

Polyiso Insulation Products



The Foundation of Carlisle's Single-Ply Roofing Systems



Carlisle Value

For over 50 years, the name Carlisle has been synonymous with high-quality, innovative commercial roofing materials. Since its inception as a company, Carlisle has been dedicated to providing construction professionals with the best products, services, and warranty programs on the market.

Today, as the world's largest supplier of commercial roofing materials, Carlisle's product offerings have grown but the company's mission remains much the same as it was 5 decades ago: developing and manufacturing the industry's most innovative, highest-quality products to enhance building performance and promote sustainability.

One of the simplest ways to support sustainability through construction practices is through the use of insulation. Carlisle's lightweight, cost-effective polyisocyanurate (polyiso) insulation products provide energy-efficient solutions for buildings in any region and climate, as well as outstanding return on investment and significant energy savings. With an industry leading eight polyiso manufacturing lines strategically positioned throughout North America, Carlisle is able to provide on-time delivery of its innovative insulation products to any jobsite.

Energy-Efficient Polyiso Insulation



FEATURES AND BENEFITS

- » Highest R-value per inch of any commercially available roof insulation
- » Unmatched roof design flexibility
- » Outstanding installed cost advantages
- » Compatible with all single-ply membranes
- » Minimal water absorption and vapor transmission
- » Exceptional fire resistance (FM 4450 and UL 1256 approvals)
- » Zero ODP and HCFC-free
- » Quality Mark^{CM} third-party certification for Long-Term Thermal Resistance (LTTR)
- » Superior compressive strength
- » Excellent dimensional stability
- » Readily available throughout North America
- » Contains post-industrial recycled content

SUPERIOR INSULATION

Polyiso is a closed-cell, rigid foam board insulation used primarily in offices, health facilities, warehouses, retail buildings, industrial manufacturing facilities, and educational institutions. Because of its high thermal performance, polyiso is the product of choice for energy-conscious consumers who are looking to reduce energy consumption and costs.

Polyiso is one of North America's most widely-used and cost-effective insulation products and has been promoted by the U.S. Environmental Protection Agency for its responsible impact on the environment.

THE BEST OPTION

Polyiso insulation offers the highest level of thermal performance of any rigid foam insulation on the market, providing design flexibility while remaining cost-effective, energy-efficient, and environmentally responsible.

ENVIRONMENTALLY SOUND

Polyiso insulation provides the highest net return on embedded energy and the lowest global warming potential of all rigid commercial roof insulation choices.

- » Zero ozone depletion potential (Zero-ODP)
- » LEED[®] benefits

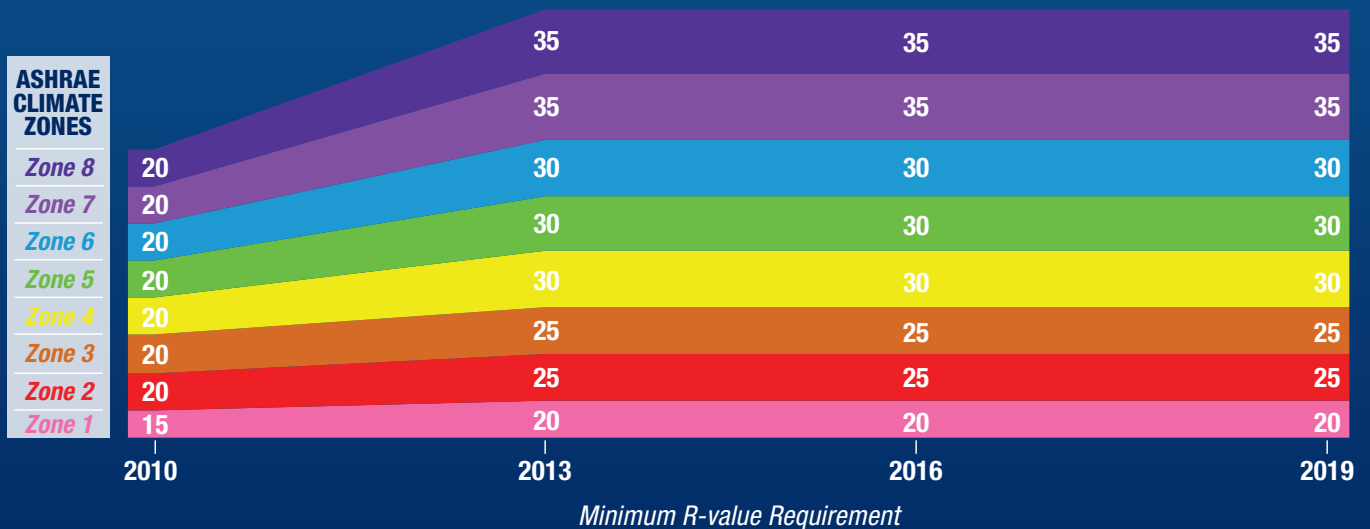


**PIMA Polyiso Roof Insulation
Environmental Product Declaration (No. EPD10465)**



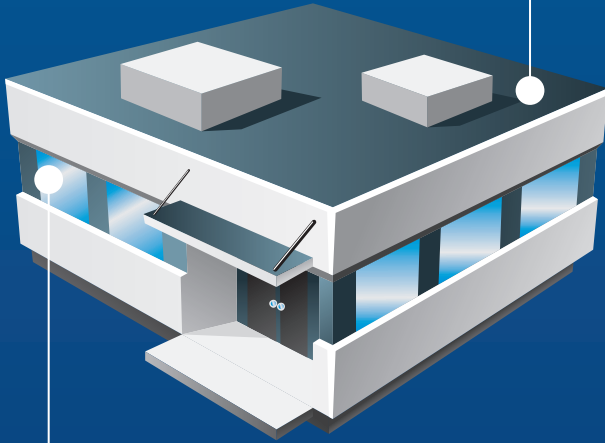
Code Requirements

Code required R-values have increased substantially in a short period of time based upon the growing recognition of the positive impact insulation usage has on reducing energy consumption. A building owner only gets one chance to increase the insulation in the roof system approximately every 20 years. Consider future energy requirements and associated energy costs over the entire lifespan of the installed roof system when making these important decisions.



