GAF®

Quality You Can Trust…From North America's Largest Roofing Manufacturer!™

EVERGUARD® TPO
SINGLE-PLY ROOFING SYSTEMS

gaf.com

Modern Solutions
For Today's Roofs

EverGuard® TPO

EVERGUARD® TPO
Single-Ply Roofing Systems

WHY TPO

In the 20+ years that TPO has been in the field, it's become one the most popular products used for low-slope roofing. Over 1 billion sq. ft. are installed annually, making up over 50% of single-ply roofs being installed today.

The rapid rise in popularity can be associated with several of TPO's inherent benefits, including:

- **Great Value…**
  Excellent performance at a cost-effective price.
- **Excellent Seam Strength…**
  Heat-welded seams provide greater seam strength to taped and other seams.
- **Long-term Weathering…**
  Excellent long-term heat and UV resistance.
- **Energy Saving…**
  Highly reflective and emissive white surface can help reduce energy costs and urban heat island effect.
  » Check out your potential energy savings by going with a white roof at **cool.gaf.com**.
- **Inherently Flexible…**
  No need for plasticizers.
- **Naturally Fungal Resistant…**
  Doesn't require biocides.
- **Versatile Application Methods…**
  Including high-performance roofs requiring high wind uplift, increased puncture resistance, or quick economical systems.

WHY GAF

- Over 130 years in business and North America's largest roofing manufacturer.
- Offers a full line of roofing solutions, including TPO and PVC single-ply systems.
- Capital investments of over $130 million from 2011–2016 in commercial roof manufacturing, giving GAF the most state-of-the-art equipment in the industry.
- Only GAF offers the patent-pending EverGuard Extreme® membrane with the longest warranty in the industry (up to a 35-year guarantee*).
- Leader in sustainability, including having EPDs, HPDs, and being on the red list free listings.
- Commissioned the largest independent study ever conducted on TPO performance among North American manufacturers.
  » Results show GAF has the best-performing TPO membranes in accelerated aging tests (visit TPOResults.com to learn more).

*See applicable guarantee for complete coverage and restrictions.

For the full data and testing results from our independent TPO study, visit **TPOResults.com.**

TPO RESULTS

The increasing popularity of TPO roofing systems has led to much confusion, exaggerated claims, and misinformation about TPO as a product class. As North America's largest roofing manufacturer, GAF decided to find out the truth about TPO performance.

GAF engaged Structural Research Inc. (SRI), a well-known and highly respected laboratory that has done testing with UL, NRCA, and MRCA to perform the largest independent performance study ever conducted of the 4 major U.S. TPO brands.

SRI procured all of the materials independently, testing over 400 samples that were subjected to over 6,000 individual measurements over the course of the study.

The testing methods included a variety of ASTM physical property tests, including thickness above the scrim and weld strength, which showed that the 4 TPO brands exhibit relatively similar performance on these parameters.

The study also tested accelerated weathering and UV resistance, the key properties that determine membrane performance and longevity. In these critical tests, GAF EverGuard Extreme® TPO proved to be in a performance class by itself, delivering next-generation performance against heat aging and UV degradation using the industry-recognized ASTM D573 accelerated weathering test at 275°F.

Among the standard TPO membranes, GAF EverGuard® TPO was the best-performing standard membrane out of all of the major brands using the ASTM D573 accelerated weathering test at 275°F.

Visit **TPOResults.com** for the full data and testing results among the major brands, as well as industry presentations and recommendations on how to specify EverGuard® TPO and EverGuard Extreme® TPO.

For the full data and testing results from our independent TPO study, visit **TPOResults.com.**

GAF EverGuard TPO

FULL LINE OF TPO MEMBRANES

EverGuard® TPO…

Was the best-performing standard TPO in accelerated aging in the largest independent TPO study ever conducted. With over 15 years of proven performance, it can fit many roofing budgets and needs:

- Available in 45, 60, and 80 mil
- Guarantees available up to 30 years*
- 10-ft.-wide sheets can help increase production compared to other roofing technologies
- Different systems available, including mechanically attached, fully adhered, and RhinoBond® Attachment Systems†

EverGuard Extreme® TPO is the overall best-performing TPO you can buy for your property

