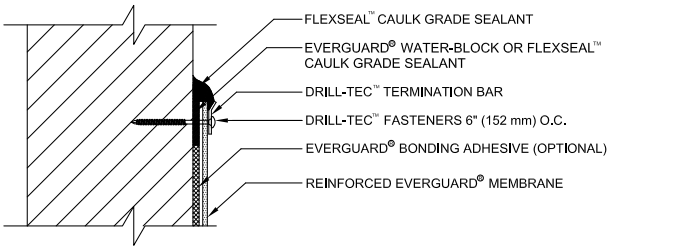
GAF / EverGuard	DRAWING #		THIS DETAIL APPLIES TO:
PARAPET WALL & CURB SERIES	317A	HIGH WALL FLASHING DETAIL 10' (3.05 m) WIDE SHEETS	Adhered Systems Ballasted Systems Mechanically Attached Systems
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	SCALE N.T.S.		REVISION DATE 6-26-17



1. MECHANICAL TERMINATION



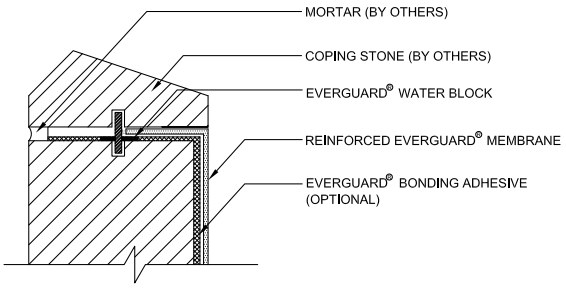
2. MECHANICAL TERMINATION



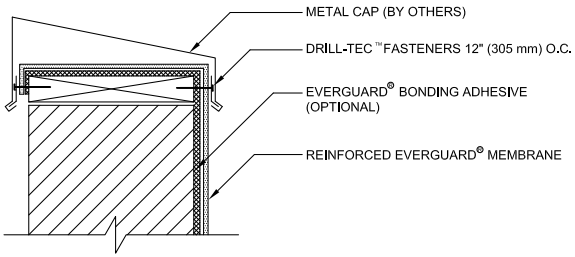
3. MECHANICAL TERMINATION (15-YR MAX GUARANTEE)

GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard PARAPET WALL & CURB SERIES	DRAWING # 318A	TERMINATION DETAIL 1-3	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-20-16

20 YEAR MAX GUARANTEE

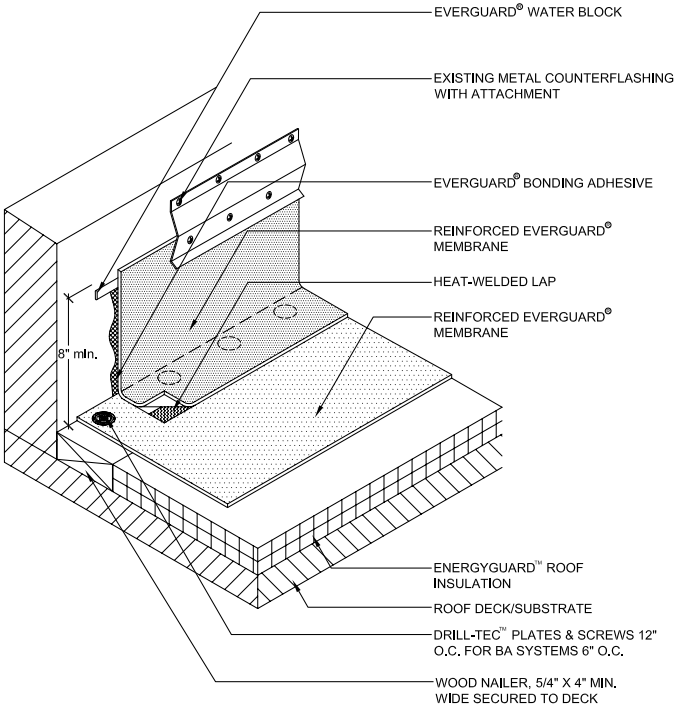


4. COPING STONE TERMINATION



5. CAP FLASHING TERMINATION

GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard PARAPET WALL & CURB SERIES	DRAWING # 318B	TERMINATION DETAILS 4 & 5	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



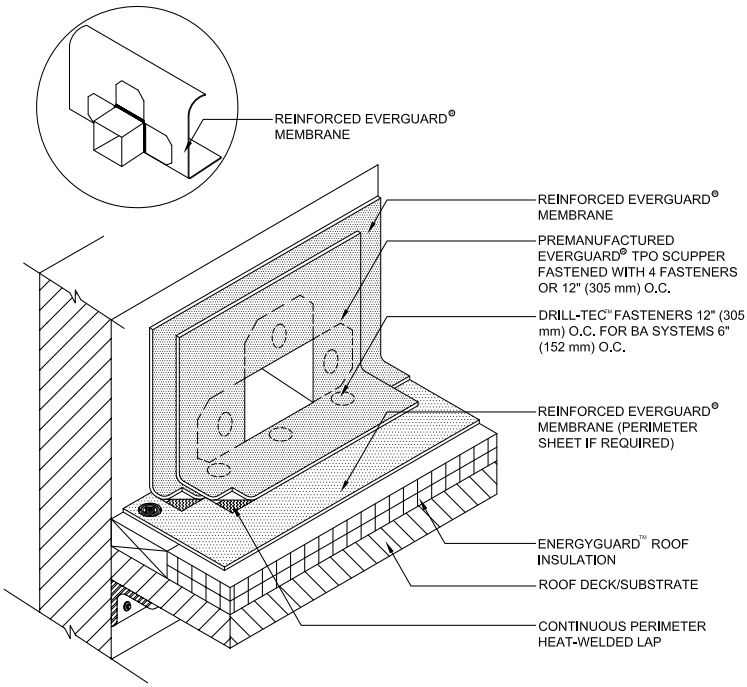
NOTE:

1. ADD BALLAST PER SPEC FOR BALLASTED SYSTEMS.

2. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD DETAIL 115).

GAF 1361 Alps Rd. Wayne, NJ 07470 www.gaf.com	EverGuard PARAPET WALL & CURB SERIES	DRAWING # 319	COUNTERFLASHING RE-ROOF DETAIL	THIS DETAIL APPLIES TO: Adhered Systems Ballast Applied Systems Mechanically Attached Systems
		SCALE N.T.S.		REVISION DATE 6-26-17

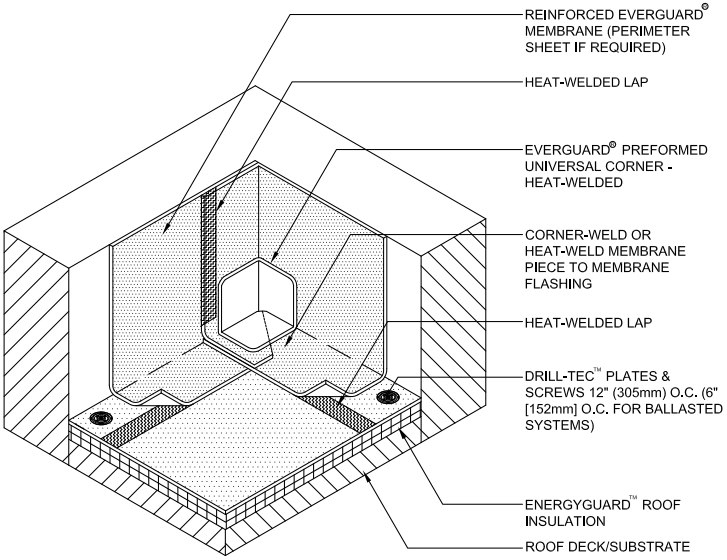
REAR VIEW OF SCUPPER



NOTE:

1. DETAIL TO BE USED IN CONJUNCTION WITH STANDARD GUIDE SPECIFICATION CONTAINING REQUIREMENTS FOR NAILERS, INSULATION ETC.
2. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
3. FOR SELF-ADHERED RAPIDSEAM™ TECHNOLOGY SYSTEMS, SEE EVERGUARD® DETAIL 330 FOR LAP APPLICATION.
4. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
5. SCUPPER MUST ALSO BE SEALED ON OUTSIDE WALL.
6. FOR ALTERNATE BASE ATTACHMENT, REFER TO EVERGUARD® DETAIL 307.

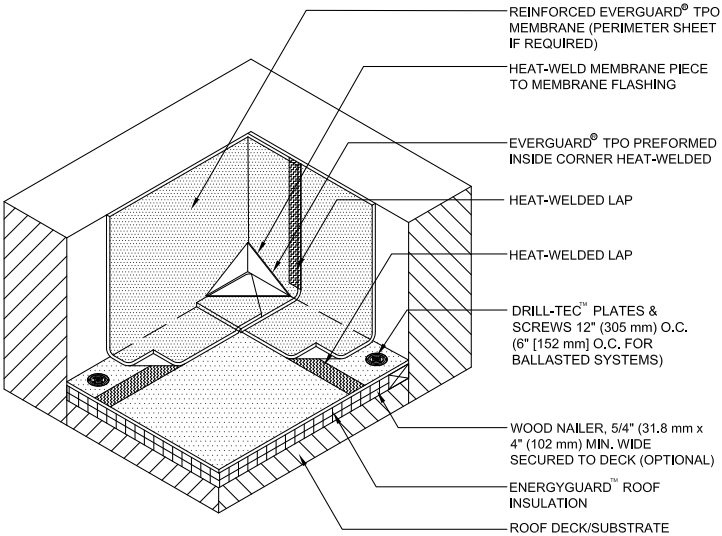
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® PARAPET WALL & CURB SERIES	DRAWING # 324	SCUPPER - PREMANUFACTURED	THIS DETAIL APPLIES TO: Adhered Systems Ballasted Systems Mechanically Attached Systems Self - Adhered Systems (Heat-Weld Only)
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
3. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES
4. FLASHINGS MAY BE ADHERED OR INSTALLED DRY. SEE MANUAL FOR DIMENSIONS.
5. INSIDE CORNERS MAY ALSO BE FIELD-FABRICATED USING UNREINFORCED MEMBRANE.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

