

# UL Evaluation Report



## UL ER11812-01

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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 00 - Thermal Insulation**

**Sub-level 4: 07 21 13 - Board Insulation**

**Sub-level 3: 07 22 00 - Roof and Deck Insulation**

**Sub-level 4: 07 22 16 - Roof Board Insulation**

**Sub-level 3: 07 25 00 - Weather Barriers**

**Sub-level 3: 07 27 00 - Air Barriers**

**DIVISION: 31 00 00 - Earthworks**

**Sub-level 3: 31 23 00 - Excavation and Fill**

**Sub-level 4: 31 23 23 - Fill**

**COMPANY:**

**AFM CORPORATION**

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## 1. SUBJECT:

**FOAM-CONTROL® INSULATION BOARDS**

**FOAM-CONTROL® WSG INSULATION BOARDS**

**FOAM-CONTROL® WITH PERFORM GUARD INSULATION BOARDS**

**FOAM-CONTROL® WITH PERFORM GUARD2 INSULATION BOARDS**

**FOAM-CONTROL® R-SHIELD**

**FOAM-CONTROL® R-SHIELD WITH PERFORM GUARD**

**FOAM-CONTROL® R-SHIELD WITH PERFORM GUARD2**

**FOAM-CONTROL® GEOFOAM BLOCK**

**FOAM-CONTROL® WITH PERFORM GUARD GEOFOAM BLOCKS**

**FOAM-CONTROL® WITH PERFORM GUARD2 GEOFOAM BLOCKS**

Throughout this report, unless specifically indicated otherwise:

- The reference to Foam-Control Insulation Boards will also apply to Foam-Control WSG Insulation Boards and Foam-Control Insulation Boards with Perform Guard and Perform Guard2.
- The reference to Foam-Control R-SHIELD will also apply to Foam-Control R-SHIELD with Perform Guard and Perform Guard2.
- The reference to Foam-Control Geofoam Blocks will apply to Foam-Control Geofoam Blocks with Perform Guard and Perform Guard2.

## 2. SCOPE OF EVALUATION:

- 2015 *International Building Code*® (IBC)
- 2015 *International Residential Code*® (IRC)
- 2015 *International Energy Code*® (IECC)
- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (editorially revised May 2016)
- ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71), dated February 2003 (editorially revised Jun 2016)
- ICC-ES Acceptance Criteria for Termite Resistant Foam Plastic (AC239), dated October 2008 (editorially revised February 2014)
- ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014

**The products were evaluated for the following properties (See Table 1)**

**Foam-Control Insulation Boards:**

- Surface Burning Characteristics (ANSI/UL723, ASTM E84)
- Physical Properties (ASTM C578)
- Physical Properties – Foam-Control WSG only (ASTM E2430)
- 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)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Termite Resistance –Foam-Control with Perform Guard Insulation Boards and Foam-Control with Perform Guard2 Insulation Boards, only, (ICC-ES AC239)
- For Use on Exterior Commercial Walls (NFPA 285)

**Foam-Control R-SHIELD:**

- Surface Burning Characteristics (ANSI/UL723, ASTM E84)
- Physical Properties (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (ANSI/UL790, ASTM E108)
- Air Barrier (ASTM E2178)
- Flammability Testing for Use in Attics and Crawl Spaces (AC12, App. A and B)
- Water-resistive Barrier (AC71)
- Termite Resistance –Foam-Control R-SHIELD with Perform Guard and Foam-Control R-SHIELD with Perform Guard2 only, (ICC-ES AC239)
- For Use on Exterior Commercial Walls (NFPA 285)

**Foam-Control Geofoam Blocks:**

- Surface Burning Characteristics (ANSI/UL723, ASTM E84)
- Physical Properties (ASTM D6817)
- Foam Plastic - Special Approval (ANSI/UL1715)
- Termite Resistance - Foam-Control with Perform Guard Geofoam Blocks and Foam-Control EPS Perform Guard2 Geofoam Blocks, only, (ICC-ES AC239)

**Table 1 – Properties Evaluated**

<b>Properties Evaluated</b>	<b>Foam-Control Insulation Boards</b>	<b>Foam Control R-SHIELD</b>	<b>Foam-Control Geofoam Blocks</b>
Surface Burning Characteristics	X	X	X
Physical Properties (ASTM C578)	X	X	
Physical Properties <sup>1</sup> (ASTM E2430)	X		
Physical Properties (ASTM D6817)			X
Roofing Systems for Exterior Fire Exposure	X	X	
Uplift Tests for Roof Covering Systems	X		
Flammability Testing for Use in Attics and Crawl Spaces	X	X	
Termite Resistance <sup>2</sup>	X	X	X
Water-resistive Barrier		X	
Air Barrier		X	
Foam Plastic - Special Approval			X
Exterior Walls (NFPA 285)	X	X	