- The best-performing TPO in accelerated aging in the largest independent TPO study ever conducted
- Offers the longest TPO warranty available in the industry (up to 35 years*)
- Available in a variety of thicknesses and can fit most budgets
  - » EverGuard Extreme® 50 mil and 70 mil have virtually the identical weathering characteristics as our standard 60 mil and 80 mil versions
- Can withstand higher heat and UV exposure better than any membrane in the industry

EverGuard Extreme® & EverGuard® TPO Fleece-Back Membrane…

Provides additional protection and offers a variety of benefits, including:

- Does not require a slip sheet when re-covering over a variety of roofs
- Provides enhanced puncture resistance, especially in areas more prone to hail
- Can be installed using a variety of adhesives that install in approximately half the time as traditional bonding adhesives with smooth membrane

EverGuard® TPO Colors…

Can transform a traditional roof into an aesthetic attribute

- Standard colors include White, Tan, Gray, Energy Gray, and Energy Tan
- 17 additional colors are also available to complement your building design

EverGuard® Freedom™ TPO…

Self-adhered TPO:

- Available in both heat-weldable seams and with Rapid Seam™ Technology
- Warranties available up to 20 years*

The roofing industry is changing.

Just a few years ago, almost all TPO jobs installed were mechanically attached; traditional bonding adhesives made up the remaining installations. Today, new installation methods are becoming increasingly popular.

Traditional systems are tried and true, and are still great solutions, but each roof has unique challenges. At GAF, we have a number of solutions to help overcome all of your roofing challenges.

What factors are most critical for you?

- Lowering labor costs
- Reducing material costs
- Proven methods and consistency
- Wind uplift ratings
- Expanding roofing season during colder weather
- Reducing adhesive odors for occupied buildings
- Increasing hail protection
- VOC content
- Roof aesthetics
- Capital investment costs

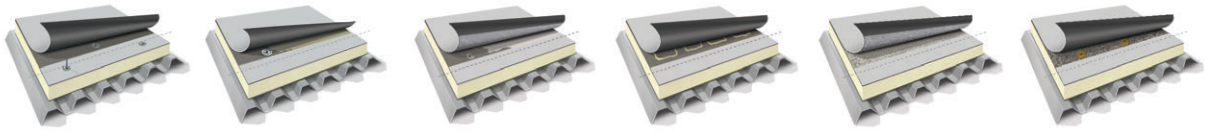
If you're looking for ways to increase production, we offer systems that install:

- Faster
- Easier
- In lower temperatures
- Without the need for expensive sprayers or equipment

*See applicable guarantee/warranty for complete coverage and restrictions.

For more information, contact your local GAF Representative or visit **gaf.com/TPOInstall.**

Take a look at the chart to see which system can best meet your challenges.



	Mechanically Attached Smooth with Drill-Tec™ Fasteners	Fully Adhered Smooth	Fully Adhered Fleece with WB181 Wet Lay-in	Adhered Fleece with Low-Rise Foam	Fully Adhered Fleece with GAF 2-Part Roofing Adhesive	GAF RhinoBond® † System
Install Time						[1]
Material Cost						
Application Temperature Range[2]	WIDEST[3]	WIDE	WIDE	WIDE	WIDE	WIDEST[3]
Wind Uplift Ratings	[4]					
Hail Ratings[5]						
Odor	NO ODOR					NO ODOR
VOC-Compliant Options	YES	YES	YES	YES	YES	YES
Tool Investment Needs						
Aesthetics						
Maximum Warranty Length[6]	UP TO 30 YEARS	UP TO 35 YEARS	UP TO 35 YEARS	UP TO 35 YEARS	UP TO 35 YEARS	UP TO 35 YEARS

[1] Time based on multiple machines.
[2] All membrane rolls, and adhesives must be stored at minimum overnight at a temperature of 55°F (12.8°C) or above prior to their application.
[3] See the GAF RhinoBond® and Mechanically Attached Systems Manuals for information on cold weather installation.
[4] Wind uplift ratings can be improved with 6" on center fastening pattern.
[5] When no cover board is used.
[6] See applicable warranties and/or NDL guarantees for details and restrictions.