Energy Savings

EPDM – 20-year roof



One-story office building – 50,000 sq. ft.

Additional R-10 Insulation

What is the true cost of adding insulation to a roof system? Adding R-10 to the building above would cost approximately \$31,000 in insulation product. Modeled Energy Savings based on various locations are displayed to the right.

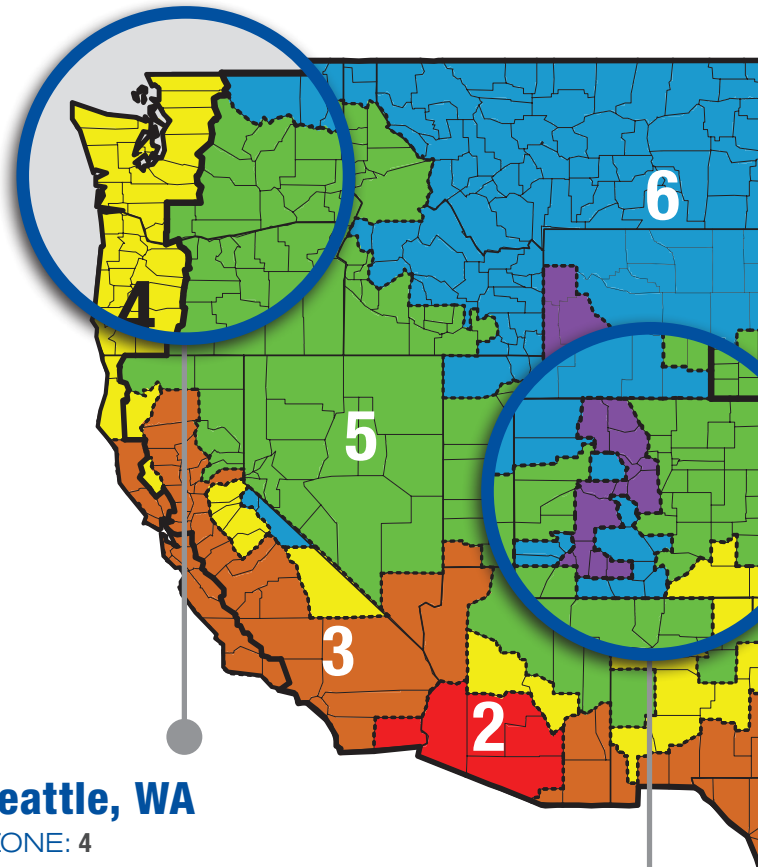
*Electric @ \$0.10/kWh and gas @ \$8.59/1000 cubic ft.
Energy costs assuming 2% annual inflation
Results generated by ORNL's Roof Savings Calculator.*

