

UL Evaluation Report

UL ER11812-01

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UL Category Code: ULEX

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DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
Sub-level 2: 07 20 00 - Thermal Protection
Sub-level 3: 07 21 13 - Board Insulation
Sub-level 3: 07 22 16 - Roof Board Insulation

COMPANY:

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1. SUBJECT:

FOAM-CONTROL® EPS INSULATION BOARDS

FOAM-CONTROL® EPS GEOFOAM BLOCKS

2. SCOPE OF EVALUATION

- 2012 *International Building Code*® (IBC)
- 2012 *International Residential Code*® (IRC)
- 2012 *International Energy Code*® (IECC)
- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2012



This product available at
Foam Concepts Inc.
888.693.1037

The products were evaluated for the following properties:

Foam-Control EPS Insulation Boards:

- Surface Burning Characteristics (ANSI/UL723, ASTM E84)
- Physical Properties (ASTM C578)
- Roof Deck Construction Material With Resistance to Internal Fire Exposure (ANSI/UL1256)
- Roofing Systems for Exterior Fire Exposure (ANSI/UL790, ASTM E108)
- Uplift Tests For Roof Covering Systems, (ANSI/UL1897)

Foam-Control EPS Geofoam Blocks:

- Surface Burning Characteristics (ANSI/UL723, ASTM E84)
- Physical Properties (ASTM D6817)
- Foam Plastic - Special Approval (ANSI/UL1715)

3. REFERENCED DOCUMENTS

- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2012
- ANSI/UL723 (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- ASTM D6817, Standard Specification for Rigid Cellular Polystyrene Geofoam
- ASTM D7180, Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam in Geotechnical Projects
- ASTM D7557, Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens
- ANSI/UL790 (ASTM E108), Standard Test Methods for Fire Tests of Roof Coverings
- ANSI/UL1256, Standard for Fire Test of Roof Deck Constructions
- ANSI/UL1897, Uplift Tests for Roof Covering Systems
- ANSI/UL1715, Fire Test of Interior Finish Material

4. USES

4.1 Foam-Control EPS Insulation Boards (Types I, VIII, II, and IX):

Foam-Control EPS expanded polystyrene boards are used as nonstructural insulation on the interior or exterior of above grade walls, on the interior or exterior of below grade walls, below concrete slabs, around concrete slab edges, or as roof insulation. Installation shall be in accordance with Section 6.2 of this report.

4.2 Foam-Control EPS Geofoam Blocks (Types EPS15, EPS19, EPS22, and EPS29):

Foam-Control EPS Geofoam Blocks are used as lightweight structural fill in floor cavities. Installation shall be in accordance with Section 6.3 of this report

5. PRODUCT DESCRIPTION

5.1 General:

The Foam-Control EPS Insulation Boards and Foam-Control EPS Geofoam Blocks described in 5.2 and 5.3 are molded, closed-cell expanded polystyrene boards having a flame spread index not exceeding 25 and a smoke developed index not exceeding 450 for thicknesses up to 5 inches when tested in accordance with UL723.

5.2 Foam-Control EPS Insulation Boards (Types I, VIII, II, and IX):

Foam-Control EPS Insulation Boards have been found to comply with ASTM C578. The boards are manufactured at minimum densities of 0.90, 1.15, 1.35 and 1.80 lbs/ft³ and have ASTM C578 designations of Type I, Type VIII, Type II, and Type IX, respectively. See excerpt from ASTM C578, Table 1 below:

Table 1 – Thermal Resistance Values

ASTM TYPE	DENSITY, min., lb/ft ³	THERMAL RESISTANCE ¹ , min., °F-ft ² -h/Btu
Type I	0.90	3.6
Type VIII	1.15	3.8
Type II	1.35	4.0
Type IX	1.80	4.2

¹Thermal resistance (R) values are based on tested values at 1 inch thickness and 75F mean temperature and must be multiplied by the installed thickness for thicknesses greater than 1 inch.

5.3 Foam-Control EPS Geofoam Blocks (Types EPS15, EPS19, EPS22, and EPS29):

Foam-Control EPS Geofoam Blocks have been found to comply with ASTM D6817. The blocks are manufactured at minimum densities of 0.90, 1.15, 1.35 and 1.80 lbs/ft³ and have ASTM D6817 designations of EPS15, EPS19, EPS22, and EPS29, respectively. See excerpt from ASTM D6817, Table 2 below:

Table 2 – ASTM D6817 Physical Property Requirements for RCPS Geofoam

ASTM TYPE	DENSITY, min., lb/ft ³	COMPRESSIVE RESISTANCE, min., psi at 1 %
Type EPS15	0.90	3.6
Type EPS19	1.15	5.8
Type EPS22	1.35	7.3
Type EPS29	1.80	10.9

6. INSTALLATION

6.1 General:

Foam-Control EPS Insulation Boards and Foam-Control EPS Geofoam blocks are installed in accordance with the manufacturer's published installation instructions and this evaluation report. The manufacturer's published installation instructions and this report must be strictly adhered to, and a copy of the instructions shall be available on the jobsite during installation.