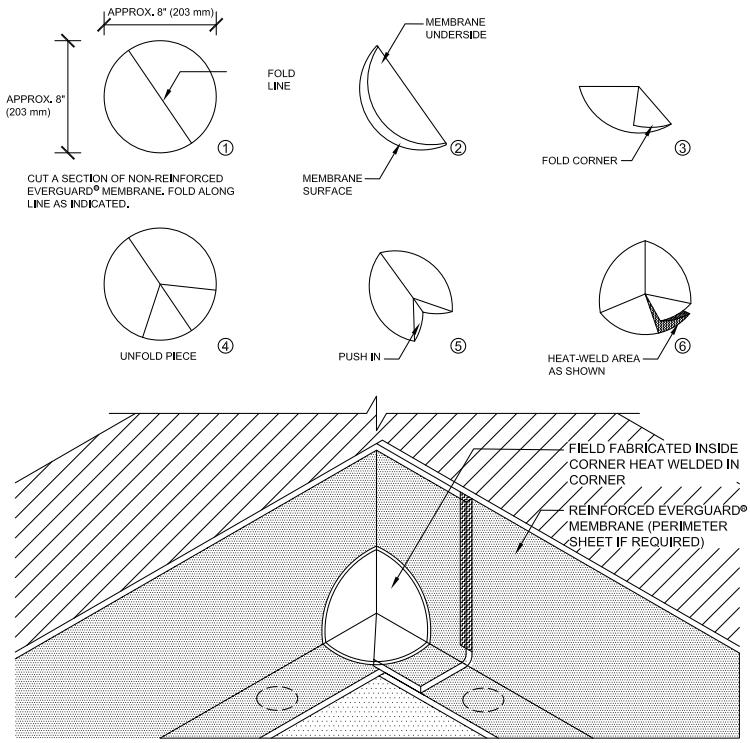
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard PARAPET WALL & CURB SERIES	DRAWING # 327A	INSIDE CORNER REINFORCMENT-PREFORMED CORNER DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. FLASHINGS MAY BE ADHERED OR INSTALLED DRY. SEE SPEC FOR DIMENSIONS.
3. KEEP FASTENERS BACK FROM CORNER 6" (152 mm) MAX. IN BOTH HORIZONTAL AND VERTICAL APPLICATIONS.
4. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES
5. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

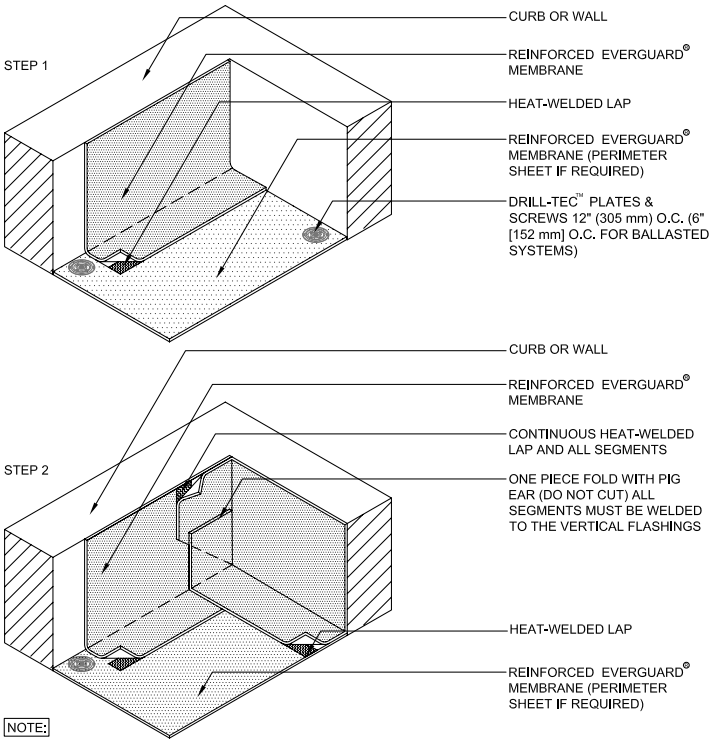
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® PARAPET WALL & CURB SERIES	DRAWING # 327B	INSIDE CORNER REINFORCEMENT - PREFORMED CORNER DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 10-3-17



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 MM), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES
3. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

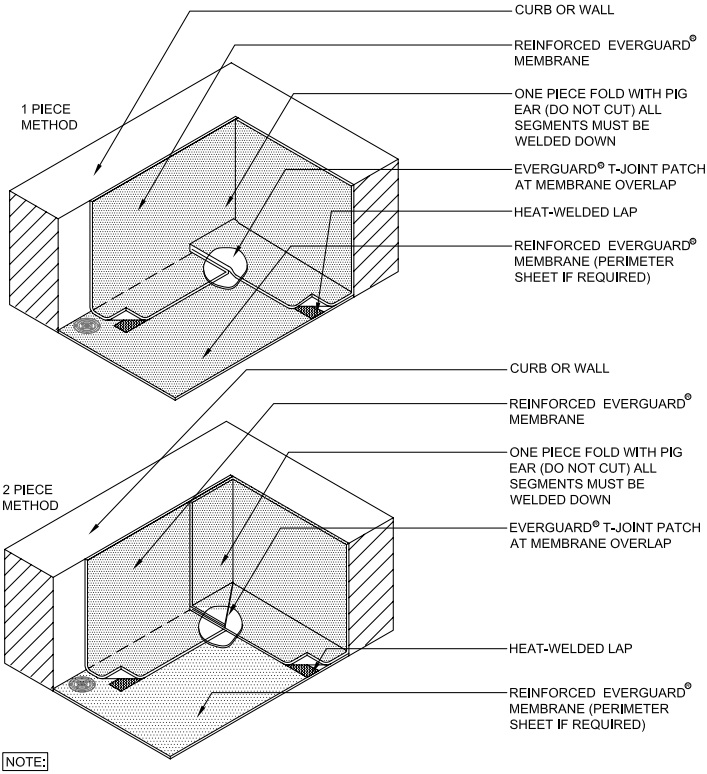
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® PARAPET WALL & CURB SERIES	DRAWING # 327D	INSIDE CORNER REINFORCEMENT - FIELD FABRICATION DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-26-17



NOTE:

1. ALL SEGMENTS OF THE EAR MUST BE WELDED TOGETHER AND WELDED TO THE WALL
2. CHECK SYSTEM SPEC FOR GUIDELINES ON ADHERING FLASHINGS.
3. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
4. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

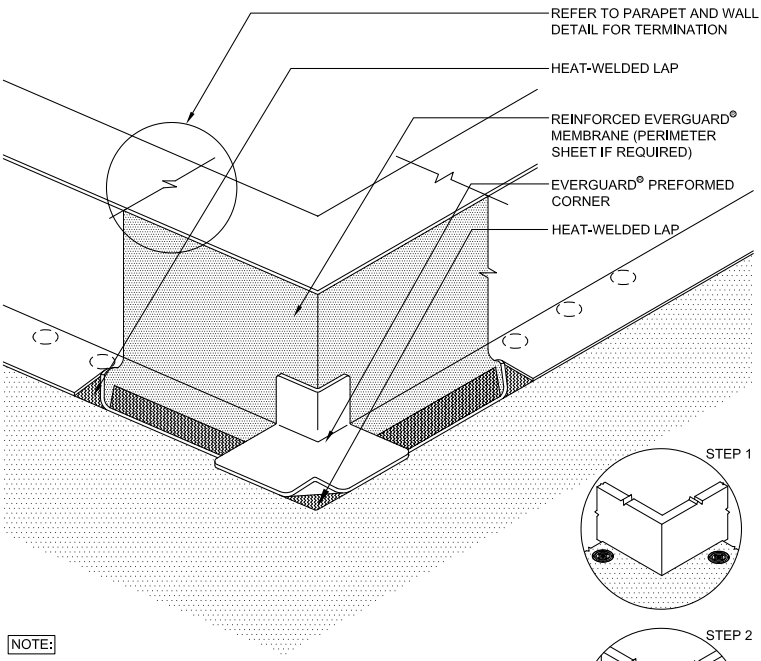
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard PARAPET WALL & CURB SERIES	DRAWING # 328A	INSIDE CORNER FABRICATION - 2 STEP "PIG EAR" UP DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-27-17

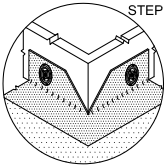


NOTE:

1. ALL SEGMENTS OF THE EAR MUST BE WELDED TOGETHER AND WELDED TO THE WALL
2. CHECK SYSTEM SPEC FOR GUIDELINES ON ADHERING FLASHINGS.
3. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
4. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® PARAPET WALL & CURB SERIES	DRAWING # 328B	INSIDE CORNER FABRICATION - "PIG EAR" DOWN DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-28-17



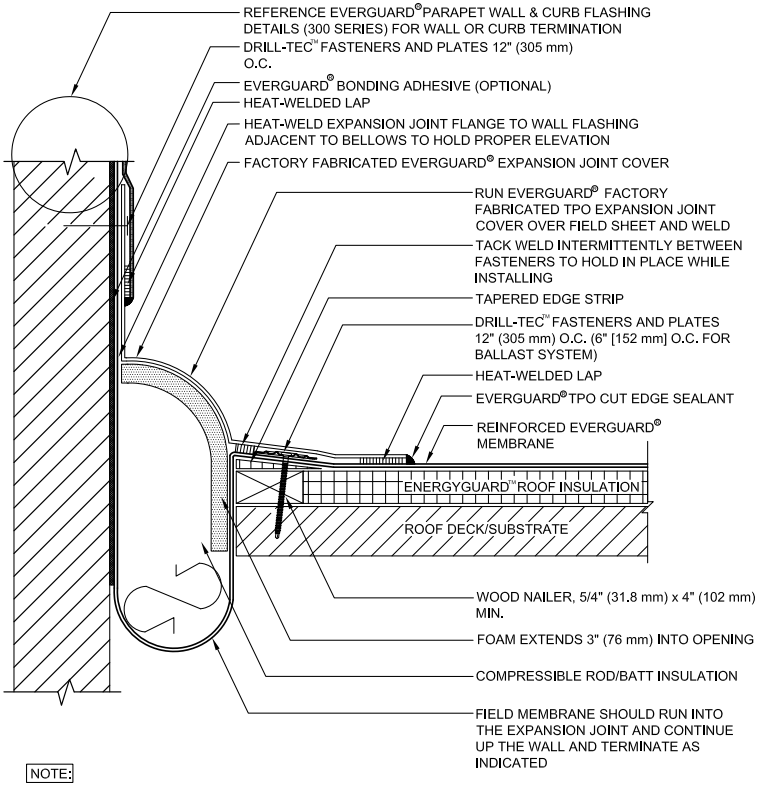


ALTERNATE
WALL/CURB ATTACHMENT

NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
3. FLASHINGS MAY BE ADHERED OR INSTALLED DRY. SEE SPEC FOR DIRECTIONS.
4. KEEP FASTENERS BACK FROM CORNER 6" (152 mm) MAX. IN BOTH HORIZONTAL AND VERTICAL APPLICATIONS.
5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