Minneapolis, MN

ZONE: 6

R-20 VS. R-30 SAVINGS: \$140,049

PAYBACK IN YEARS: 6



Seattle, WA

ZONE: 4

R-20 VS. R-30 SAVINGS: \$101,911

PAYBACK IN YEARS: 7

Denver, CO

ZONE: 5

R-20 VS. R-30 SAVINGS: \$99,027

PAYBACK IN YEARS: 7

Chicago, IL

ZONE: 5

R-20 VS. R-30 SAVINGS: \$118,811

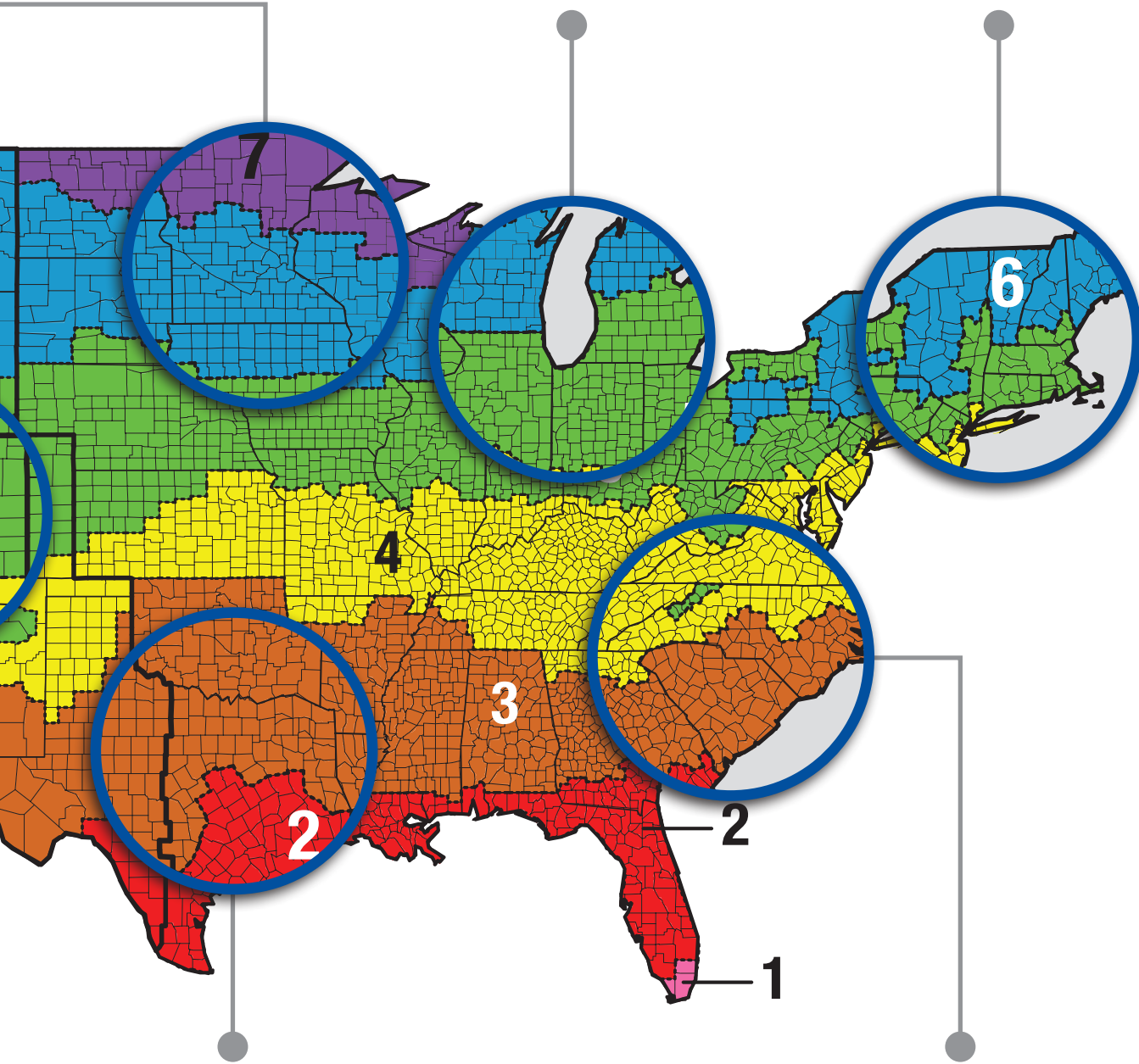
PAYBACK IN YEARS: 7

Boston, MA

ZONE: 5

R-20 VS. R-30 SAVINGS: \$107,371

PAYBACK IN YEARS: 7



Dallas, TX

ZONE: 3

R-20 VS. R-30 SAVINGS: \$70,454

PAYBACK IN YEARS: 10

Charlotte, NC

ZONE: 4

R-20 VS. R-30 SAVINGS: \$75,399

PAYBACK IN YEARS: 10

Polyiso Insulation Products to Meet Every

InsulBase® – The Foundation

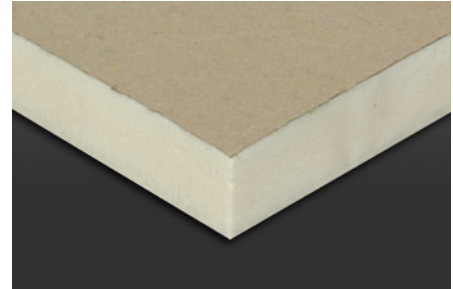
An effective Polyiso insulation used as the foundation for most Carlisle single-ply, low-slope commercial rooftop applications. The glass-reinforced felt (GRF) facer is compatible with all membranes, including FleeceBACK and all adhesives, including self-adhered technologies.

- » InsulBase polyiso insulation provides the highest R-value per inch of any commercially available roof insulation products
- » Environmentally friendly construction with 0% ozone-depleting components and HFC free
- » Approved for direct application to steel decks

StormBase® – Ultimate Defense

The ultimate defense in the harshest of environments. OSB cover board combined with InsulBase insulation to create a single product. StormBase OSB composite insulation is the definitive solution where enhanced hail and uplift resistance are required.

- » A superior combination of high-insulating properties and a resilient OSB surface, ideal for high-traffic roof installations
- » Higher wind uplift performance
- » Composite of insulation and cover board saves handling and installation labor
- » Suitable for new construction and re-roofing on commercial projects – Incorporates APA-TECO-rated exposure 1 oriented strand board
- » Environmentally friendly construction with 0% ozone-depleting components and HFC free
- » Approved in FM Very Severe Hail (VSH) roofing assemblies
- » 8 fastener FM 1-90 rating with standard plates and fasteners



InsulBase

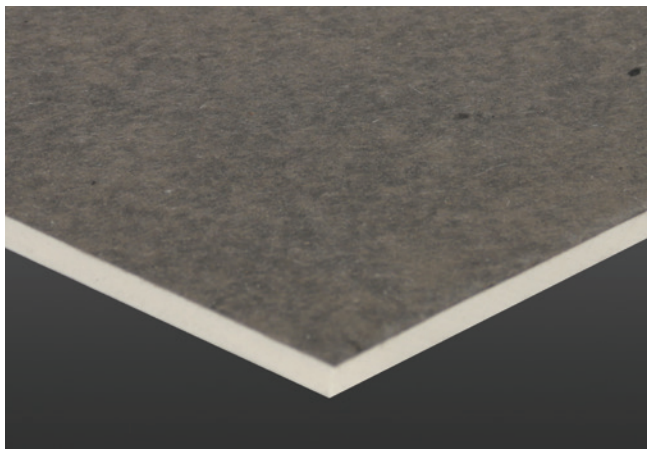
A rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded to **glass-reinforced felt (GRF) facers**. UL and FM approved for direct application over steel decks, polyiso provides the highest R-value per inch of any commercially available roof insulation product.