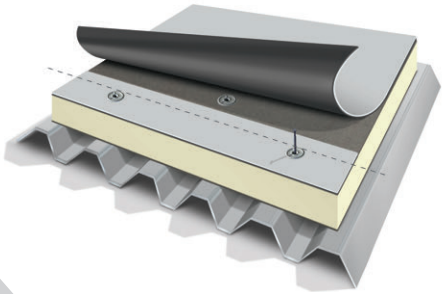
†RhinoBond® is a registered trademark of OMG.

For more information, contact your local GAF Representative or visit **gaf.com/TPOInstall.**

GAF EverGuard TPO

MECHANICALLY ATTACHED SMOOTH TPO

with Drill-Tec™ Fasteners

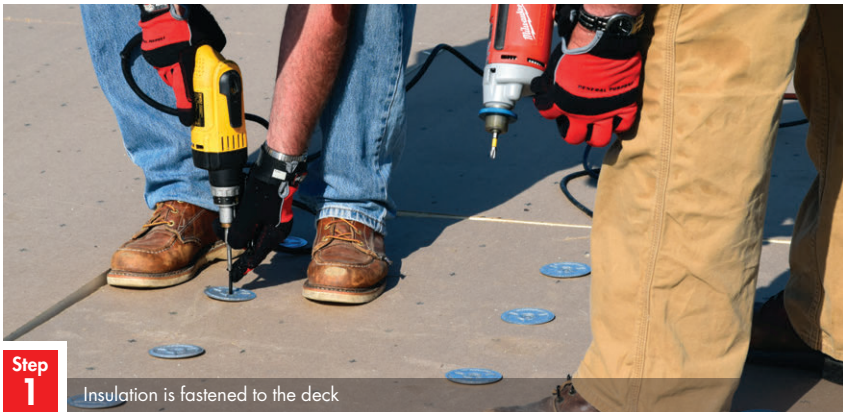


Installing smooth TPO with fasteners in a mechanically attached system offers several benefits, including:

- Up to 50% faster installation compared to fully adhered smooth membrane installations
- Reliability and cost effectiveness
- Familiarity with the industry as the most common installation method in single-ply membranes
- Consistent installation in a wide variety of temperatures
- No sprayers or additional capital investments
- A great option for occupied buildings, as there is no odor from adhesives

While fully adhered systems have better wind uplift ratings, a mechanically attached system's ratings can be increased by modifying the fastening pattern from 12" on center to 6" on center.

Be sure to refer to the GAF Drill-Tec™ Fastening Guide to choose the correct fasteners and plates for your application.

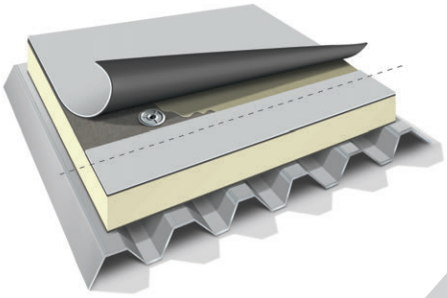


Step 1 Insulation is fastened to the deck

Step 2 TPO is fastened to the deck at the seam

Step 3 Seams are welded

For more information on mechanically attached smooth systems, contact your local GAF Representative or visit **gaf.com/TPOInstall.**



FULLY ADHERED SMOOTH TPO

with Traditional Bonding Adhesive

Step 1 Insulation is fastened to the deck

Step 2 Adhesive is rolled on both the substrate and membrane and allowed to flash off

Step 3 Membrane is welded at the seams and broomed in

Installing fully adhered EverGuard® Smooth TPO Systems offers several benefits, including:

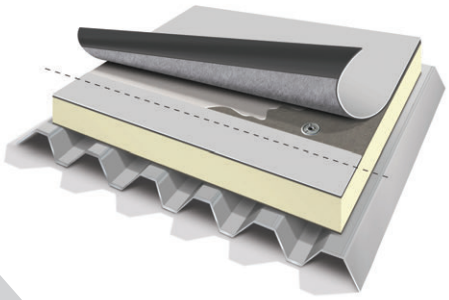
- Longer guarantees compared to mechanically attached systems
- Excellent wind uplift ratings
- A uniform, smooth appearance
- Familiarity with workers, as this installation is common in the industry
- Minimizes thermal drift while acting as a vapor barrier

GAF offers several adhesives that are compatible with EverGuard® Smooth TPO, including:

- **SBA 1121…** The most frequently used, traditional solvent-based GAF bonding adhesive
- **EverGuard® TPO 3 Square and 6 Square Low VOC Bonding Adhesives…** For use in areas where there are VOC regulations
- **EverGuard® WB181 Bonding Adhesive…** A water-based bonding adhesive that is both VOC compliant and low odor
- Substrate, membrane, and outside temperatures must be 40°F (4.4°C) and rising. Application temperatures above 50°F (10°C) are recommended to allow easier adhesive application.

