GAF Cornell ThermaCal® Nail Base Roof Insulation Panels (RESGN421)

Updated: 2/15
Perfect for cathedral ceilings, glue lam, post & beam structures, and conditioned attic spaces

Helps reduce heat drive into the living/conditioned spaces

Exhausts excess moisture before it can condense in the deck or the roofing system (ventilated versions only)

Can be used on structural wood or steel sloped roof decks (Contact GAF for other acceptable roof decks)
Cornell has been making insulated roofing products since 1954! In fact, they were innovators in this product category, starting with their ThermaCal® product. All of GAF Cornell's ventilated insulation panels feature:

- **Reduced Heat Loss...** Exclusive tongue-and-groove design minimizes heat loss up through the panel joints
- **Exceptional Airflow...** Unique spacer pattern maximizes airflow ("upventing") and reduces hot spots
- **Extra-Strong Design...** Unlike some competitive products, our solid wood spacer blocks (positioned 12" [305 mm] or less apart in all directions) minimize the chance of deflection or nail back-out
- **Easy Installation...** Fully machined construction with cut-back sheathing allows for a precision fit
- **Less Hassles...** Unlike most competitive products, H-clips are not required because each panel is pre-spaced to allow for sheathing expansion
- **Sheathing Configurations Available...** 7/16" (11.1 mm) OSB nailing surface (standard); optional 5/8" (15.9 mm) and 3/4" (19.1 mm) OSB or plywood, and FSC Chain-of-Custody-certified plywood and OSB

<table>
<thead>
<tr>
<th>Approx. Overall Panel Thickness</th>
<th>Nom. Polyiso Insulation Thickness</th>
<th>Approx. Weight</th>
<th>LTTR R-Value</th>
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<tbody>
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<td>8.0&quot;</td>
<td>203</td>
<td>6.5&quot;</td>
<td>165</td>
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1 Approx. overall panel thickness based on the polyiso insulation, one layer of 7/16" (11.1 mm) OSB, and 1" (25.4 mm) spacer height.
2 LTTR R-value refers to polyiso insulation. LTTR R-value calculations are based on ASTM C1289-11A, effective January 1, 2014.
For Slate, Tile, and Maximum Loading

- Nominal 4' x 8' (1.21 m x 2.44 m) panel
- Two layers of sheathing (7/16" [11.1 mm] OSB standard)
- R-values from 9.20 to 36.60
- 1" (25.4 mm) airspace standard—10 sq. in. of NFA per ft. (21,163 sq. mm per m) run
- Over 92% open area (spacers occupy only 8% of panel area) with 50% open area for lateral (across the slope) ventilation

**ThermaCal® Non-Ventilated Roof Insulation Panels**

<table>
<thead>
<tr>
<th>Approx. Overall Panel Thickness</th>
<th>Nom. Polyiso Insulation Thickness</th>
<th>Approx. Weight</th>
<th>Total System R-Value1</th>
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<tbody>
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1 Approx. overall panel thickness based on the polyiso insulation, two layers of 7/16" (11.1 mm) OSB, and 1" (25.4 mm) spacer height.

2 Total system R-value includes the LTTR R-value of the polyiso insulation and .62 R-value of the 7/16" (11.1 mm) OSB attached to the polyiso. LTTR R-value calculations are based on ASTM C1289-11A, effective January 1, 2014.

For Metal Roofing

- Nominal 4’ x 8’ (1.21 m x 2.44 m) panel
- Single layer of sheathing (7/16" [11.1 mm] OSB standard)
- R-values from 9.20 to 45.70

All ThermaCal® non-ventilated panels feature:

- **Reduced Heat Loss**... Exclusive tongue-and-groove design minimizes heat loss up through the panel joints
- **Easy Installation**... Fully machined construction with cut-back sheathing allows for a precision fit
- **Less Hassles**... Unlike most competitive products, H-clips are not required because each panel is pre-spaced to allow for sheathing expansion
- **Sheathing Configurations Available**... 7/16" (11.1 mm) OSB nailing surface (standard); optional 5/8" (15.9 mm) and 3/4" (19.1 mm) OSB or plywood, and FSC Chain-of-Custody-certified plywood and OSB
Short Form Draft Specifications

(ThermaCal® 1 Ventilated Roof Insulation Panels Only)

Note to Specification Writer: This draft spec can be used for ThermaCal® 1 (with one layer oriented strand board). This spec is typically placed in Section 07220. All product specifications can be downloaded from our website at gaf.com, or from www.cornellcorporation.com.