StormBase

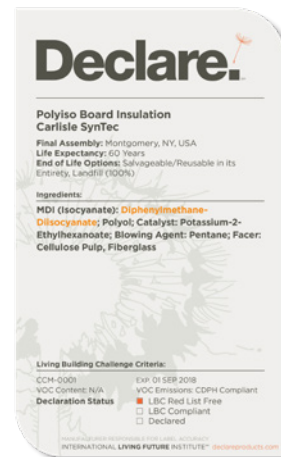
A rigid roof insulation composite panel composed of a closed-cell polyisocyanurate foam core bonded to a **glass-reinforced felt (GRF) facer** on one side and $\frac{7}{16}$ " oriented strand board (OSB) on the other.

Need



InsulBase HD

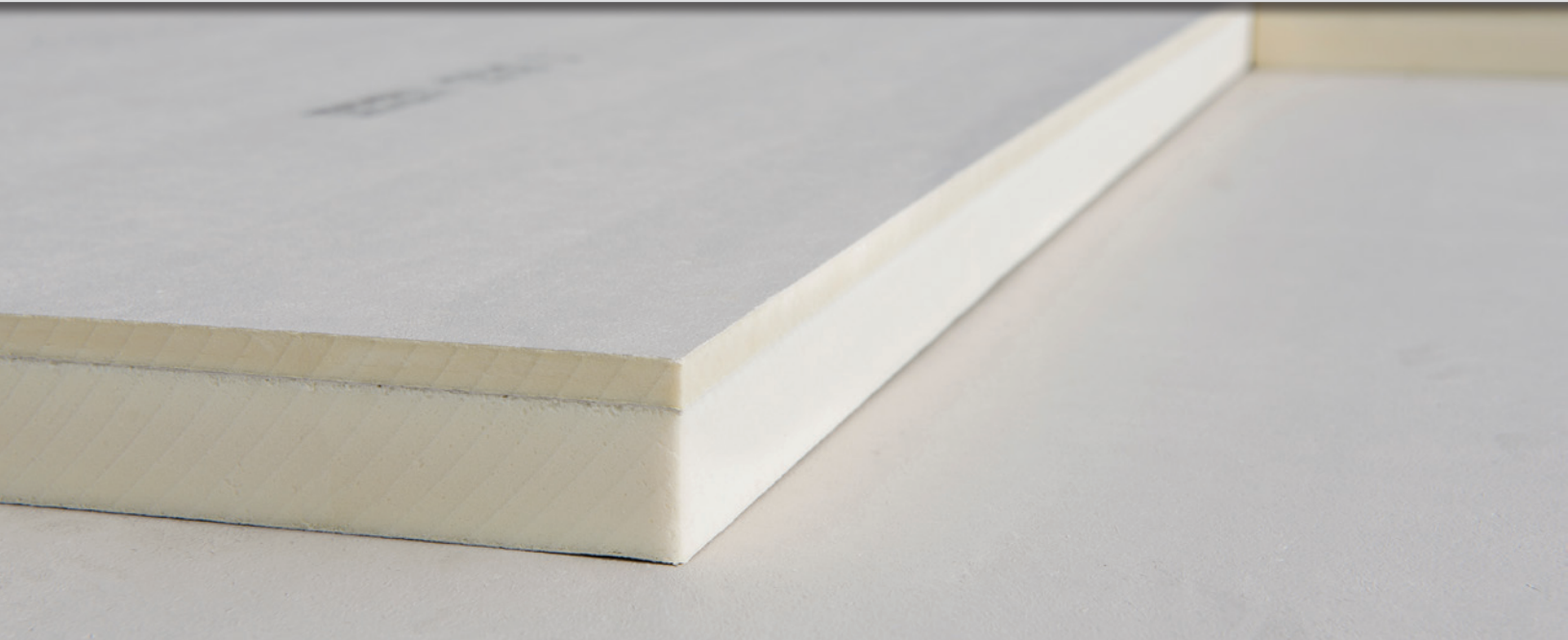
A rigid roof insulation panel composed of 1/2" high-density, closed-cell polyisocyanurate foam core bonded to glass-reinforced felt (GRF) facers specifically designed to be used as a cover board in mechanically-fastened or induction-welded systems only. Provides 5 times the R-value at one-fifth the weight of traditional gypsum cover boards



InsulBase NH

A Living Building Challenge (LBC) "Red List Free" rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded to the appropriate facer. InsulBase NH and SecurShield NH contain **zero halogenated flame retardants**.

SecurShield® with ReadyFlash® Technology –



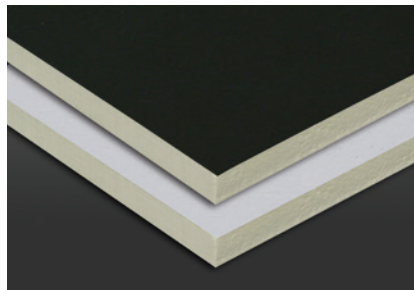
SecurShield – Enhanced Performance

Enhanced performance through superior moisture resistance. The coated glass facer (CGF) is compatible with all membranes, adhesives, and ideal for use with adhered membranes. Offering increased resistance to foot traffic, hail, wind uplift and fire, the SecurShield family of products offer the **best value** in Polyiso insulation for low-slope commercial rooftop applications.