FULLY ADHERED FLEECE-BACK TPO

with WB181 Wet Lay-in



Installing fleece-back TPO with EverGuard® WB181 Bonding Adhesive offers several benefits, including:

- Up to 50% faster installation time than traditional smooth, fully adhered systems
- Reduced labor costs
- Low-VOC content with little-to-no odor, which reduces the disruption to building occupants
- Additional puncture resistance due to the fleece backing of EverGuard® membrane

Additionally, this system offers many of the other benefits in fully adhered systems, such as:

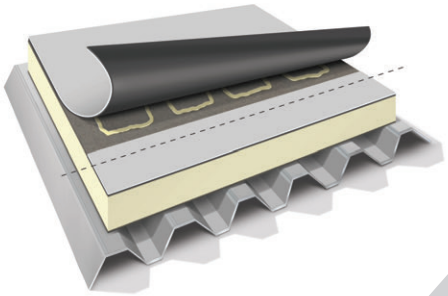
- Longer guarantees compared to mechanically attached systems
- Excellent wind uplift ratings
- A uniform, smooth appearance
- Minimized thermal drift while acting as a vapor barrier
- Substrate, membrane, and outside temperatures must be 40°F (4.4°C) and rising. Application temperatures above 50°F (10°C) are recommended to allow easier adhesive application.

Step 1 Adhesive is applied directly to deck

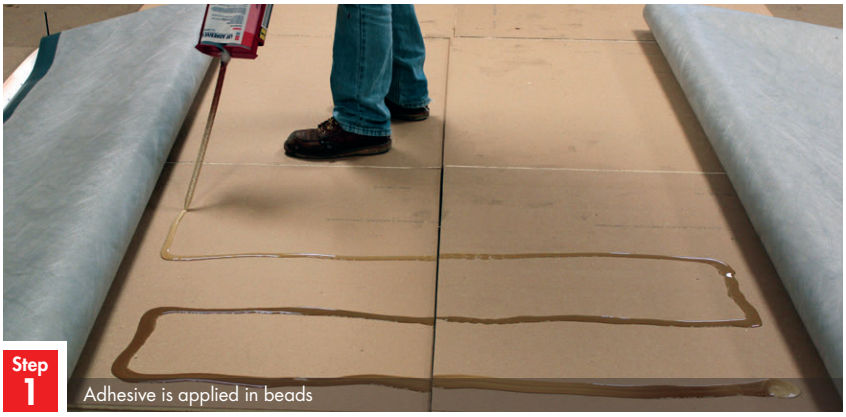
Step 2 Membrane is rolled into adhesive while still wet

Step 3 Seams are welded and broomed in

For more information on a fully adhered fleece-back system with a WB181 wet lay-in, contact your local GAF Representative or visit **gaf.com/TPOInstall.**

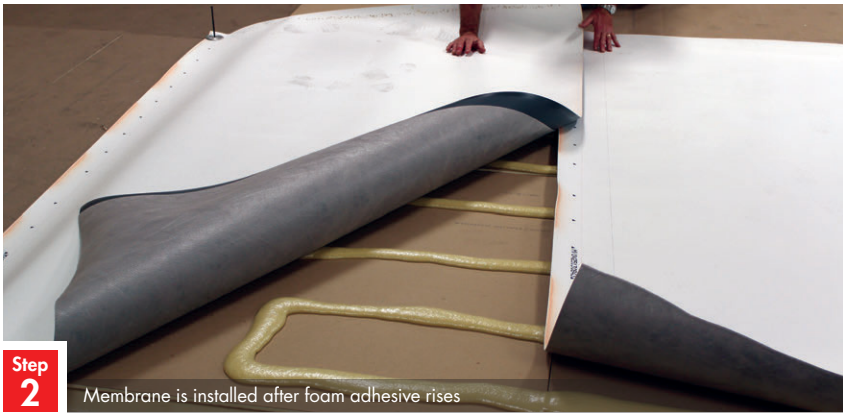


ADHERED FLEECE-BACK TPO
with Low-Rise Foam



Step 1

Adhesive is applied in beads



Step 2

Membrane is installed after foam adhesive rises

Step 3

Seams are welded and a weighted roller is used to aid adhesion

Installing fleece-back TPO with low-rise foam roofing adhesive offers several benefits, including:

