UL Evaluation Report

UL ER1306-03

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UL Category Code: ULEX

CSI MasterFormat®

DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
Sub-level 2: 07 21 00 – Thermal Insulation
Sub-level 3: 07 21 13 – Board Insulation

Sub-level 2: 07 22 00 – Roof and Deck Insulation
Sub-level 3: 07 22 16 – Roof Board Insulation

COMPANY:

GAF
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1. SUBJECT: EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board, EnergyGuard™ NH HD Plus Polyiso Cover Board, EnergyGuard™ Barrier Polyiso Insulation, and EnergyGuard™ NH Barrier Polyiso Insulation

2. SCOPE OF EVALUATION

- 2021, 2018, 2015, 2012 and 2009 *International Building Code* ® (IBC)
- 2021, 2018, 2015, 2012 and 2009 *International Residential Code* ® (IRC)
- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), Approved June 2015 (Editorially revised December 2020)
- ICC ES Acceptance Criteria for Quality Documentation (AC10), dated January 2019

The products were evaluated for the following properties:

- Roofing Systems for Exterior Fire Exposure (UL790)
- Surface Burning Characteristics (UL723, ASTM E84)
- Roof Deck Construction Material With Resistance to Internal Fire Exposure (UL1256)
- Approval Standard for Class 1 Roof Covers (FM4450)
- Physical Properties (ASTM C1289)

3. REFERENCED DOCUMENTS

- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), Approved June 2015 (Editorially revised December 2020)
- ICC ES Acceptance Criteria for Quality Documentation (AC10), Dated January 2019
- ASTM C1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
- UL790, Standard Test Methods for Fire Tests of Roof Coverings
- UL723 (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- UL1256, Standard Fire Test of Roof Deck Constructions
- FM4450, Class 1 Insulated Steel Deck Roofs
- FM4470, Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction

4. USES

EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board, EnergyGuard™ NH HD Plus Polyiso Cover Board, EnergyGuard™ Barrier Polyiso Insulation, and EnergyGuard™ NH Barrier Polyiso Insulation roofing insulation panels described in this Report are used as above-deck roof insulation as a component of classified roofing assemblies as specified in Chapter 15 of IBC and Chapter 9 of the IRC.

5. PRODUCT DESCRIPTION

5.1 General:

The insulations covered under this Report are faced, closed-cell, rigid polyisocyanurate foam core boards, and qualify for use under Section 1508 of the IBC and Section R906 of the IRC.

5.1.1 EnergyGuard™ Polyiso Insulation: The polyisocyanurate core is faced on each side with a glass-fiber reinforced cellulosic felt facer and is classified as Type II, Class 1, Grade 2 in accordance with ASTM C1289. The product is available in flat or tapered thicknesses from 0.5 inch to 4.0 inches and board sizes 4x4 ft and 4x8 ft.

5.1.2 EnergyGuard™ Ultra Polyiso Insulation: The polyisocyanurate core is faced on each side with a coated glass-fiber mat facer and is classified as Type II, Class 2, Grade 2 in accordance with ASTM C1289. The product is available in flat or tapered thicknesses from 0.5 inch to 4.0 inches and board sizes 4x4 ft and 4x8 ft.

5.1.3 EnergyGuard™ HD Polyiso Cover Board also known as EnergyGuard™ HD Polyiso Insulation: The high density polyisocyanurate core is faced on each side with a coated glass facer and is classified as Type II, Class 4, Grade 1 in accordance with ASTM C1289. The product is available in a thickness of 0.5 inch and board sizes 4x4 ft and 4x8 ft.

5.1.4 EnergyGuard™ HD Plus Polyiso Cover Board also known as EnergyGuard™ HD Plus Polyiso Insulation: The high density polyisocyanurate core is faced on each side with a coated glass facer and is classified as Type II, Class 4, Grade 2 in accordance with ASTM C1289. The product is available in a thickness of 0.5 inch and board sizes 4x4 ft and 4x8 ft.

5.1.5 EnergyGuard™ NH Polyiso Insulation: The polyisocyanurate core is faced on each side with a glass-fiber reinforced cellulosic felt facer and is classified as Type II, Class 1, Grade 2 in accordance with ASTM C1289. The product is available in flat or tapered thicknesses from 0.5 inch to 4.0 inches and board sizes 4x4 ft and 4x8 ft.

5.1.6 EnergyGuard™ NH Ultra Polyiso Insulation: The polyisocyanurate core is faced on each side with a coated glass-fiber mat facer and is classified as Type II, Class 2, Grade 2 in accordance with ASTM C1289. The product is available in flat or tapered thicknesses from 0.5 inch to 4.0 inches and board sizes 4x4 ft and 4x8 ft.