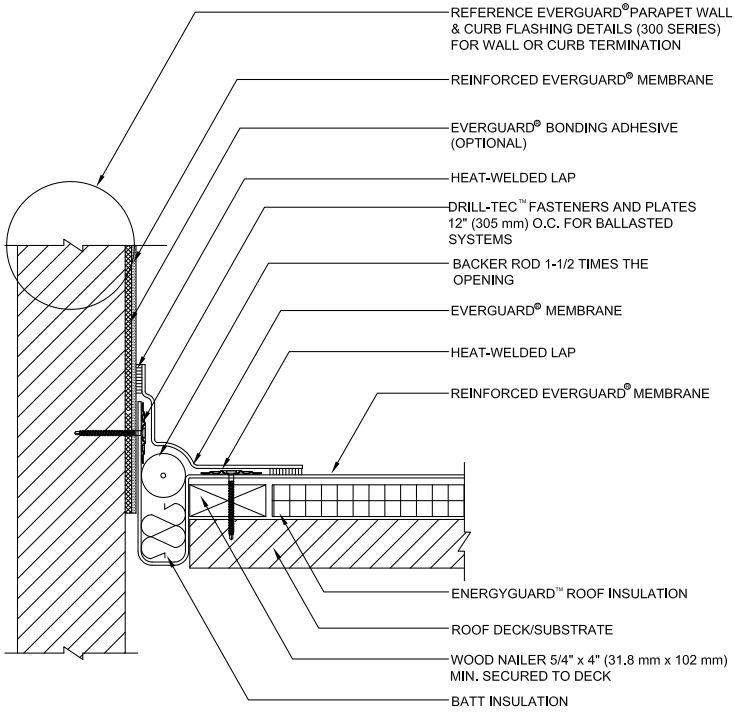
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard PARAPET WALL & CURB SERIES	DRAWING # 329A	OUTSIDE CORNER REINFORCEMENT - PREFORMED CORNER DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-26-17



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

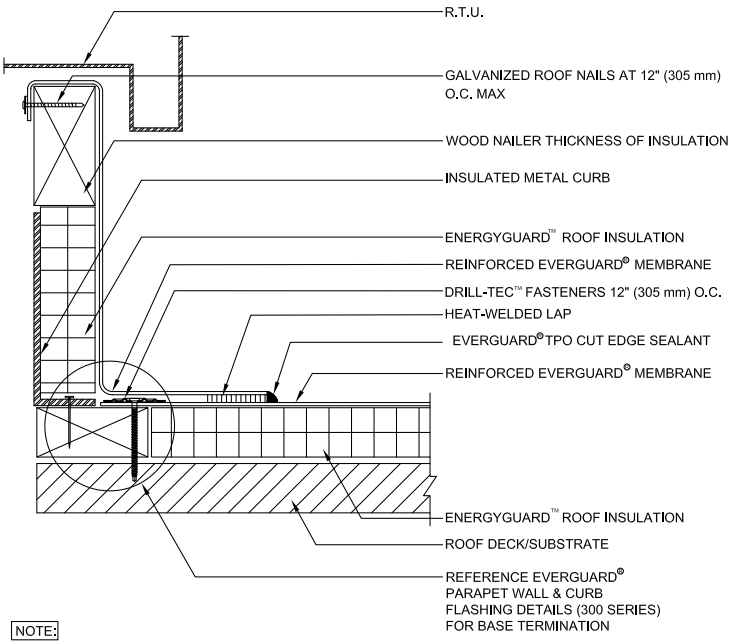
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard EXPANSION JOINT SERIES	DRAWING # 403A SCALE N.T.S.	TPO FACTORY FABRICATED WALL EXPANSION JOINT DETAIL - FLAT TYPE TPO ONLY	THIS DETAIL APPLIES TO: ALL SYSTEMS REVISION DATE 6-20-16



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. FIELD-FABRICATED EXPANSION JOINT SHOULD USE A SMOOTH BACKED MEMBRANE.
3. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

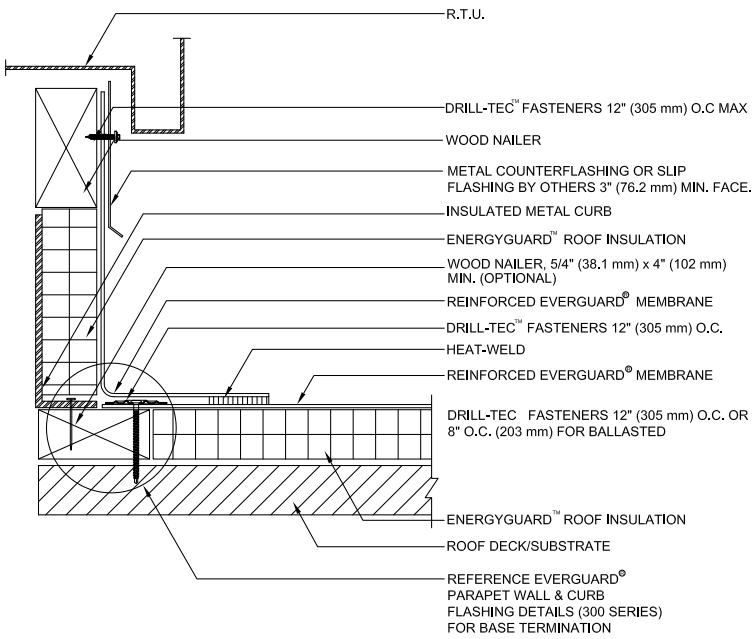
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard EXPANSION JOINT SERIES	DRAWING # 403B	FIELD FABRICATED WALL EXPANSION JOINT DETAIL - FLAT TYPE	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-20-16



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. FOR SELF-ADHERED RAPIDSEAM™ TECHNOLOGY SYSTEMS, SEE EVERGUARD® DETAIL 330 FOR LAP APPLICATION.
3. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

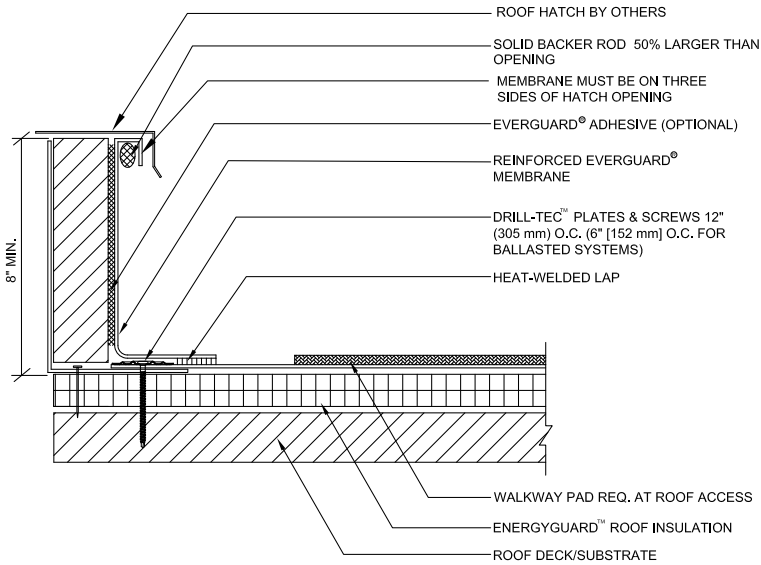
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF PENETRATION SERIES	DRAWING # 503A	TERMINATION AT R.T.U. WITH WELDED LAP DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-21-16



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED.
2. FOR SELF-ADHERED RAPIDSEAM™ TECHNOLOGY SYSTEMS, SEE EVERGUARD® DETAIL 330 FOR LAP APPLICATION.
3. IF EVERGUARD® FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

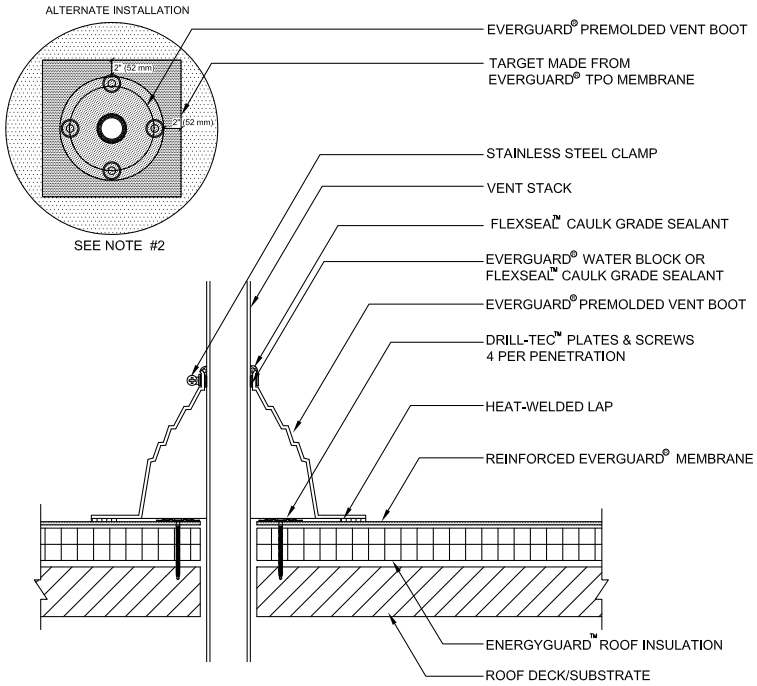
GAF / EverGuard	DRAWING #		THIS DETAIL APPLIES TO:
ROOF PENETRATION SERIES	503B	TERMINATION AT EXISTING R.T.U. WITH COUNTERFLASHING DETAIL	ALL SYSTEMS
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	SCALE N.T.S.		REVISION DATE 6-21-16



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. IF EVERGUARD© FREEDOM™ MEMBRANE IS USED, BONDING ADHESIVE IS NOT NEEDED AND WALL MUST BE PRIMED.
3. FOR SELF-ADHERED RAPIDSEAM™ TECHNOLOGY SYSTEMS, SEE EVERGUARD© DETAIL 330 FOR LAP APPLICATION.
4. APPLY EVERGUARD© TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD© DETAIL 115).