- Up to 50% faster installation time than traditional smooth, fully adhered systems
- Reduced labor costs
- Low-VOC content with little-to-no odor, which reduces the disruption to building occupants
- Additional puncture resistance due to the fleece backing of EverGuard® membrane

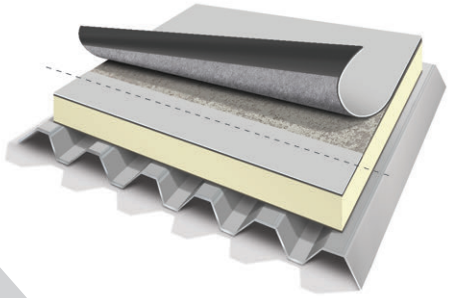
Additionally, this system offers many of the other benefits in fully adhered systems, such as:

- Longer guarantees compared to mechanically attached systems
- Excellent wind uplift ratings
- A uniform, smooth appearance
- Substrate, membrane, and outside temperatures must be 40°F (4.4°C) and rising. Application temperatures above 50°F (10°C) are recommended to allow easier adhesive application.
- Refer to the *GAF EverGuard® Adhered Roofing Systems Manual* for ribbon spacing and guarantee requirements

For more information on low-rise foams and cold weather options, contact your local GAF Representative or visit **gaf.com/TPOInstall.**

FULLY ADHERED FLEECE-BACK TPO

with GAF 2-Part Roofing Adhesive



Installing fleece-back TPO with GAF 2-Part Roofing Adhesive offers several benefits, including:

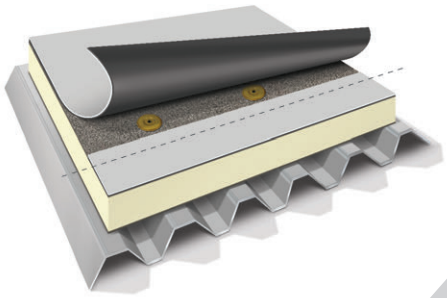
- Up to 50% faster installation than traditional fully adhered, smooth systems (it's as easy as watering your lawn)
- Increased productivity and smaller crews versus other attachment methods
- Up to 20 squares of coverage per set of containers
- Longer guarantees compared to mechanically attached systems
- No expensive equipment or maintenance
- Excellent wind uplift performance
- Increased puncture resistance due to the fleece backing of EverGuard® membrane
- Low-VOC content with low odor
- Substrate, membrane, and outside temperatures must be 40°F (4.4°C) and rising. Application temperatures above 50°F (10°C) are recommended to allow easier adhesive application.

Step 1 Adhesive is applied in a spatter pattern

Step 2 Membrane is installed after the foam adhesive has changed color

Step 3 Seams are welded and a weighted roller is used to aid adhesion

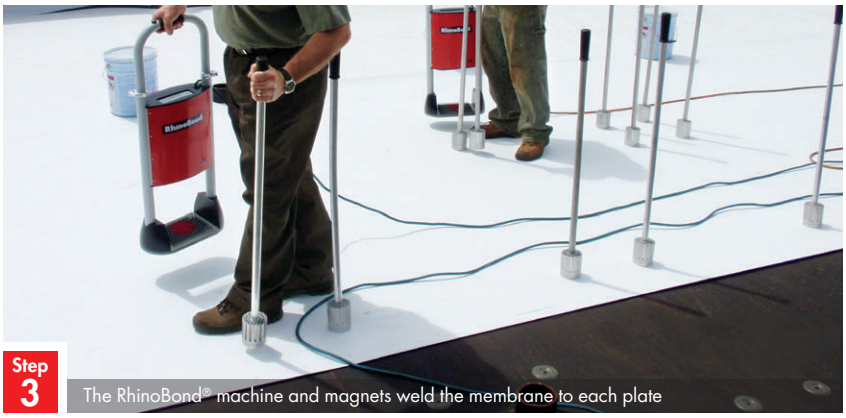
For more information on a fully adhered fleece-back system using GAF 2-Part Roofing Adhesive, contact your local GAF Representative or visit **gaf.com/TPOInstall.**



