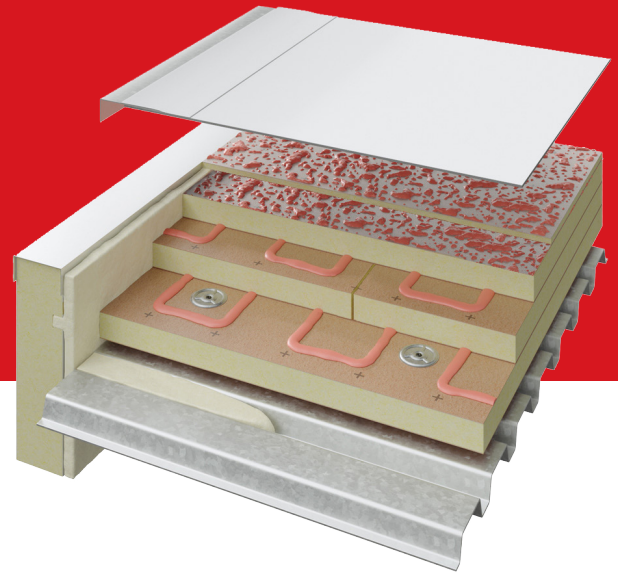


A Cold Storage Solution



Challenge:

To maintain super-cool temperatures, cold storage facilities require a great deal of energy. GAF EnergyGuard™ Polyiso Insulation can help these facilities achieve optimal efficiency in their roof systems.

Why EnergyGuard™ Polyiso Insulation:

- Versatility — Available both in flat and tapered insulation and a variety of cover boards that offer higher R-values
- R-value — 5.7 per inch for flat and tapered polyiso panels, and 2.5 for 1/2" HD polyiso cover boards
- Moisture resistance — EnergyGuard™ products with the CGF facers offer moisture resistance and low water permeability, and meet ASTM D3272 requirements for resistance to mold growth¹
- Versatile — Compatible with solvent and water base adhesives
- Reduced condensation potential — When installed in two or more layers with staggered joints
- Handling — Lightweight and easy-to-cut with a utility knife
- Guarantees — Qualifies for multiple types of system guarantees

Panel Characteristics:

- Variety of thickness and board sizes are available to meet your job specifications
- Choice of two facers — Glass fiber reinforced (GRF) and coated class (CGF)
- Low temperature stable R-values available in the EnergyGuard™ NH product for flat and tapered panels²

Code Compliance and Sustainability:

- Refer to individual product data sheets on gaf.com for code compliance of specific products referenced
- Manufactured with EPA-compliant blowing agents containing no CFCs or HCFCs
- Zero ozone depletion potential (ODP) and negligible global warming potential (GWP)
- Potential LEED® Credits for polyiso use
- Health Product Declaration
- Environmental Product Declaration (EPD) (Industry)
- UL GREENGUARD™ Gold
- EnergyGuard™ NH products can contribute towards sustainability certifications under a green building rating system such as LEED V4, or Living Building Challenge



¹ GAF warranties and guarantees do not warrant or guarantee moisture resistance or provide coverage against mold or other biological growth. Refer to gaf.com for more information on warranty and guarantee coverage and restrictions.

² Maintains the same R-value when tested according to ASTM C1289 standard using the C518 test method and both a mean temperature of 40° F and 75° F.

EnergyGuard™ Flat Polyiso Thermal Values:

Size*	R-Value**	Max Flute Span (in)
1.0" (25.4 mm)	5.7	2 5/8" (66.7 mm)
1.2" (30.5 mm)	6.8	2 5/8" (66.7 mm)
1.5" (38.1 mm)	8.6	4 3/8" (111 mm)
1.75" (44.5 mm)	10.0	4 3/8" (111 mm)
2.0" (51 mm)	11.4	4 3/8" (111 mm)
2.3" (58 mm)	13.2	4 3/8" (111 mm)
2.5" (64 mm)	14.4	4 3/8" (111 mm)
2.6" (66 mm)	15.0	4 3/8" (111 mm)
2.8" (71 mm)	16.2	4 3/8" (111 mm)
3.0" (76 mm)	17.4	4 3/8" (111 mm)
3.2" (81 mm)	18.6	4 3/8" (111 mm)
3.5" (89 mm)	20.5	4 3/8" (111 mm)
3.7" (94 mm)	21.7	4 3/8" (111 mm)
4.0" (102 mm)	23.6	4 3/8" (111 mm)
4.3" (109 mm)	25.4	4 3/8" (111 mm)
4.5" (114 mm)	26.6	4 3/8" (111 mm)
4.6" (117 mm)	27.1	4 3/8" (111 mm)

* Other thicknesses available upon request.