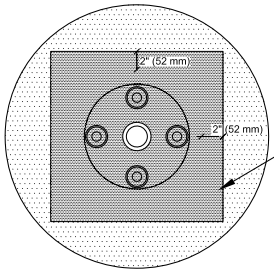
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 505	ROOF HATCH DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-21-16



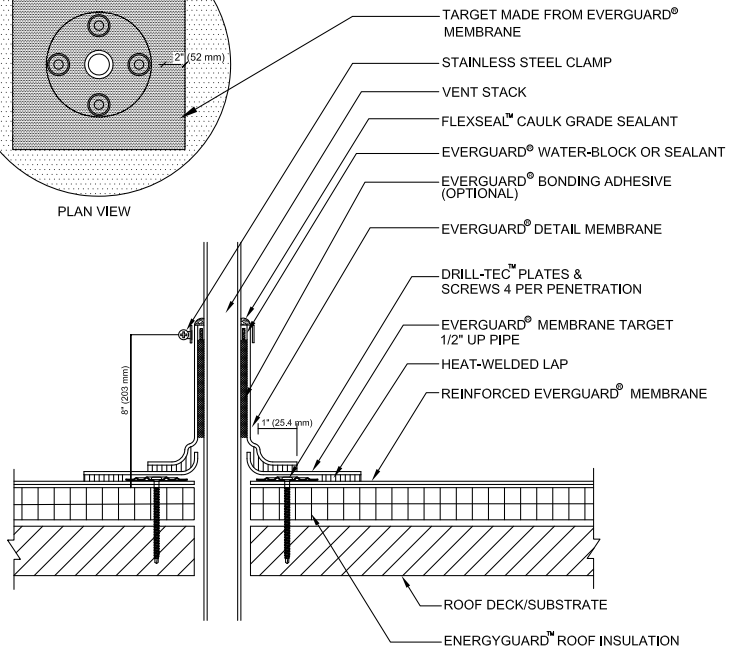
NOTE:

1. DO NOT CUT SIDE OF PREMOLDED BOOT. IT MUST BE PULLED OVER VENT PIPE.
2. IF THE PLATES AND FASTENERS INTRUDE INTO BOOT FLANGE AREA, THEN A TARGET MUST FIRST BE INSTALLED OVER PLATES AND FASTENERS BEFORE BOOT INSTALLATION.
3. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
4. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 506A	PREMOLDED VENT BOOT FLASHING DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-26-17



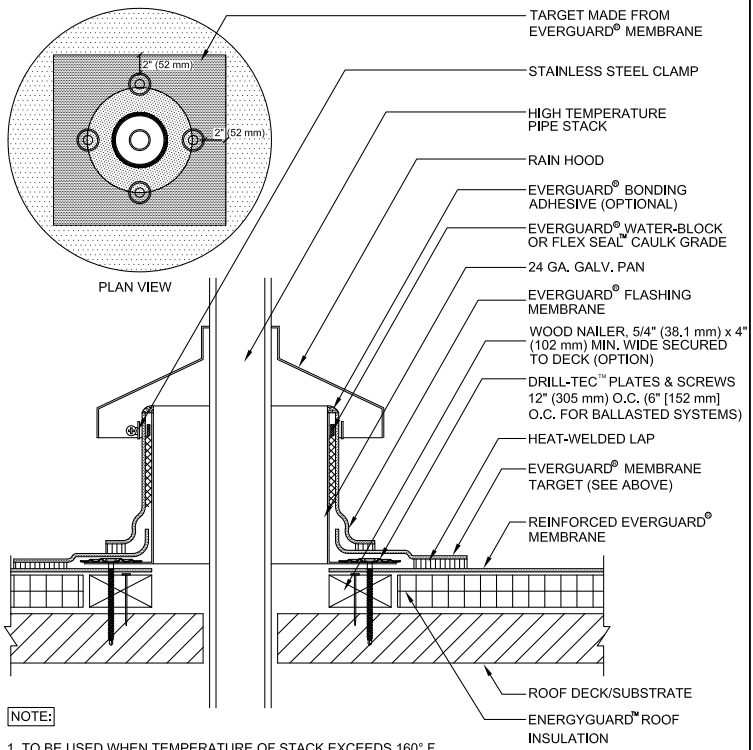
PLAN VIEW



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. APPLY HEAT TO UNREINFORCED DETAIL MEMBRANE AND FORM BY HAND PRIOR TO HOT AIR WELDING.
3. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

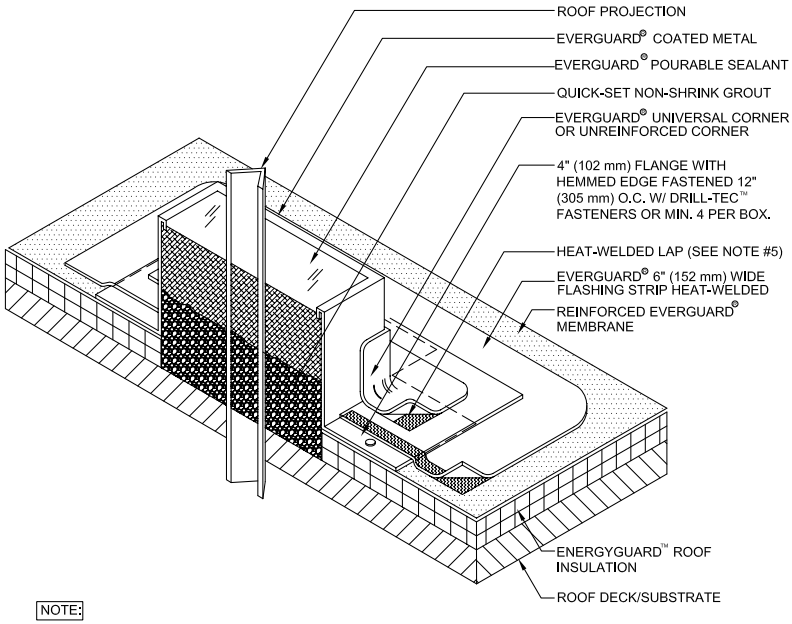
GAF / EverGuard ROOF PENETRATION SERIES	DRAWING # 507	FIELD-WRAPPED PENETRATION FLASHING DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. TO BE USED WHEN TEMPERATURE OF STACK EXCEEDS 160° F.
2. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
3. APPLY HEAT TO DETAIL MEMBRANE AND FORM BY HAND PRIOR TO INSTALLING.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

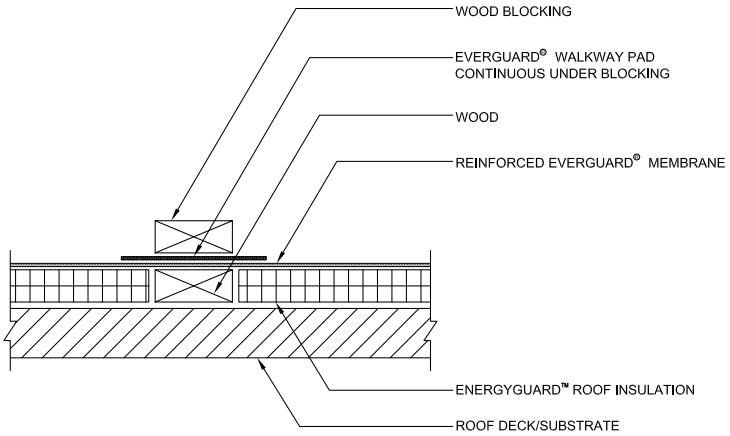
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF PENETRATION SERIES	DRAWING # 508	HIGH TEMPERATURE STACK FLASHING DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
2. BEND EVERGUARD® COATED METAL TO FORM A SEALANT BOX AS SHOWN. STRIP-IN VERTICAL SEAM WHERE BOX IS JOINED TOGETHER.
3. ALLOW 2" (52 mm) CLEARANCE AROUND THE PROJECTION. IF MULTIPLE PROJECTIONS, ALLOW 1" (25.4 mm) BETWEEN PROJECTION AND BOX.
4. INSIDE SURFACE OF EVERGUARD® COATED METAL SEALANT BOX (BARE METAL SIDE) MUST BE CLEAN AND DRY BEFORE SEALANT IS APPLIED.
5. EXISTING PROJECTION MUST BE CLEANED AND FREE OF ANY INSULATING MATERIALS.
6. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
7. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

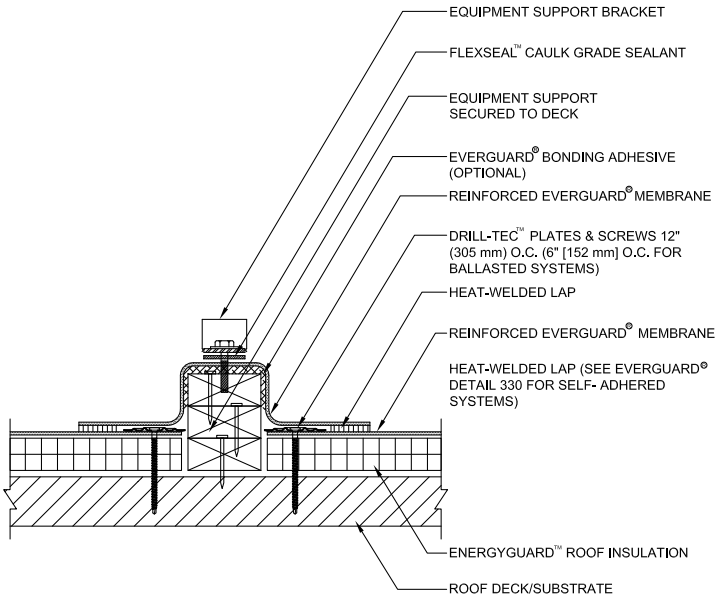
GAF / EverGuard	DRAWING #	COATED METAL SEALANT BOX PENETRATION FLASHING	THIS DETAIL APPLIES TO:
ROOF PENETRATION SERIES	509		ALL SYSTEMS
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. IF THE INSULATION COMPRESSIVE STRENGTH IS INSUFFIENT FOR THE EQUIPMENT WEIGHT, INSTALL WOOD UNDER THE EQUIPMENT CARRYING SLEEPER, MATCHING THE HEIGHT OF THE INSULATION.