5.1.7 EnergyGuard™ NH HD Polyiso Cover Board also known as EnergyGuard™ NH HD Polyiso Insulation: The high density polyisocyanurate core is faced on each side with a coated glass facer and is classified as Type II, Class 4, Grade 1 in accordance with ASTM C1289. The product is available in a thickness of 0.5 inch and board sizes 4x4 ft and 4x8 ft.

5.1.8 EnergyGuard™ NH HD Plus Polyiso Cover Board also known as EnergyGuard™ NH HD Plus Polyiso Insulation: The high density polyisocyanurate core is faced on each side with a coated glass facer and is classified as Type II, Class 4, Grade 2 in accordance with ASTM C1289. The product is available in a thickness of 0.5 inch and board sizes 4x4 ft and 4x8 ft.

5.1.9 EnergyGuard™ Barrier Polyiso Insulation: The polyisocyanurate core is faced on each side with a coated glass-fiber mat facer and is classified as Type II, Class 2, Grade 2 in accordance with ASTM C1289. The product is available in flat or tapered thicknesses from 0.5 inch to 4.0 inches and board sizes 4x4 ft and 4x8 ft.

5.1.10 EnergyGuard™ NH Barrier Polyiso Insulation: The polyisocyanurate core is faced on each side with a coated glass-fiber mat facer and is classified as Type II, Class 2, Grade 2 in accordance with ASTM C1289. The product is available in flat or tapered thicknesses from 0.5 inch to 4.0 inches and board sizes 4x4 ft and 4x8 ft.

5.2 The foam core for EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ Barrier Polyiso Insulation, and EnergyGuard™ NH Barrier Polyiso Insulation have a flame-spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with UL723 (ASTM E84) at a maximum thickness of 4 inches and a maximum density of 2.1 pounds per cubic foot, in accordance with Section 2603.3 of the IBC and Section R316.3 of the IRC.

EnergyGuard™ HD Polyiso Cover Board and EnergyGuard™ NH HD Polyiso Cover Board have a flame-spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with UL723 (ASTM E84) at a maximum thickness of 0.5 inches and a maximum density of 5.0 pounds per cubic foot, in accordance with Section 2603.3 of the IBC and Section R316.3 of the IRC.

EnergyGuard™ HD Plus Polyiso Cover Board and EnergyGuard™ NH HD Plus Polyiso Cover Board have a flame-spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with UL723 (ASTM E84) at a maximum thickness of 0.5 inches and a maximum density of 6.0 pounds per cubic foot, in accordance with Section 2603.3 of the IBC and Section R316.3 of the IRC.

5.3 The roof insulation panels have thermal resistance values (*R*-value) as shown in Table 1, when tested at a mean temperature of 75°F.

6. INSTALLATION

6.1 General:

The products described in this report must be installed in accordance with the applicable code, this Report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at all times on the jobsite during installation.

6.2 Roof Insulation:

The products described in this report must be installed in accordance with Section 1508.2 of the IBC or Section R906.2 of the IRC on combustible or non-combustible roof decks.

The interior of the building must be separated from the insulation with a thermal barrier as required by IBC Section 2603.4.1.5 or IRC Section R316.4, as applicable.

The EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board and EnergyGuard™ NH HD Plus Polyiso Cover Board products described in this report may be installed on steel decks without a thermal barrier in accordance with Section 2603.4.1.5 Item 2 of the 2021, 2018 and 2015 IBC when installed as part of a UL Classified Class A, B or C roof covering system as described in 6.2.1, and as part of a UL Classified Roof Deck Construction described in 6.2.2. Or, the EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board and EnergyGuard™ NH HD Plus Polyiso Cover Board products described in this report may be installed on steel decks without a thermal barrier in accordance with Section 2603.4.1.5 of the 2012 and 2009 IBC when installed as part of a Class A, B or C roof-covering assembly described in UL Evaluation Report ULER1306-01 or ULER1306-02.

The EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board, EnergyGuard™ NH HD Plus Polyiso Cover Board, EnergyGuard™ Barrier Polyiso Insulation, and EnergyGuard™ NH Barrier Polyiso Insulation products described in this report may be installed without a thermal barrier when the roof-covering assembly is constructed in accordance with Section 2603.4.1.5 Item 1 of the IBC or Section R316.4 of the IRC when installed as part of a UL Classified Class A, B or C roof covering systems as described in 6.2.1 or as Class A, B or C roof-covering assembly described in UL Evaluation Report ULER1306-01 or ULER1306-02.