<sup>1</sup> Only Foam-Control WSG Insulation Boards

<sup>2</sup> Only the products with Perform Guard and Perform Guard2 have been evaluated for Termite Resistance

### 3. REFERENCED DOCUMENTS

#### ■ ICC-ES:

- ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (editorially revised May 2016)
- ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014
- ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels Used as Water-Resistive Barriers (AC71), dated February 2003 (editorially revised Jun 2016)
- ICC-ES Acceptance Criteria for Termite Resistant Foam Plastic (AC239), dated October 2008 (editorially revised February 2014)

#### ■ ANSI/UL:

- ANSI/UL723 (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- ANSI/UL790 (ASTM E108), Standard Test Methods for Fire Tests of Roof Coverings
- ANSI/UL1256, Standard for Fire Test of Roof Deck Constructions
- ANSI/UL 1897, Uplift Tests for Roof Covering Systems
- ANSI/UL 1715, Fire Test of Interior Finish Material

#### ■ ASTM:

- 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
- ASTM E2178, Standard Test Method for Air Permeance of Building Materials
- ASTM E2430, Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for Use in Exterior Insulation and Finish Systems (EIFS)

#### ■ NFPA:

- NFPA 285, Standard Fire Test for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Assemblies Containing Combustible Components

### 4. USES

#### 4.1 Foam-Control Insulation Boards:

Foam-Control Insulation 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.

The insulation boards may be used on walls in attics and crawl spaces when installation is in accordance with Section 6.2.2.

#### 4.2 Foam-Control WSG Insulation Boards:

Foam Control WSG Insulation Boards are used as a component in Exterior Insulation and Finish Systems (EIFS).

#### 4.3 Foam-Control R-Shield

Foam-Control R-SHIELD is 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, and around concrete slab edges, or as roof insulation. Installation shall be in accordance with Section 6.2 of this report.

The insulation may be used on walls in attics and crawl spaces when installation is in accordance with Section 6.2.2.

The insulation may be used as an alternative to the water-resistive barrier specified in the IBC Section [1404.2](#) and IRC Section [R703.2](#) when installation is in accordance with Section 6.2.3.

The insulation may be used as an air barrier to limit air infiltration in accordance with IECC Section [C402.4.1.2.1](#) when installation is in accordance with Section 6.2.3.

#### **4.4 Foam-Control Geof foam Blocks:**

Foam-Control Geof foam 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:**

Foam-Control Insulation Boards, Foam-Control R-SHIELD and Foam-Control Geof foam Blocks described in 5.2, 5.3, and 5.4 are molded, closed-cell expanded polystyrene having a flame spread index not exceeding 25 and a smoke developed index not exceeding 450 for thicknesses up to 5 inches for the Foam-Control Insulation Boards and Foam-Control Geof foam Blocks and for thicknesses up to 4 inches for Foam-Control R-SHIELD, when tested in accordance with UL723 (ASTM E84) as required by Section [2603.3](#) of the IBC or Section [R316.3](#) of the IRC, as applicable.

The following products are treated for termite resistance in accordance with Section [2603.9](#), exception 2 of the IBC or Section [R318.4](#), exception 2 of the IRC, as applicable:

- Foam-Control with Perform Guard Insulation Boards
- Foam-Control with Perform Guard2 Insulation Boards
- Foam-Control R-SHIELD with Perform Guard
- Foam-Control R-SHIELD with Perform Guard2
- Foam-Control with Perform Guard Geof foam Blocks
- Foam-Control with Perform Guard2 Geof foam Blocks

#### **5.2 Foam-Control Insulation Boards:**

Foam-Control-50, 100, 130, 150, 250, 400, and 600 Insulation Boards are manufactured at minimum densities of 0.70, 0.90, 1.15, 1.35, 1.80, 2.40, and 3.00 lbs/ft<sup>3</sup> and comply with ASTM C578 designations of Type XI, Type I, Type VIII, Type II, Type IX, Type XIV, and Type XV respectively. See Table 2 for thermal resistance and Table 3 for potential heat.

**Table 2 – Thermal Resistance of Foam-Control Insulation Boards**

PRODUCT	ASTM C578 Type	DENSITY, min., lb/ft <sup>3</sup>	THERMAL RESISTANCE <sup>1</sup> , min., °F-ft <sup>2</sup> -h/Btu
Foam-Control 50	XI	0.70	3.1
Foam-Control 100	I	0.90	3.6
Foam-Control 130	VIII	1.15	3.8
Foam-Control 150	II	1.35	4.0
Foam-Control 250	IX	1.80	4.2
Foam-Control 400	XIV	2.40	4.2
Foam-Control 600	XV	3.00	4.3