SecurShield®

A rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded to high performance **coated glass facers (CGF)**. Ideal for use in adhered membrane systems.



SecurShield HD

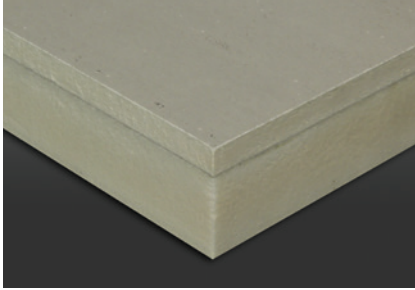
A rigid roof insulation panel composed of 1/2" high-density, closed-cell polyisocyanurate foam core bonded to a premium performance coated glass facer (CGF) specifically designed for use as a **cover board**. Provides 5 times the R-value at one-fifth the weight of traditional gypsum cover boards.



SecurShield HD Plus

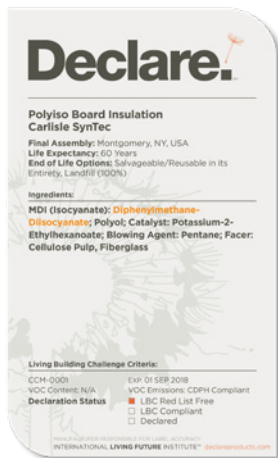
A rigid roof insulation panel composed of a 1/2" high-density, closed-cell polyisocyanurate foam core bonded to a premium performance coated glass facer (CGF) specifically designed for use as a **cover board**. Enhanced performance of the HD Plus product provides a **FM 1-90 wind uplift rating with only 8 fasteners**.

Enhanced Performance



SecurShield HD Composite

A unique composite insulation panel comprised of a 1/2" high-density polyiso cover board bonded during the manufacturing process to SecurShield rigid polyiso roof insulation. Eliminates the need for a separate cover board, reduces inter-ply adhesives and saves labor on the roof. **A single product solution.**



SecurShield NH

A Living Building Challenge (LBC) "Red List Free" rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded to the appropriate facer. InsulBase NH and SecurShield NH contains **zero halogenated flame retardants.**

ReadyFlash Technology

ReadyFlash Technology allows applicators to manage adhesive flash-off times by choosing between two different-colored facers on every board. ReadyFlash products feature a dark-colored coated glass facer (CGF) on one side of the insulation board and a light-colored CGF on the other.

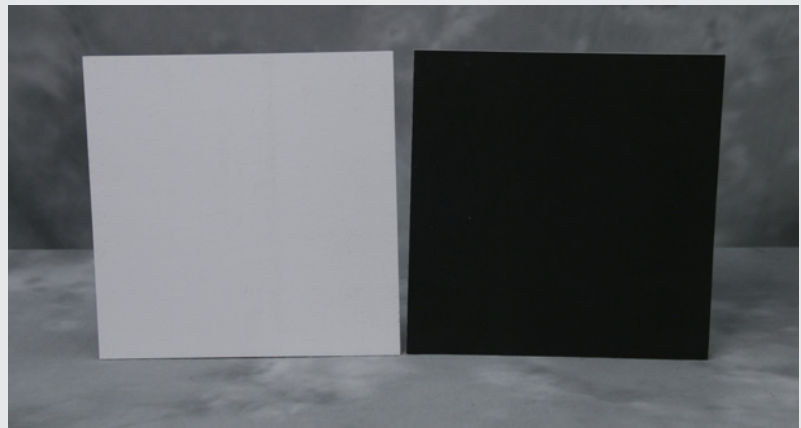
ReadyFlash

TECHNOLOGY

Utilizing the sun's energy, the dark facer accelerates adhesive flash-off, while the light facer slows it down. Applicators can choose which side of the board to use, helping to offset environmental variables affecting adhesive flash-off; such as temperature, sunlight, humidity, wind speed, size of crew, current pace, and time of day.

ReadyFlash Technology benefits:

- » Allows the applicator to speed up or slow down adhesive flash-off time
- » Increases surface temperature of the dark facer up to 50°F (28°C) above ambient temperature
- » Decreases surface temperature of the light facer up to 10°F (6°C) below ambient temperature
- » Provides up to 4x faster adhesive flash-off when utilizing the dark facer



RapidLock Technology

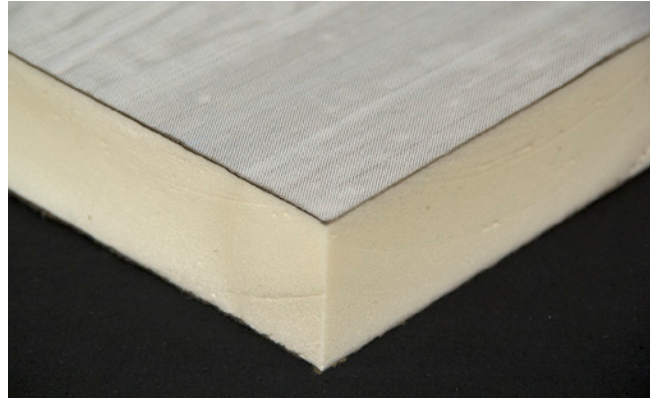
Revolutionary Membrane Attachment Method



Carlisle's RapidLock (RL[®]) Roofing System is a revolutionary membrane attachment method that provides a fully adhered system without the use of adhesives. The RL system utilizes VELCRO[®] Brand Securable Solutions along with FleeceBACK RL EPDM, FleeceBACK RL TPO, or FleeceBACK RL PVC to achieve performance on par with traditional fully adhered single-ply systems. Underlayment options include InsulBase RL, SecurShield RL, and SecurShield HD RL Polyiso. The RL system is VOC- and odor-free, has no bottom-end application temperature restrictions, and provides significant rooftop labor savings due to its ease of installation.