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF PENETRATION SERIES	DRAWING # 511	EXPOSED WOOD EQUIPMENT SUPPORT SLEEPER DETAIL	THIS DETAIL APPLIES TO: Adhered Systems, Ballasted Systems, Mechanically Attached Systems, Self - Adhered Systems, TriPosite Systems
		SCALE N.T.S.		REVISION DATE 5-26-16

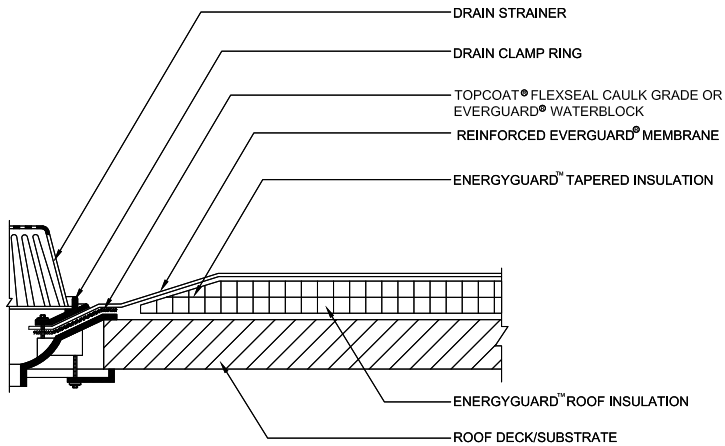


NOTE:

1.FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.

2. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

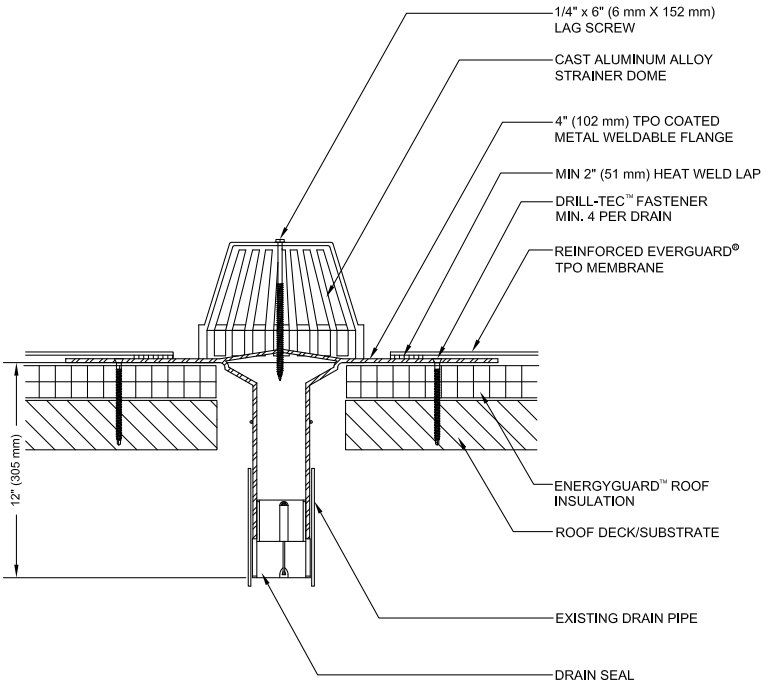
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 512	CONCEALED WOOD EQUIPMENT SUPPORT DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-21-16



NOTE:

1. A FIELD WELD CANNOT PASS WITHIN 9" (227 mm) OF THE CLAMPING, OR WITHIN THE DRAIN SUMP ITSELF.
2. MEMBRANE MUST EXTEND MINIMUM 1" (25.4 mm) BEYOND THE BOLT HOLES. THE CLAMPING RING BOLTS MUST PENETRATE THE MEMBRANE.
3. TAPERED INSULATION TO CREATE A ROOF SUMP MINIMUM 36" (0.914 m) x 36" (0.914 m) IN SIZE. (IF APPLICABLE).
4. USE ONE FULL TUBE OF FLEXSEAL™ CAULK GRADE SEALANT OR EVERGUARD WATER BLOCK PER DRAIN.
5. ASPHALT OR STONE PAVER MUST STOP AT DRAIN TAPER.

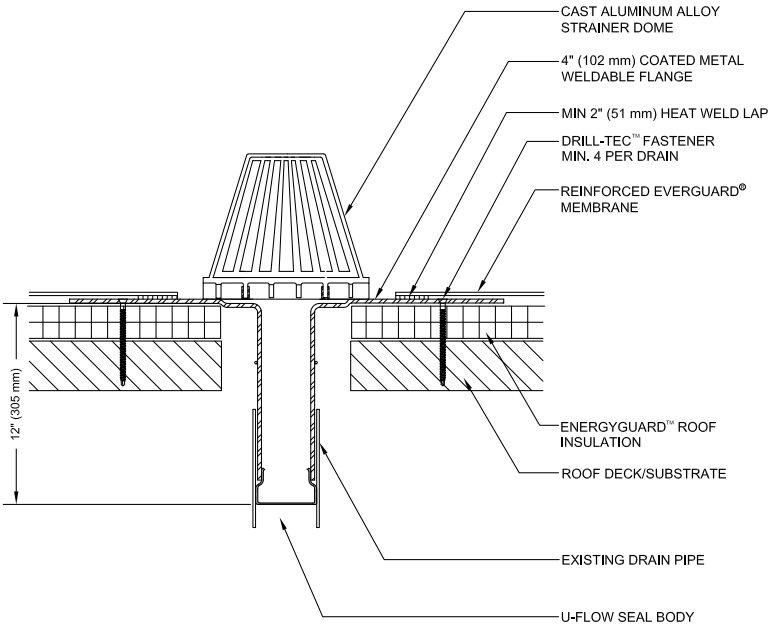
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 513	DRAIN -STANDARD ROOF DRAIN FLASHING DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-21-16



NOTE:

1. EXISTING DRAIN PIPE SHALL BE CLEAN OF ALL DEBRIS THROUGH THE LENGTH OF THE TUBE TO ENSURE PROPER SEAL.
2. EVERGUARD® PRE FABRICATED DRAIN CAN ONLY TO BE USED AS A RETROFIT DRAIN.
3. REFER TO PRODUCT APPLICATION INSTRUCTIONS FOR DRAIN PIPE SECUREMENT.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

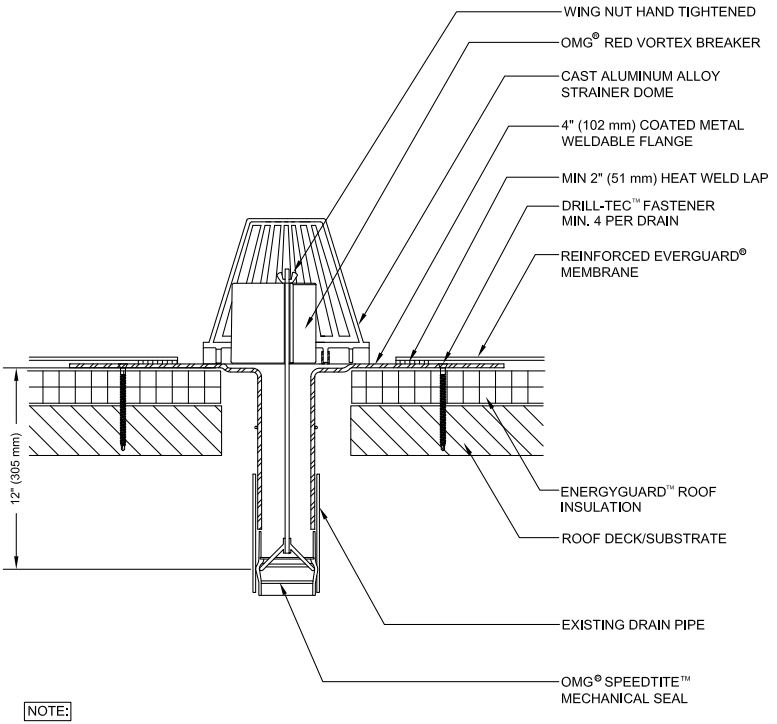
GAF 1361 Alps Rd. Wayne, NJ 07470 www.gaf.com	EverGuard ROOF PENETRATION SERIES	DRAWING # 514	DRAIN - EVERGUARD TPO COATED DRAIN DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. EXISTING DRAIN PIPE SHALL BE CLEAN OF ALL DEBRIS THROUGH THE LENGTH OF THE TUBE TO ENSURE PROPER SEAL.
2. HERCULES® RETRODRAIN CAN ONLY TO BE USED AS A RETROFIT DRAIN.
3. REFER TO PRODUCT APPLICATION INSTRUCTIONS FOR DRAIN PIPE SECUREMENT.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