GAF RHINOBOND® SYSTEM

Step 1 RhinoBond® plates are drilled through the insulation

Step 2 Membrane is rolled in and welded at the seams



Step 3 The RhinoBond® machine and magnets weld the membrane to each plate

Installing smooth TPO with the RhinoBond®† Attachment System offers several benefits, including:

- A fast and easy installation
- Smaller crews and install time, with up to 50% faster installation by adding a second machine
- Quick dry-in, as membrane seams can be welded before RhinoBond® Plates are bonded

RhinoBond® Attachment Systems are eligible for the same warranties as fully adhered systems, and can also be installed:

- In a wide variety of temperatures
- Without waiting for cure time, fumes, mess, empty pails, or VOCs from traditional adhesives

In addition, RhinoBond® Attachment Systems have advantages over traditional mechanically attached systems, including:

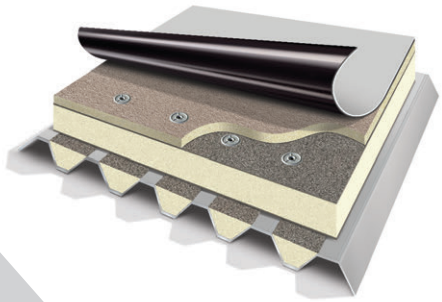
- No half sheets and less seams
- Longer warranties
- No fastener penetrations in the field or seams of the membrane
- Less flutter with optimized attachment across the entire sheet

†RhinoBond® is a registered trademark of OMG.

For more information on the RhinoBond® Attachment System, contact your local GAF Representative or visit **gaf.com/TPOInstall.**

GAF EverGuard TPO

ENERGYGUARD™ POLYISO INSULATION



GAF EnergyGuard™ Polyiso Insulation is manufactured in our state-of-the-art plants using the latest technology and providing the highest-quality products. And our Gainesville, Texas, and Cedar City, Utah, plants can provide full system shipment of both polyiso and TPO products.

EnergyGuard™ Polyiso Insulation is available in thicknesses ranging from 1" to 4.6" in either 4' x 4' or 4' x 8' boards, as well as in tapered panels with slopes of 1/16", 3/16", 1/8", 1/4", and 1/2".

It also offers various facers and compressive strength options depending on your specification needs.

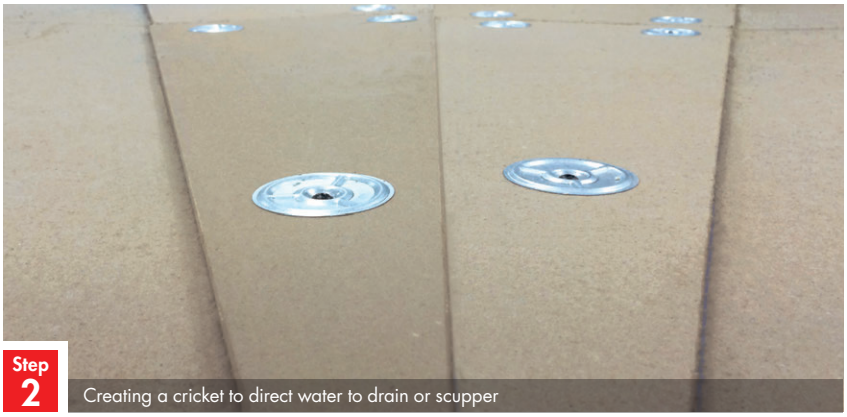
Polyiso offers one of the highest LTTR insulation values compared to any other FM Class 1-rated product of equivalent thickness.

Meets FM 4450/4470 (consult RoofNav.com for specific assemblies) and UL 1256/790/263.

Manufactured with EPA-compliant blowing agents containing no CFCs or HCFCs; has zero ozone depletion potential (ODP) and virtually no global warming potential (GWP).

Its light weight makes it easier and quicker to install; easier cutting in the field provides simplified fabricating on the roof deck.