RapidLock

TECHNOLOGY



RAPIDLOCK MEMBRANE

- » FleeceBACK RL EPDM
- » FleeceBACK RL TPO
- » FleeceBACK RL PVC

RAPIDLOCK INSULATION

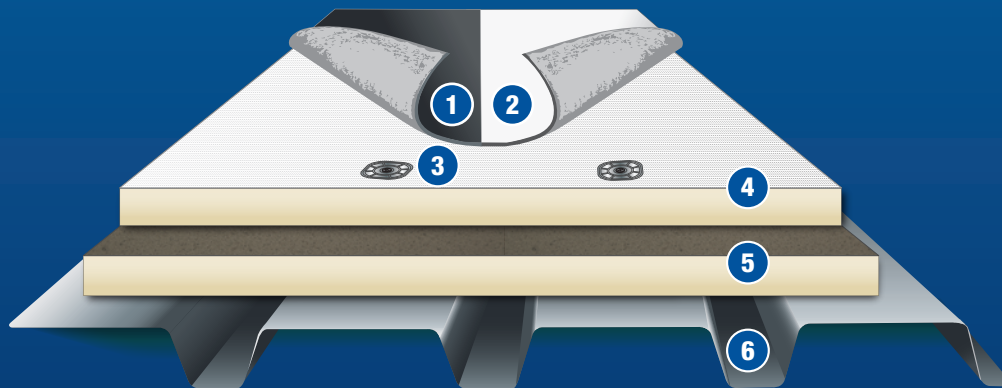
- » InsulBase RL
- » SecurShield RL
- » SecurShield HD RL

SYSTEM FEATURES AND BENEFITS

- » No application temperature restrictions
- » VOC- and odor-free
- » Adhesive-less system saves time and labor
- » Integrated slip sheet lightly adhered to FleeceBACK for ease of installation
- » Factory Mutual wind uplift ratings similar to traditional fully adhered FleeceBACK systems
- » Excellent resistance to hail and punctures



FLEECEBACK RL RAPIDLOCK ROOFING SYSTEM



1. FleeceBACK RL EPDM Membrane with RapidLock Technology
2. FleeceBACK RL TPO or FleeceBACK RL PVC Membrane with RapidLock Technology
3. Insulation Fasteners and Plates
4. InsulBase RL or SecurShield RL Polyiso with RapidLock Technology
5. InsulBase or SecurShield Polyiso
6. Steel Deck

Engineered for **Positive Roof Drainage**

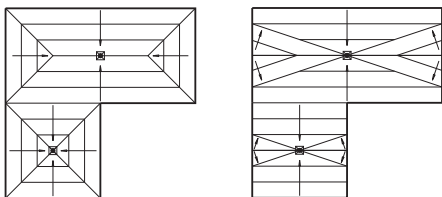
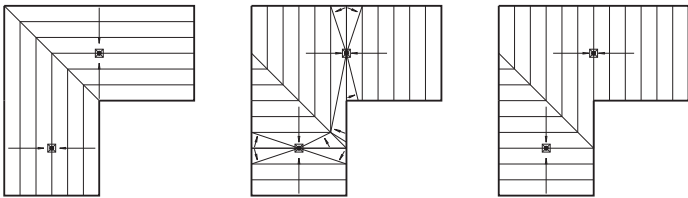
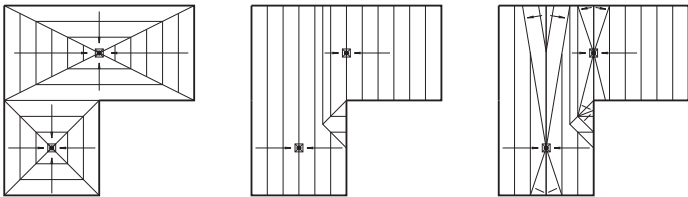
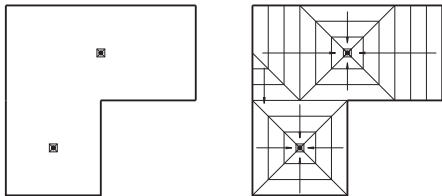


TAPERED SYSTEMS

StormFlow Technology

Buildings with poor roof drainage may experience issues that can compromise their long-term performance. A properly designed tapered insulation system can help to minimize the detrimental effects of ponding water while providing the required R-value and reducing energy consumption.

Carlisle can offer recommendations that address each building's unique requirements while increasing energy-efficiency and ensuring positive drainage. Carlisle's tapered design experts have over 100 years of collective experience and can provide a 24-hour turnaround on most tapered design requests.