** Long-Term Thermal Resistance Values provide a 15-year time weighted average in accordance with CAN/ULC S770.

For optimal roof performance and to prevent thermal bridging, GAF recommends installing two layers of polyiso with staggered joints.

EnergyGuard™ HD Polyiso Cover Board Thermal Value

Size	R-Value
1/2"	2.5



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Applications:

- TPO and PVC — Mechanically attached, induction-welded, or adhered
- Asphaltic Applications — modified bitumen and built-up roofing

Systems Considerations:

- Mechanically fastened base layer of EnergyGuard™ polyiso, adhere subsequent layers with staggered joints to prevent thermal bridging of fasteners and board joints.
- When installing a system with multiple layers of EnergyGuard™ polyiso and a cover board, consider Ultra HD Composite Insulation, which combines >80 psi cover board and polyiso into a single composite panel instead of requiring two panels.
- To meet your sustainability goals, EnergyGuard™ NH flat, tapered, and cover boards are available with non-halogenated flame retardants.
- Incorporating EnergyGuard™ HD Polyiso Cover Board contributes R-2.5 to the overall roof system providing the option to minimize the polyiso layers below the cover board.

Suggested Minimum R-values for Roof Insulation*

Cold Storage Type	Interior Temperature Range °F (°C)	Minimum R-value for Roof Insulation**
Coolers	40 to 50 (4.4 to 10)	R-30 to R-35 (2 layers of 2.6 GAF Polyiso = R-30)
Chill Coolers	25 to 35 (-3.8 to 1.6)	R-35 to R-40 (2 layers of 3.5 GAF Polyiso = R-41)
Holding Freezers	-10 to -20 (-23.3 to -28.9)	R-45 to R-50 (2 layers of 4.3" GAF Polyiso = R-50.8)
Blast Freezers	-40 to -50 (-40 to -45.5)	R-50 to R-60 (3 layers of 3.5" GAF Polyiso = R-61.5)

* 2018 edition of the American Society of Heating, Refrigerating and Air-Conditioning Engineers' ASHRAE Handbook—Refrigeration.

**Other R-Values are available, see R-value chart by product and thickness.

GAF EnergyGuard™ Product Solutions

Product Name	ASTM Standard	Flat	4'x4'	4'x8'	Flat Thickness Availability	Available in Tapered	Tapered Thickness Availability	Resistance to Mold ¹	Non-Halogenated Flame Retardant Formulation
EnergyGuard™ Polyiso Insulation	ASTM C1289 Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi)	X	X	X	1" – 4.6"	X	1/2" – 4.5"		
EnergyGuard™ Ultra Polyiso Insulation	ASTM C1289 Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi)	X	X	X	1" – 4.6"	X	1/2" – 4.5"	X	
Ultra HD Composite Insulation	ASTM C1289 Type II, Class 4, Grade 1 (80 psi min to 109 psi max) and ASTM C1289 Type II, Class 2 Grade 2 (20 psi min)	X	X	X	2.0" – 4.5"			X	
EnergyGuard™ HD Polyiso Cover Board	ASTM C1289 Type II, Class 4, Grade 1 (80 psi min – 109 psi max)	X	X	X	1/2"			X	
EnergyGuard™ HD Plus Polyiso Cover Board	ASTM C1289 Type II, Class 4, Grade 2 (110 psi min – 139 psi max)	X	X	X	1/2"			X	
EnergyGuard™ NH Polyiso Insulation	ASTM C1289 Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi)	X	X	X	1" – 4.6"	X	1/2" – 4.5"		X
EnergyGuard™ NH Ultra Polyiso Insulation	ASTM C1289 Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi)	X	X	X	1" – 4.6"	X	1/2" – 4.5"	X	X
EnergyGuard™ NH HD Polyiso Cover Board	ASTM C1289 Type II Class 4, Grade 1 (80 psi min – 109 psi max)	X	X	X	1/2"			X	X



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