6.2 Foam-Control EPS Insulation Boards:

Foam-Control EPS boards must be attached to the structure in a manner that will hold the insulation securely in place. The insulation boards must not be used structurally to resist transverse, axial or shear loads.

The interior of the building must be separated from the Foam-Control EPS boards with a thermal barrier as required by IBC Section 2603.4 or IRC Section R316.4.

Foam-Control EPS Insulation Boards may be used as a vapor retarder based on perm values described in Table 3, when required in accordance with the applicable sections of the IBC, IRC and IECC. Vapor retarders are classified as follows:

Class I: 0.1 perm or less

Class II: $0.1 < \text{perm} \leq 1.0$

Class III: $1.0 < \text{perm} \leq 10$ perm

Table 3 – Water Vapor Permeance

ASTM TYPE	DENSITY, min., lb/ft ³	MAXIMUM PERM ¹ , ng/Pa-s-m ²
Type I	0.90	5.0
Type VIII	1.15	3.5
Type II	1.35	3.5
Type IX	1.80	2.5

¹ Water vapor permeance values are based on tested values at 1 inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values may be calculated based on insulation thickness, by dividing the perm value shown by the installed thickness in inches.

6.2.1 Foam-Control EPS Insulation Boards used on the exterior of above grade walls:

Foam-Control EPS boards are used on the exterior of above grade walls as follows:

- Exterior Walls of One- and Two-Family Dwellings in accordance with the 2012 IRC,
- Exterior walls of one story buildings of Types I, II, III, or IV construction in accordance with Section 2603.4.1.4 of the 2012 IBC,
- Exterior walls of Type V construction in accordance with Section 2603.2, 2603.3, and 2603.4 of the 2012 IBC, or
- Exterior walls of buildings more than one story of Types I, II, III, or IV construction when part of a UL Classified Exterior Wall System in accordance with NFPA 285.

6.2.2 Foam-Control EPS Insulation Boards used in roofing:

Foam-Control EPS boards are used as a roofing insulation as follows:

- As part of a UL Classified Class A, B or C roof-covering assembly in accordance with UL 790,
- As part of a UL Classified Roof Deck Construction in accordance with UL 1256, or
- As part of a UL Classified Roofing System, Uplift Resistance, in accordance with UL 1897.

6.3 Foam-Control EPS Geofoam Blocks:

Foam-Control EPS Geofoam blocks are placed loosely on a level surface or existing structural slab. The blocks may be installed in a single layer or in multiple layers.

Structural loads on the Foam-Control EPS geofoam blocks shall not exceed the compressive resistance at 1% in accordance with ASTM D6817. Additional design considerations are included in ASTM D7180, "Standard Guide for Use of Expanded Polystyrene (EPS) Geofoam" and ASTM D7557, "Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens"

When Foam-Control EPS geofoam blocks are less than 4 in. in thickness, the interior of the building must be separated from the geofoam blocks with a thermal barrier as required by IBC Section 2603.4 or IRC Section R316.4.

When Foam-Control EPS geofoam blocks are greater than 4 in. in thickness, a minimum 1 in. concrete or masonry must cover the geofoam blocks on all faces.

7. CONDITIONS OF USE

7.1 General:

The Foam-Control EPS Insulation Boards and the Foam-Control EPS Geofoam blocks described in 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. The Foam-Control EPS Insulation Boards and Foam-Control EPS Geofoam Blocks must be produced, identified, and installed in accordance with the manufacturer's published installation instructions. If there is a conflict between this report and the manufacturer's instructions this report governs.

In areas where the probability of termite infestation is defined as "very heavy", Foam-Control EPS Insulation Boards and Foam-Control EPS Geofoam Blocks must be installed in accordance with IBC Section 2603.9 of the 2012 IBC or Section R318.4 of the 2012 IRC.

7.2 Foam-Control EPS Insulation Boards:

The Foam-Control EPS Insulation Boards must be separated from the building interior with a thermal barrier, such as ½ in. gypsum board, as required by Section 2603.4 of the 2012 IBC or Section R316.4 of the 2012 IRC.

See UL Online Certifications Directory for Class A, B or C roof-covering assemblies UL Classified in accordance with UL 790 (TGFU).

See UL Online Certifications Directory for Roof Deck Constructions for assemblies UL Classified in accordance with UL 1256 (TJBX).