6.2.1 Class A, B or C Roof covering Systems:

Refer to UL's Product iQ™ database for UL Classified Roofing Systems (TGFU) incorporating EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board, EnergyGuard™ NH HD Plus Polyiso Cover Board, EnergyGuard™ Barrier Polyiso Insulation, and EnergyGuard™ NH Barrier Polyiso Insulation roof insulation panels under UL File R1306.

6.2.2 Roof Deck Constructions:

The EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board and EnergyGuard™ NH HD Plus Polyiso Cover Board products described in this report have been tested as part of a UL Classified Roof Deck Construction in accordance with UL1256. Refer to the UL Roof Deck Construction Materials Certification information for File R1306, Foamed Plastic (TJBX) and UL Roof Deck Construction Nos. 120 and 123 for applicable coverage and details of the Roof Deck Constructions covered by this report. The fire classified constructions are only applicable when the assembly is constructed in accordance with the published constructions.

7. CONDITIONS OF USE

The insulations covered under this Report comply with, or are suitable alternatives to, what is specified in those codes listed in Section 2 of this Report, subject to the following conditions:

7.1 Materials and methods of installation shall comply with this Report and the manufacturer's published installation instructions. In the event of a conflict between the installation instructions and this Report, this Report governs.

7.2 GAF EnergyGuard™ Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, EnergyGuard™ HD Polyiso Cover Board, EnergyGuard™ HD Plus Polyiso Cover Board, , EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ NH Ultra Polyiso Insulation, EnergyGuard™ NH HD Polyiso Cover Board, and EnergyGuard™ NH HD Plus Polyiso Cover Board, EnergyGuard™ Barrier Polyiso Insulation, and EnergyGuard™ NH Barrier Polyiso Insulation shall be installed by professional roofing contractors trained and approved by the manufacturer.

7.3 The insulation boards must be separated from the interior of the building by an approved thermal barrier in accordance with Section 2603.4.1.5 of the IBC or Section R316.5.2 of the IRC, as applicable, except as described in Section 6.2 of this Report.

7.4 For a listing of applicable UL Certifications for the products described in this report, see the UL Product iQ™ database for the following categories:

- See UL Product iQ™ database for Roofing Systems in accordance with UL790 (TGFU).
- See UL Product iQ™ database for products evaluated as part of roof deck constructions in accordance with UL1256, Foamed Plastic (TJBX):
  - Roof Deck Construction No. 120
  - Roof Deck Construction No. 123

7.5 Above-deck thermal insulation board shall comply with the applicable standards listed in Section 1508.2 of the IBC or Section R906.2 of the IRC.

7.6 The foamed plastic insulations covered under this Report are produced under the UL LLC Classification and Follow-Up Service Program, which includes audits in accordance with quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC10.

8. SUPPORTING EVIDENCE

8.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation, AC12.

8.2 Manufacturer's descriptive product literature, including installation instructions.

8.3 UL Classification reports in accordance with UL790 and UL1256. See UL Product Certification Categories, (TGFU) and (TJBX), respectively.

8.4 Data in accordance with UL723, ASTM E108, ASTM C1289, FM4470 and FM4450.

8.5 Documentation of quality system elements in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC10.

9. IDENTIFICATION

The insulations covered under this Report are identified by a marking bearing the Report holder's name (GAF), the plant identification, the product designation, the UL Classification Mark, and the Evaluation Report number UL ER1306-03. The validity of the Evaluation Report is contingent upon this identification appearing on the product or UL Classification Mark certificate.

10. USE OF UL EVALUATION REPORT

10.1 The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.

10.2 UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.

10.3 The current status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via our UL Product iQ™ database :

UL Evaluation Reports

Table 1 – Thermal Resistance Values (R-Values)

Thickness, Inches	*R*-Value (°F.ft².h/Btu at 75°F Mean Temperature)	
	EnergyGuard™ Polyiso Insulation EnergyGuard™ Ultra Polyiso Insulation EnergyGuard™ Barrier Polyiso Insulation EnergyGuard™ NH Polyiso Insulation EnergyGuard™ NH Ultra Polyiso Insulation EnergyGuard™ NH Barrier Polyiso Insulation	EnergyGuard™ HD Polyiso Cover Board EnergyGuard™ HD Plus Polyiso Cover Board EnergyGuard™ NH HD Polyiso Cover Board EnergyGuard™ NH HD Plus Polyiso Cover Board
0.5	-	2.3
1.0	5.7	-
2.0	11.4	-
4.0	23.1	-

(For SI: 1 lb/ft³ = 16.018 kg/m³, 1°F-ft²-hr/BTU = 0.176 K-m²/W.