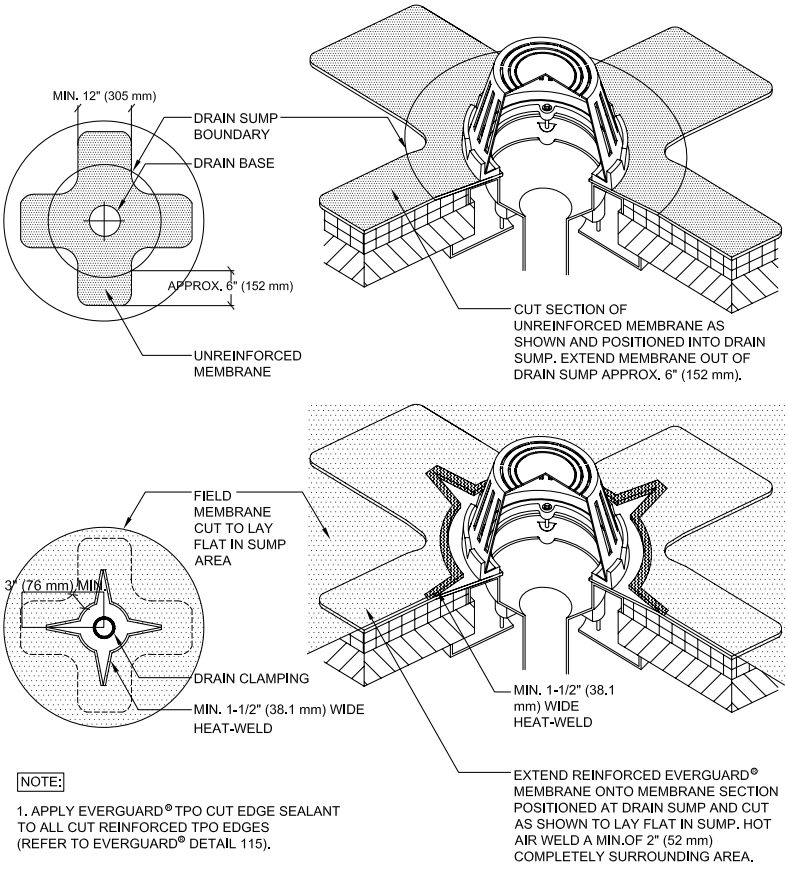
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 515	DRAIN - HERCULES® COATED METAL DRAIN DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. EXISTING DRAIN PIPE SHALL BE CLEAN OF ALL DEBRIS THE LENGTH OF THE TUBE TO ENSURE PROPER SEAL.
2. OMG® SPEEDTITE™ DRAIN CAN ONLY BE USED AS A RETROFIT DRAIN.
3. REFER TO PRODUCT APPLICATION INSTRUCTION FOR DRAIN PIPE SECUREMENT.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

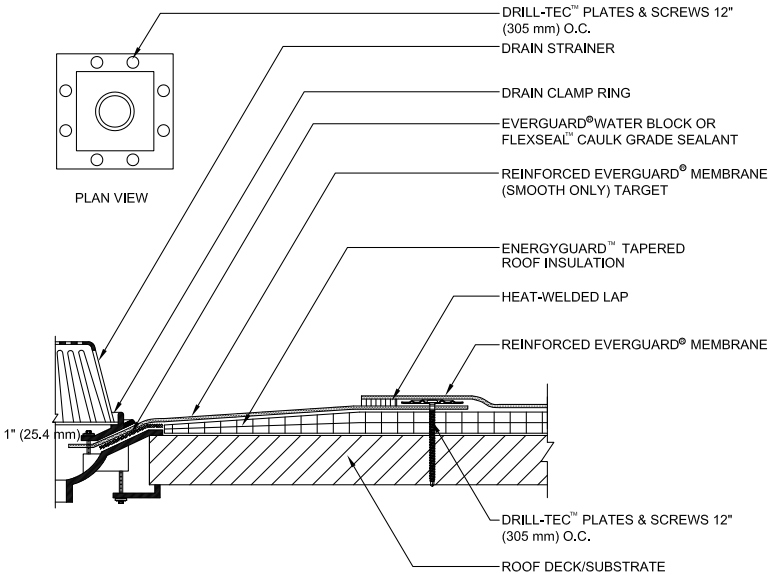
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 516	DRAIN - OMG® SPEEDTITE™ COATED METAL DRAIN DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

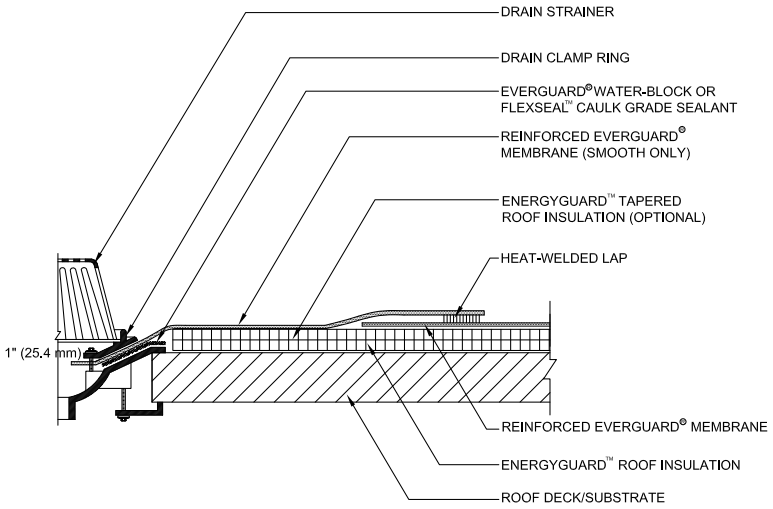
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 518	DRAIN- SEVERE SUMP TARGET	THIS DETAIL APPLIES TO: Adhered Systems, Ballasted Systems, Mechanically Attached Systems, TriPosite Systems
		SCALE N.T.S.		REVISION DATE 10-3-17



NOTE:

1. A FIELD WELD CANNOT PASS WITHIN 9" (229 mm) OF THE CLAMPING, OR WITHIN THE DRAIN SUMP ITSELF.
2. MEMBRANE MUST EXTEND MINIMUM 1" (25.4 mm) BEYOND THE BOLT HOLES; THE CLAMPING RING BOLTS MUST PENETRATE THE MEMBRANE.
3. TAPER INSULATION TO CREATE A ROOF SUMP MINIMUM 36" x 36" (0.914 m x 0.914 m) IN SIZE (OPTIONAL).
4. IF ASPHALT OR ASPHALTIC PRODUCT IS PRESENT, STOP AT BEGINNING OF SUMP AND FLASH WITH SMOOTH TPO.
5. DO NOT RUN SEPARATION SHEET INTO BOWL AREA IF USED IN SYSTEM.
6. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

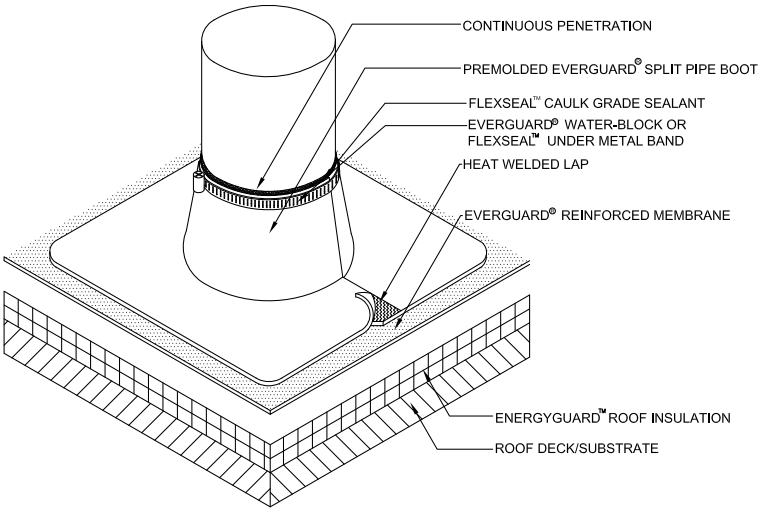
GAF / EverGuard	DRAWING #		THIS DETAIL APPLIES TO:
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	519	DRAIN - PRE TARGET	Adhered Systems Ballasted Systems Self-Adhered Systems Heat-Weld Only Mechanically Attached Systems TriPosite Systems
ROOF PENETRATION SERIES	SCALE N.T.S.		REVISION DATE 6-22-16



NOTE:

1. A FIELD WELD CANNOT PASS WITHIN 9" (229 mm) OF THE CLAMPING, OR WITHIN THE DRAIN SUMP ITSELF.
2. MEMBRANE MUST EXTEND MINIMUM 1" (25.4 mm) BEYOND THE BOLT HOLES; THE CLAMPING RING BOLTS MUST PENETRATE THE MEMBRANE.
3. TAPER INSULATION TO CREATE A ROOF SUMP MINIMUM 36" x 36" (0.914 m x 0.914 m) IN SIZE (OPTIONAL).
4. DO NOT RUN SEPARATION SHEET INTO BOWL AREA IF USED IN SYSTEM.
5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

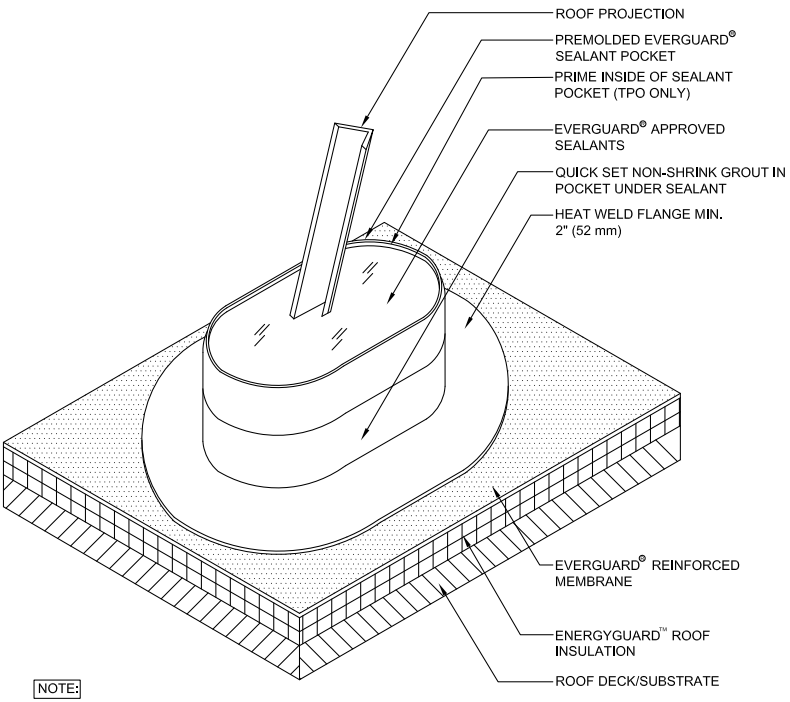
GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 520	DRAIN - POST TARGET	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-22-16



NOTE:

1. FOUR DRILL-TEC™ PLATES & SCREWS AROUND PENETRATION.
2. IF PLATES AND FASTENERS ENCROACH INTO THE SEAM AREA OF THE POCKET, THEN A TARGET MUST BE ADDED FIRST TO COVER FASTENERS.
3. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