1. VENTILATED ROOF INSULATION

A. Description of system:

1. The ventilated roof insulation should be a factory-assembled panel consisting of one layer of 7/16" (11.1 mm) oriented strand board top surface, a built-in ventilation space maintained by 1" (25.4 mm) wood spacer blocks, and polyisocyanurate insulation on the bottom.

2. The Long Term Thermal Resistance (LTTR) R-Value of the polyisocyanurate insulation shall be no less than __________.

3. Wood panel edges shall be rabbeted to allow the foam edges to fit together, while providing clearance between the wood sheathing on adjoining panels.

4. Foam sides and ends shall have a machined tongue-and-groove profile to reduce heat loss at the joints.

5. The wood spacer blocks shall not exceed 8% of the panel area and shall have 50% open area for lateral (across the slope) ventilation. Spacer blocks shall not be over 12" (305 mm) apart in either direction.

6. The vent space shall provide a minimum of 10 sq. in. of Net Free Area per linear foot (21,163 sq. mm per lm) on insulation (along the 8’ [2.44 m] edge) after deduction for the spacer blocks.

7. The ventilated roof insulation will be attached with GAF Cornell Fasteners per specified wind load requirements.

2. SUBMITTALS

A. The following will be submitted to the architect for approval: copies of the manufacturer’s product information and installation instructions; a sample with the edge profile specified and large enough to show the actual lateral spacing of the vent space supports; a manufacturer’s dimensioned drawing showing how the 50% lateral ventilation is achieved; and calculations of spacer block percentage of panel area and the Net Free Area per lin. ft. (lm) of insulation after deducting for spacers.

3. PRODUCTS

A. Products shown below are acceptable provided they meet the requirements of this specification.

1. ThermaCal® 1 Ventilated Roof Insulation Panels from GAF Cornell, 1 Campus Drive, Parsippany, NJ 07054, 1-800-ROOF-411 or 1-800-522-9224, gaf.com or www.cornellcorporation.com.

2. NOTE: The designer should determine if a vapor barrier is required between the deck and the insulation. The vapor retarder should always be specified in buildings with high humidity. Always refer to local building codes.

Fastener Requirements: GAF Cornell requires the use of its fasteners for steel and wood substrate applications for all nail base roof insulation panels. See complete installation instructions, available from GAF Cornell, for recommended fastening patterns.

Standards

(All Panels Except As Noted)

- Polyiso insulation complies with ASTM C1289, Type II, Class I, Grade 2
- Standard APA/TECO rated OSB or optional plywood
- Optional FSC Chain-of-Custody available upon request

ANSI/UL 790 Classification

Classified under ANSI/UL 790 as a Shingle Decking Accessory for use with Class A, B, or C shingles, metal, tile, or slate roof coverings.

ANSI/UL 1256 Classification

Classified for Insulated Metal Deck Assemblies, Constructions No. 120 and No. 123

Physical Properties

- Sheathing – OSB conforms to APA Standard PRP 109, Exposure 1, and HUD/FHA-91B
- Polyiso insulation:
  - ASTM E84 Flame Spread Index of 45-50
  - ASTM E84 Smoke Developed Index of 105-450
  - Moisture Vapor Permeance per ASTM E96 of less than 1.5 perms

Vent Space Properties (ThermaCal® 1 and 2 only)

- Depth: 1" (25.4 mm) standard
- Cross Section: 10 sq. in. of Net Free Area per lin. ft. (21,163 sq. mm per lm) (along the 8’ [2.44 m] edge dimension after deducting spacer block area)
- Open Area: Not less than 92% of panel area
- Spacer Separation: 12" (305 mm) or less apart in all directions

NOTE: Always refer to local building codes.

For Technical Assistance:

1-800-ROOF-411

For Assistance With Specifications, Contact GAF Architectural Information Services at:
1-800-522-9224 or ais@gaf.com

GAF Cornell offers a full-line of nail base roof insulation panel fasteners for wood and steel roof deck applications. These fasteners meet FM wind load requirements. Contact GAF for more information.

GAF CORNELL
BUILDING ENVELOPE INSULATION PANELS

RESGN421