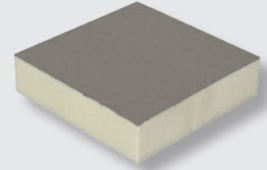


TAPERED INSULATION OPTIONS

Tapered Polyiso

A sloped, rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded to a coated glass or fiber-reinforced facer. Designed to

promote positive drainage and prevent ponding water.



Pre-Cut Hips and Valleys

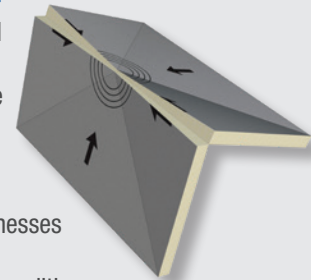
For use in tapered polyiso systems, Carlisle's Pre-Cut Hips and Valleys arrive ready to install and **require no field cuts**, saving time and labor. Custom-designed to meet job requirements, including slope and thickness, with no waste.



Hinged Target Sumps

Designed for use in tapered polyiso systems, Carlisle's Hinged Target Sumps arrive ready to install, **saving valuable time on the roof.**

Concentric circles simplify drain cutout. Multiple thicknesses and slopes are available to accommodate specific job conditions with no waste.



Classifications, Cover Board, and Insulation

ASTM C1289 POLYISO ROOFING INSULATION CLASSIFICATIONS

Type II			Type V
			OSB on one side with reinforced felt or glass fiber mat on the other side
Class 1 Glass reinforced felt (GRF) facers on both sides	Class 2 Coated glass (CGF) facers on both sides	Class 4 Coated glass (CGF) facers on both sides (½" max thickness)	
Available in: Grade 2 (20 PSI) Grade 3 (25 PSI)	Available in: Grade 2 (20 PSI) Grade 3 (25 PSI)	Available in: Grade 1 (80 PSI min, 109 PSI max)	Available in: Grade 2 (20 PSI)
InsulBase POLYISO Insulation InsulBase POLYISO Tapered Insulation InsulBase NH POLYISO Insulation InsulBase RL POLYISO RapidLock Insulation InsulBase HD POLYISO Insulation	SecurShield POLYISO Insulation SecurShield POLYISO Tapered Insulation SecurShield NH POLYISO Insulation SecurShield RL POLYISO RapidLock (RL) Insulation SecurShield HD Composite POLYISO Insulation	SecurShield HD POLYISO Insulation SecurShield HD Plus POLYISO Insulation SecurShield HD RL POLYISO RapidLock Insulation SecurShield HD Composite POLYISO Insulation	StormBase POLYISO Insulation

n Options

COVER BOARD OPTIONS

High-Density Polyisocyanurate Cover Boards

Cover Board	Thickness	Direct Membrane Attachment
InsulBase HD	½"	Mechanically-Fastened
SecurShield HD	½"	Mechanically-Fastened Fully-Adhered
SecurShield HD Plus	½"	Fully-Adhered
SecurShield HD RL	½"	Hook & Loop

INSULATION OPTIONS

Polyisocyanurate Insulation Glass-Reinforced Felt (GRF) Facers

Insulation	Thickness	Direct Membrane Attachment
InsulBase	½" – 4½" (available in taper)	Fully-Adhered Mechanically-Fastened Ballasted
InsulBase NH	½" – 4½" (available in taper)	Fully-Adhered Mechanically-Fastened Ballasted
InsulBase RL	2", 2.6"	Hook & Loop

Polyisocyanurate Insulation Coated Glass Facers (CGF)

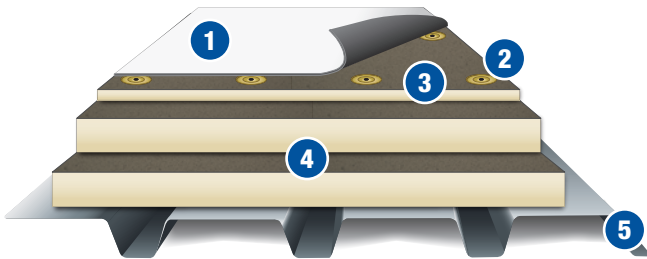
SecurShield	½" – 4½" (available in taper)	Fully-Adhered Mechanically-Fastened Ballasted
SecurShield NH	½" – 4½" (available in taper)	Fully-Adhered Mechanically-Fastened Ballasted
SecurShield RL	2", 2.6"	Hook & Loop

Composite Polyiso

SecurShield HD Composite	1½" to 4½"	Fully-Adhered Mechanically-Fastened
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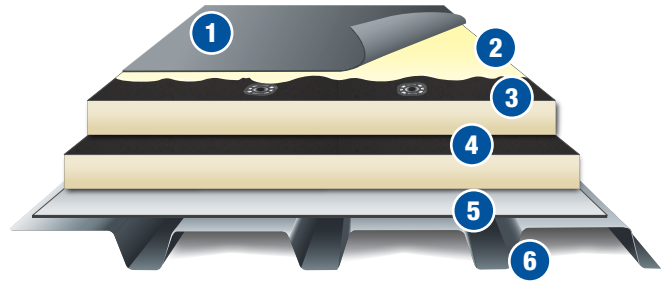
Typical Applications