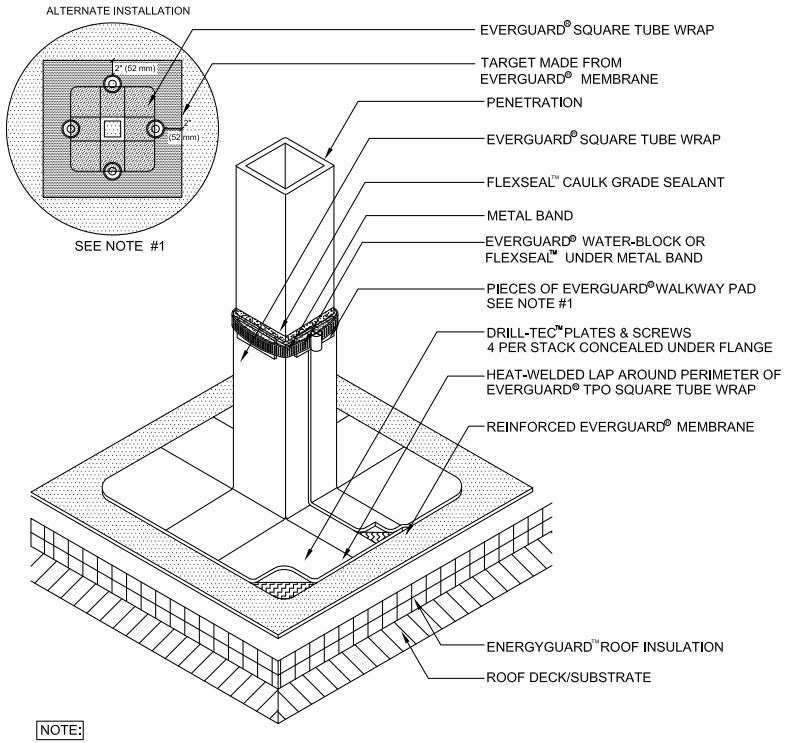
GAF / EverGuard	DRAWING #		THIS DETAIL APPLIES TO:
ROOF PENETRATION SERIES	524	SPLIT PIPE BOOT DETAIL	ALL SYSTEMS
www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. ALLOW 2" (52 mm) CLEARANCE AROUND THE PROJECTION. IF MULTIPLE PROJECTIONS, ALLOW 1" (25.4 mm) BETWEEN PROJECTION AND POCKET.
2. THE EXISTING PROJECTION MUST BE CLEAN OF ALL DEBRIS BEFORE INSTALLATION.
3. FOUR DRILL-TEC™ PLATES & SCREWS INSERTED AROUND PENETRATION.
4. EVERGUARD® POURABLE SEALER POCKET MUST BE PRIMED WITH EVERGUARD® TPO PRIMER. (TPO ONLY)
5. IF SEALANT POCKET MUST BE CUT, STRIP IN CUT WITH UNREINFORCED TPO OR PVC STRIP MIN 4" (102 mm) WIDE AND RUN OUT ONTO DECK SHEET MINIMUM 2" (52 mm).
6. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES. (TPO ONLY)
7. IF PLATES AND FASTENERS ENCROACH INTO THE SEAM AREA OF THE POCKET, THEN A TARGET MUST BE ADDED FIRST TO COVER FASTENERS.

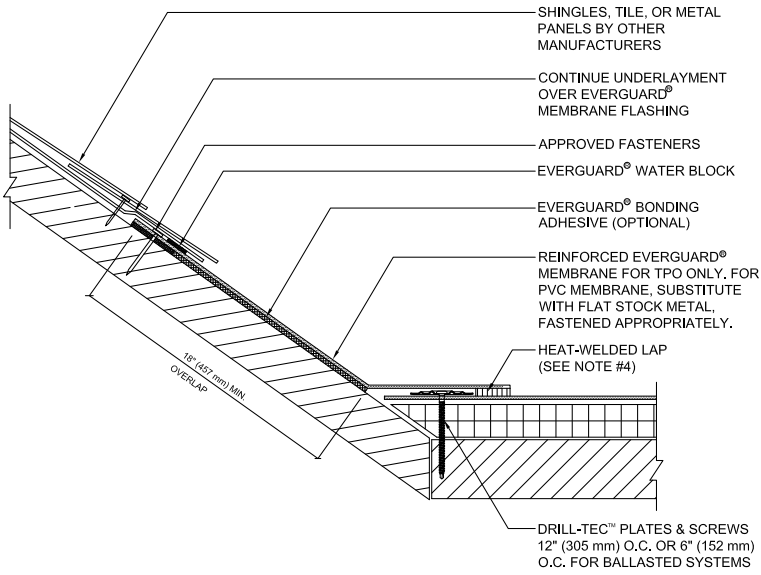
GAF / www.gaf.com, 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 525A	POURABLE SEALANT POCKET DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. IF A TIGHTER FIT IS REQUIRED AT THE TOP OF THE WRAP, INSERT SLIVERS OF WALKWAY PAD BETWEEN THE BAND AND THE MEMBRANE ON ALL FOUR SIDES.
2. IF PLATES AND FASTENERS ENCROACH INTO THE SEAM AREA OF THE POCKET, THEN A TARGET MUST BE ADDED FIRST TO COVER FASTENERS.
3. 25 YEAR GUARANTEES AND ABOVE MUST USE EXTREME ACCESSORIES.
4. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

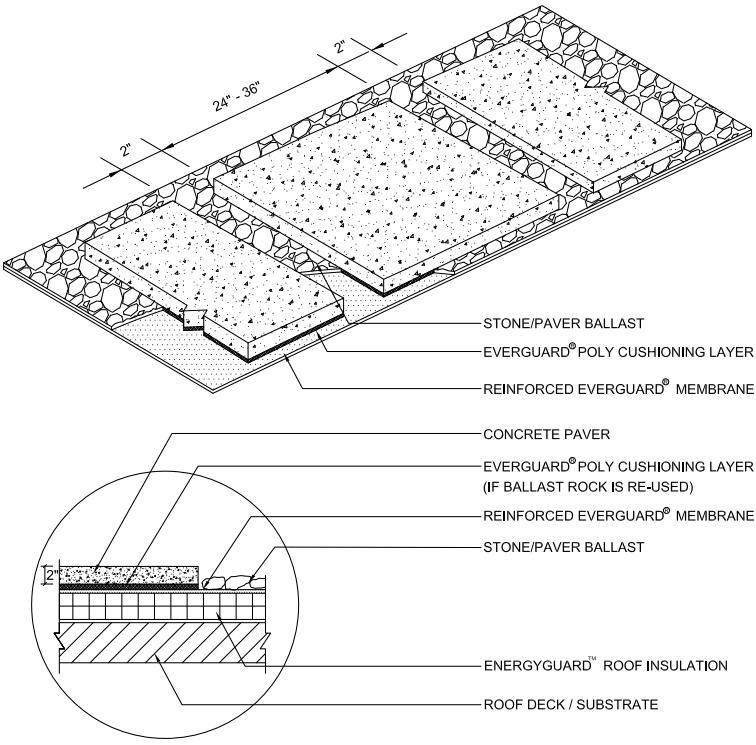
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® ROOF PENETRATION SERIES	DRAWING # 527	SQUARE TUBE WRAP DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-12-17



NOTE:

1. MINIMUM SLOPE IS 2:12.
2. FOR INSULATION THICKNESS GREATER THAN 8" (203 mm), A HARD BOARD IS REQUIRED ON MECHANICAL SYSTEMS ONLY.
3. ADD BALLAST PER SPECIFICATION FOR BALLASTED SYSTEMS.
4. FOR SELF-ADHERED SYSTEMS, SEE EVERGUARD® DETAIL 330 FOR LAP APPLICATION.
5. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

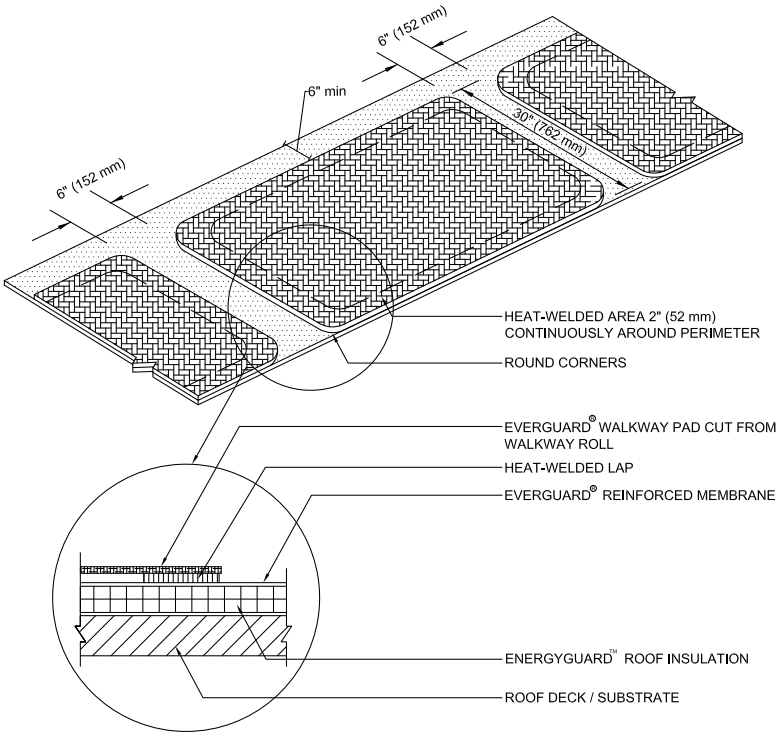
GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® SPECIAL CONSTRUCTION SERIES	DRAWING # 601A	STEEP SLOPE TIE-IN DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.	TPO ONLY	REVISION DATE 12-14-16



NOTE:

1. REMEMBER: DO NOT CROSS SEAMS WITH CONCRETE PAVER OR EVERGUARD® POLY CUSHIONING SHEET.
2. GUARANTEE INSPECTION TO BE MADE BEFORE BALLAST IS BROADCAST AROUND ROOF.