Step 1 Creating a sump to a drain



Step 2 Creating a cricket to direct water to drain or scupper

Step 3 Complete tapered design for proper water management

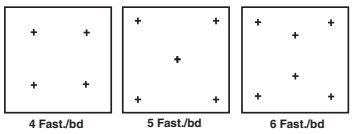
For more information on tapered polyiso insulation, contact your local GAF Representative or visit **gaf.com/EnergyGuard.**

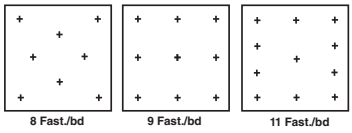
EnergyGuard™ Polyiso Insulation offers a complete lineup of products to meet almost any low-slope commercial roofing insulation need. It provides exceptional thermal performance at an economical price.

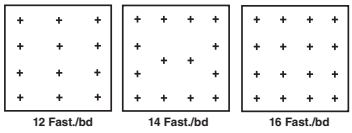
- **EnergyGuard™ Polyiso Insulation…** Glass fiber-reinforced cellulosic felt facers bonded to a core of isocyanurate foam and available with a compressive strength of 20 psi or 25 psi. Meets the requirements of ASTM C1289 Type II, Class 1, Grade 2 (20 psi) and Grade 3 (25 psi).
- **EnergyGuard™ Ultra Polyiso Insulation…** Coated glass facers bonded to a core of isocyanurate foam and available with a compressive strength of 20 psi or 25 psi. Meets the requirements of ASTM C1289 Type II, Class 2, Grade 2 (20 psi) and Grade 3 (25 psi). Ideal to help mitigate mold growth.
- **EnergyGuard™ Tapered Polyiso Insulation…** TAPERED DESIGN GROUP Glass fiber-reinforced cellulosic felt facer or coated glass facers bonded to a core of isocyanurate foam, which helps eliminate ponding water issues. For more information on tapered polyiso insulation, visit gaf.com/EnergyGuard.
- **EnergyGuard™ HD & HD PLUS Polyiso Insulation…** Coated glass facers bonded to a core of isocyanurate with a compressive strength of 80 psi or 110 psi. Meets the requirements of ASTM C1289 Type II, Class 4, Grade 1 (80 psi) and Grade 2 (110 psi). Ideal for protecting your roof against high traffic and the elements.
- **EnergyGuard™ Polyiso Insulation Custom Cut…** Available in Ultra as well, it is designed to fill the flutes of a standing seam or lap metal roof retrofit system in order to provide a level surface for TPO or PVC membranes, as well as to provide an increased R-value to the existing structure. It is available in either a straight or bevel-cut edges.

Unique fastening pattern guidelines to help improve speed and accuracy when installing.

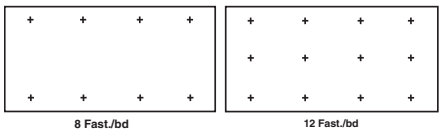
4' x 4' Boards

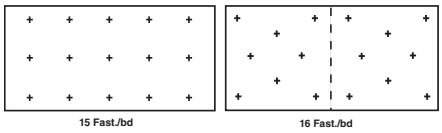


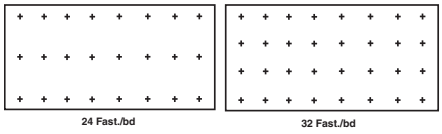


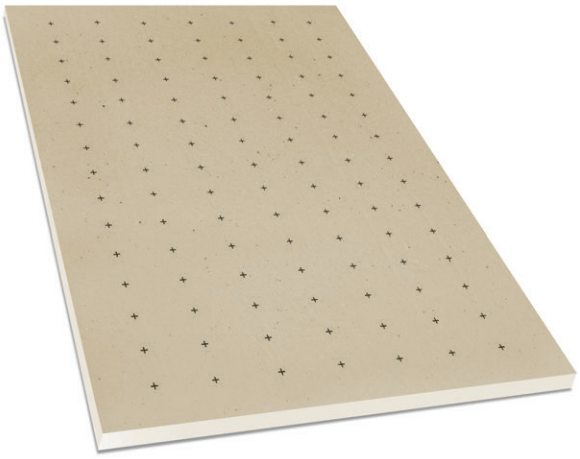


4' x 8' Boards









For more information on tapered polyiso insulation, contact your local GAF Representative or visit **gaf.com/EnergyGuard.**

GAF EverGuard TPO