InsulBase HD Polyiso Insulation



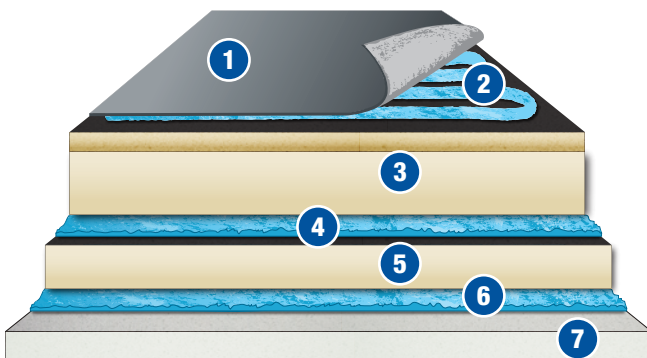
1. Carlisle Mechanically Fastened TPO Membrane
2. Induction Welded Plates with Fasteners
3. ½" InsulBase HD
4. 2 Layers of InsulBase Polyiso Insulation
5. Metal Deck

SecurShield Polyiso Insulation with ReadyFlash Technology



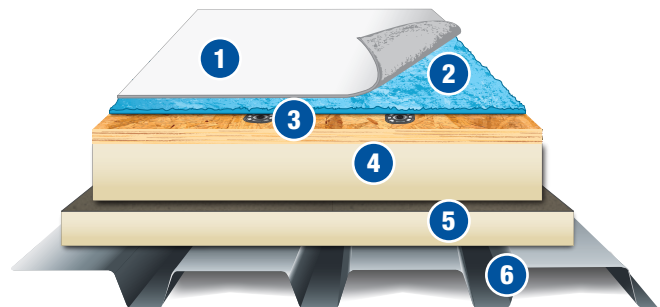
1. Carlisle Adhered EPDM Membrane
2. Carlisle Bonding Adhesive
3. Insulation Fasteners and Plates
4. 2 Layers of SecurShield Polyiso Insulation with ReadyFlash Technology
5. VapAir Seal™ MD
6. Metal Deck

SecurShield HD Composite



1. Carlisle Adhered EPDM FleeceBACK Membrane
2. Flexible FAST™ Adhesive
3. SecurShield HD Composite Polyiso Insulation
4. Flexible FAST Adhesive
5. SecurShield Polyiso Insulation with ReadyFlash Technology
6. Flexible FAST Adhesive
7. Concrete Deck

StormBase Polyiso Insulation



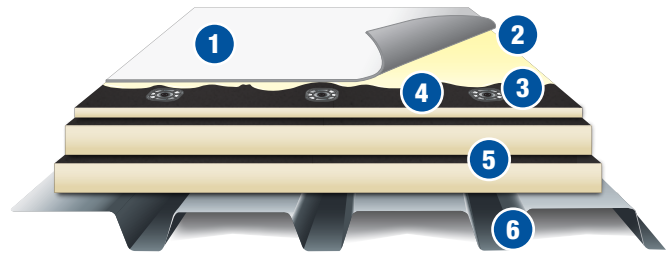
1. Carlisle Adhered TPO FleeceBACK Membrane
2. Flexible FAST Adhesive
3. Insulation Plates and Fasteners
4. StormBase Polyiso Insulation
5. InsulBase Polyiso Insulation
6. Metal Deck

Wood Deck



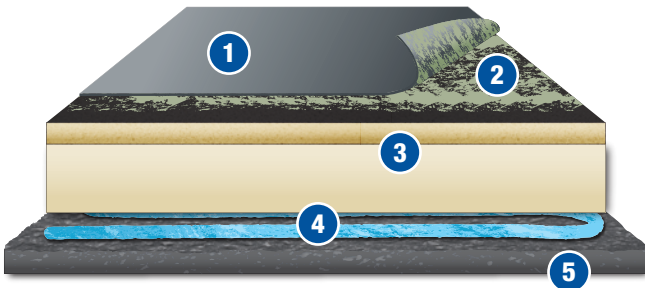
1. Carlisle Mechanically Fastened TPO Membrane
2. Piranha Plates
3. Insulation Fasteners and Plates
4. 1" SecurShield Polyiso Insulation with ReadyFlash Technology
5. Wood Deck

SecurShield HD Polyiso Insulation with ReadyFlash Technology



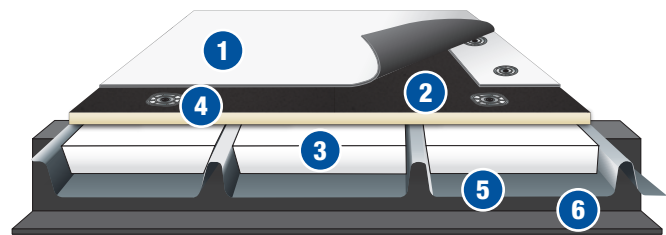
1. Carlisle Adhered PVC Membrane
2. Low-VOC PVC Bonding Adhesive
3. Insulation Fasteners and Plates
4. 1/2" SecurShield HD Polyiso Insulation with ReadyFlash Technology
5. Base layers of SecurShield Polyiso with ReadyFlash Technology
6. Metal Deck

Gravel BUR Recover



1. Carlisle Adhered EPDM Membrane
2. CAV-GRIP® III Spray Adhesive
3. SecurShield HD Composite Polyiso Insulation
4. Flexible FAST Adhesive
5. Existing Gravel BUR System

Polyiso Insulation Over Flute Fill



1. Carlisle Mechanically Fastened TPO Membrane
2. Piranha Plates
3. Insulation Fasteners and Plates
4. 1/2" SecurShield HD Polyiso Insulation with ReadyFlash Technology
5. Flute Fill Insulation
6. Existing Metal Roof

EXPERIENCE THE CARLISLE DIFFERENCE



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