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® SPECIAL CONSTRUCTION SERIES	DRAWING # 603	PAVER WALKWAY INSTALLATION DETAIL	THIS DETAIL APPLIES TO: Ballasted Systems
		SCALE N.T.S.		REVISION DATE 12-12-17

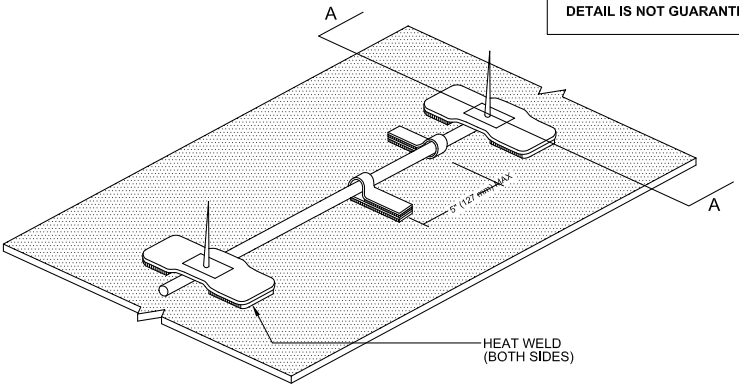


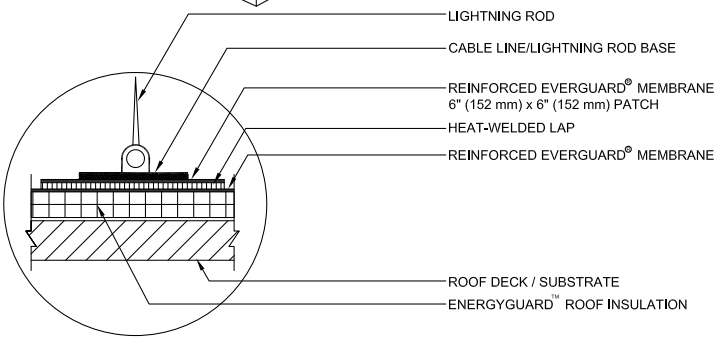
NOTE:

1. REMEMBER, DO NOT CROSS SEAMS WITH WALKWAY PADS 6" (152 mm) OFF EACH SEAM.
2. HEAT-WELD EDGE OF WALKWAY PADS CONTINUOUSLY.
3. REQUIRED AT ALL ROOF ACCESS POINTS.

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard® SPECIAL CONSTRUCTION SERIES	DRAWING # 604	HEAT WELDED WALKWAY INSTALLATION	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 12-15-17

DETAIL IS NOT GUARANTEED





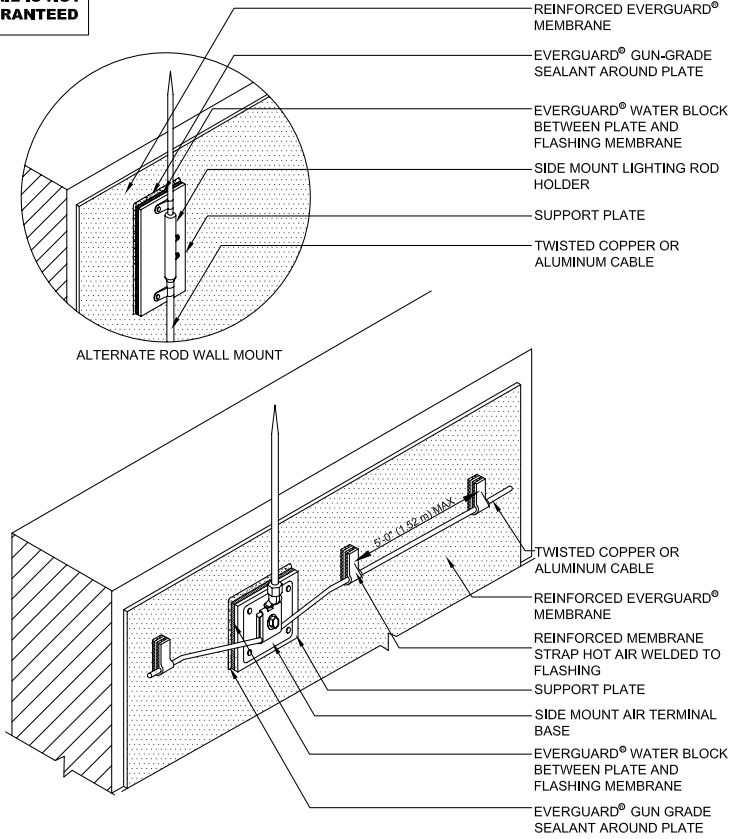
SECTION A

NOTE:

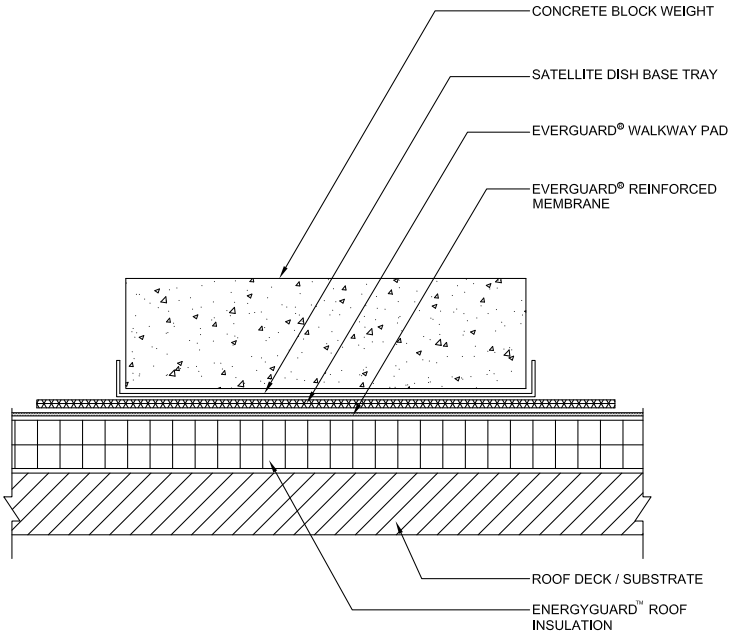
1. APPLY EVERGUARD® TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES (REFER TO EVERGUARD® DETAIL 115).

GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 605	LIGHTNING PROTECTION TERMINAL - ROOF MOUNT DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 8-28-17

DETAIL IS NOT GUARANTEED



GAF® www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 607	LIGHTNING PROTECTION TERMINAL - WALL MOUNT DETAIL	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 11-27-17



GAF www.gaf.com 1 Campus Drive, Parsippany, NJ 07054	EverGuard ROOF PENETRATION SERIES	DRAWING # 608	SATELLITE DISH MOUNTING	THIS DETAIL APPLIES TO: ALL SYSTEMS
		SCALE N.T.S.		REVISION DATE 6-26-17

Section 6: Glossary*

*This glossary is provided for clarity specific to the contents of this guide.

Anchor Bar – 16 gauge 1" (25 mm) wide galvanized GAF flat bar used at the roof perimeter for high wall horizontal termination.

Angle Changes – Any change in degrees of the roofing plane, penetrations or deck sheets that varies from level.

Backer Rod – Installed in a place of a top edge termination bar or counter flashing. Rod is to be a minimum of one and one half times the opening size of the locating channel. This must be a closed cell foam, and is to act as compression between the membrane and the outside channel.

Bonding Adhesive – Adhesive used for adhering membranes to decks, substrates, walls and details. Adhesives can be either water- or solvent-based depending upon application and must be GAF branded.

Bridging – Non-adhered or unattached membrane spanning any angle change, that causes the membrane to rise out of the angle change.

Caulking – Used as sealant at the top edge of mechanical termination for waterproofing. This must be GAF branded.

Cover Tape – GAF-specified products in widths of cured laminate with a cured butyl adhesive.

Curb or Wall Flashing – GAF reinforced membrane is to be used for the flashing membrane.

Dew Point Temperature – The temperature at which water vapor condenses in cooling air at the existing atmospheric pressure and vapor content. Cooling at or below the dew point will cause condensation.

Drains – The vessel used for the collection and removal of water from the roof surface.

Expansion Joints – A structural joint in a building that continues into the roof deck that allows for a building's expansion and contraction.

Fascia Edging and Gravel Stop – A GAF membrane and specific weldable coated metal used for attachment of membrane to metal edging.

Field Fabricating Membrane– GAF unsupported membrane used in the fabricating corners, pipe boots and T-joint covers.

Heat Stack – Usually a round double or triple wall metal stack used to protect the membrane and roofing substrate from temperatures usually exceeding 150ºF (66ºC) in temperature.

Inside Corner – Area usually of a wall flashing that makes any number of degree and angle changes from which the flashing must exit. 90 degree corners are the most common.

Insulation – Installed under the roofing materials usually for energy efficiency, or as a flat stabilizing platform, and can be installed over previously installed roofing systems for protection of the new system.

Outside Corner – Area usually of a wall or curb flashing that makes any number of degree and angle changes that the flashing membrane must exit the exterior side of the corner. 90 degrees is the most common and can also include pitch pockets and metal edging.

Penetration – Any hole or protrusion that passes through the roofing membrane.

Perimeter Fastening – The specified method of mechanical attachment of the field sheet membranes at the base of walls, curbs, pipes and expansion joints. This can also be referred to a base attachment.

Picture Frame – The lay-out of half sheets at the outside and inside perimeter edges of the building. Used in mechanically attached systems to meet GAF criteria.

Pig Ear – An uncut fold of flashing used to form an inside corner.

Pipes – A round projection that exits through the roofing membrane.

Pitch Pocket – Flanged enclosures with vertical walls that are installed around roof penetrations that are difficult to seal with conventional flashing methods. They are filled with elastomeric sealant. They are sometimes called pitch pans or sealant box penetration flashing.

Pre-Fabricated – Factory made pipe boots, corners, T-joint patches, etc.

Pre-Weld – Method of hand welding the back edge of the hot air welded seam area to provide a trap for hot air, to enhance the hot air welded seam.

Probing – Manual method for checking the integrity of hot air welded seams using a blunt probe (a blunt or dull cotter key puller hand tool) run along the length of the seam with horizontal pressure applied into the bottom edge of the weld.

Scuppers – Openings through a parapet wall for the evacuation of water off the roofing surface. These can either be the primary or overflow drainage methods for the roofing system.

Seams – Any hot air weld made between two layers of membrane.

Target – First step in waterproofing of a field fabricated pipe flashing, which can either be reinforced or unreinforced membrane. Also can be used in a pre- or post- targeting of a drain sump when a hot air welded enters the sump area.

Termination – The method of waterproofing and mechanically attaching the top edges of curbs and walls. Usually this is done as a method of compression into a sealant.

Termination Bar – A metal bar, typically aluminum, located at vertical and horizontal edges to hold the edge of the membrane or provide intermediate securement.

SINGLE-PLY PRO FIELD GUIDE V1.1

Questions?

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