See UL Online Certifications Directory for Exterior Walls for assemblies UL Classified in accordance with NFPA 285 (FWFO).

See UL Online Certifications Directory for Roofing Systems, Uplift Resistance, in accordance with UL 1897 (TGIK).

7.3 Foam-Control EPS Geofoam Blocks:

Foam-Control EPS Geofoam Blocks less than 4 in. in thickness must be separated from the building interior with a thermal barrier such as ½ in. gypsum board, as required by Section 2603.4 of the 2012 IBC or IRC Section R316.4 of the 2012 IRC.. Foam-Control geofoam blocks greater than 4 in. in thickness must be separated from the building interior with a minimum 1 in. thick concrete or masonry on all faces as required by Section 2603.4.1.1 of the 2012 IBC.

Design loads to be resisted by the Foam-Control EPS Geofoam Blocks must be determined in accordance with the IBC or IRC, as applicable, and must not exceed the allowable loads noted in this report.

All construction documents specifying the Foam-Control EPS Geofoam Blocks must comply with the design limitations of this report. Design calculations and details for the specific applications must be furnished to the code official, verifying compliance with this report and applicable codes. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

7.4 Manufacturing Locations:

The products are manufactured at the following locations under UL LLC Listing or Classification and Follow-Up Service Program as described in Table 4.

Table 4 – Manufacturing Locations

LISTEE	LOCATION	PLANT ID NO.
ACH Foam Technologies, LLC	5250 North Sherman Street Denver, Colorado 80216	U-1
ACH Foam Technologies, LLC	111 West Fireclay Avenue Murray, Utah 84107	U-2
ACH Foam Technologies, LLC	2731 White Sulfur Road Gainesville, Georgia 30503	U-4
ACH Foam Technologies, LLC	775 Waltham Way, Suite 105 McCarran, Nevada 89434	U-53
ACH Foam Technologies, LLC	1400 North Ford St. Kansas City, Kansas 66101	U-8
ACH Foam Technologies, LLC	1118 Crow Palace Road Newton, Kansas 67114	U-41
ACH Foam Technologies, LLC	50 Trowbridge Drive Fond Du Lac, Wisconsin 54936-0669	U-37
ACH Foam Technologies, LLC	809 East 15th Street Washington, Iowa 52553	U-55
Big Sky Insulations, Inc.	15 Arden Drive Belgrade, Montana 59714	U-30
Branch River Plastics, Inc.	15 Thurber Boulevard Smithfield, Rhode Island 02917	U-6
Henry Products, Inc.	302 South 23rd Avenue Phoenix, AZ 85009	U-62
Mid Atlantic Foam	326 McGhee Road Winchester, Virginia 22603	U-14
Mid Atlantic Foam	57 Joseph Drive Fredericksburg, Virginia 22404	U-63
Noark Enterprises, Inc.	10101 Highway 70 East North Little Rock, Arkansas 72117	U-24
Pacific Allied Products, Ltd.	91-110 Kaomi Loop Kapolei, Hawaii 96707	U-17
Poliestireno Alfa-Gamma S.A. de C.V.	Maquiladoras #331 Int A y B Tijuana, Baja California Mexico	U-60
	(Continued)	

Table 4 – Continued

LISTEE	LOCATION	PLANT ID NO.
Poly-Foam, Inc.	116 Pine Street South Lester Prairie, Minnesota 55354	U-22
Shanghai Broadway Packaging and Insulation Materials Co. Ltd.	No. 8 Guxu Road Pudong New District Shanghai 201209 Peoples Republic of China	U-65
Therma Foam, LLC	1240 Hwy 77 N Hillsboro, Texas 76645	U-25
Thermal Foams, Inc.	2101 Kenmore Ave. Buffalo, NY 14207	U-26

8. SUPPORTING EVIDENCE

8.1 Foam-Control EPS Insulation Boards:

8.1.1 Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2012.

8.1.2 UL Classification reports in accordance with UL 719, ASTM C578, UL 790, UL 1256 and UL 1897. See UL Product Certification Categories (BRYX), (QORW), (TGFD), (TABX), and (TGIK) respectively.

8.2 Foam-Control EPS Geofoam Blocks:

8.2.1 UL Classification reports in accordance with UL 723, ASTM D6817, and UL 1715. See UL Product Certification Categories (BRYX), (QORW) and (OENB), respectively.

9. IDENTIFICATION

The Foam-Control EPS Insulation Boards and Foam-Control EPS Geofoam Blocks described in this evaluation report are identified by a marking bearing the report holder's name (AFM), the plant identification, the ASTM type designation, the UL Classification Mark, and the evaluation report number UL ER11812-01.

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 On-Line Certifications Directory:

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888.693.1037**