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

**Table 3 – Potential Heat of Foam-Control Insulation Boards**

PRODUCT	ASTM C578 TYPE	HEAT POTENTIAL <sup>1</sup> , Btu/ft <sup>2</sup>	HEAT POTENTIAL <sup>1</sup> , mJ/m <sup>2</sup>
Foam-Control 50	XI	1165	13.2
Foam-Control 100	I	1500	17.0
Foam-Control 130	VIII	1875	21.3
Foam-Control 150	II	2250	25.5
Foam-Control 250	IX	3000	34.0
Foam-Control 400	XIV	4000	45.4
Foam-Control 600	XV	5000	56.8

<sup>1</sup>Based on 1 in. thickness

### 5.3 Foam-Control WSG Insulation Boards:

Foam-Control EPS Type I-WSG Insulation Boards have been found to comply with ASTM C578 and ASTM E2430. The boards are manufactured at a minimum density of 0.90 lbs/ft<sup>3</sup> and have ASTM C578 designation of Type I.

### 5.3 Foam-Control R-SHIELD:

Foam-Control R-SHIELD 100, 130, 150, and 250 consists of Foam-Control Insulation Boards laminated with polyethylene or polyester film on both faces. The facers may also be a metalized polypropylene film. Foam-Control Climate 100, 130, 150, and 250 are manufactured at minimum core densities of 0.90, 1.15, 1.35, and 1.80lbs/ft<sup>3</sup> and comply with ASTM C578 designations Type I, Type VIII, Type II, and Type IX respectively.

### 5.4 Foam-Control Geof foam Blocks:

Foam-Control Geof foam EPS12, EPS15, EPS19, EPS22, EPS29, EPS39, AND EPS46 blocks are manufactured at minimum densities of 0.70, 0.90, 1.15, 1.35, 1.80, 2.40, and 2.85 lbs/ft<sup>3</sup> and comply with ASTM D6817 designations of EPS12, EPS15, EPS19, EPS22, EPS29, EPS39, and EPS46 respectively. See Table 4.

**Table 4 – Compressive Resistance of Foam-Control Geof foam Block**

<b>PRODUCT</b>	<b>ASTM C578 Type</b>	<b>DENSITY, min., lb/ft<sup>3</sup></b>	<b>COMPRESSIVE RESISTANCE AT 1% STRAIN, min., psi</b>
Foam-Control EPS12	EPS12	0.70	2.2
Foam-Control EPS15	EPS15	0.90	3.6
Foam-Control EPS19	EPS19	1.15	5.8
Foam-Control EPS22	EPS22	1.35	7.3
Foam-Control EPS29	EPS29	1.80	10.9
Foam-Control EPS39	EPS39	2.40	15.0
Foam-Control EPS46	EPS46	2.85	18.6

**6. INSTALLATION**

**6.1 General:**

Foam-Control Insulation Boards, Foam-Control R-SHIELD and Foam-Control Geof foam 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 Insulation Boards and Foam-Control R-SHIELD:**

Foam-Control Insulation Boards or Foam-Control R-SHIELD 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 Insulation Boards or Foam-Control R-SHIELD with a thermal barrier as required by Section [2603.4](#) of the IBC or Section [R316.4](#) of the IRC, as applicable.

Foam-Control Insulation Boards and Foam-Control R-SHIELD may be used as vapor retarders based on perm values described in Tables 5 and 6, respectively, 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 <perm ≤ 1.0      Class III: 1.0 <perm ≤ 10 perm



**Table 5 – Water Vapor Permeance of Foam-Control Insulation Boards**

<b>PRODUCT</b>	<b>ASTM C578 Type</b>	<b>DENSITY, min., lb/ft<sup>3</sup></b>	<b>PERMEANCE<sup>1</sup>, max., perms</b>
Foam-Control 50	XI	0.70	5.0
Foam-Control 100	I	0.90	5.0
Foam-Control 130	VIII	1.15	3.5
Foam-Control 150	II	1.35	3.5
Foam-Control 250	IX	1.80	2.5
Foam-Control 400	XIV	2.40	2.5
Foam-Control 600	XV	3.00	2.5

<sup>1</sup>Water vapor permeance values are based on 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.

**Table 6 – Water Vapor Permeance of Foam-Control R-SHIELD**

<b>PRODUCT</b>	<b>ASTM C578 Type</b>	<b>DENSITY, min., lb/ft<sup>3</sup></b>	<b>PERMEANCE<sup>1</sup>, max., perms</b>
Foam-Control R-SHIELD 100	I	0.90	0.3
Foam-Control R-SHIELD 130	VIII	1.15	0.3
Foam-Control R-SHIELD 150	II	1.35	0.3
Foam-Control R-SHIELD 250	IX	1.80	0.3

<sup>1</sup>Water vapor permeance values are based on 1-inch thickness when tested in accordance with ASTM C578 and ASTM E96. Actual water vapor permeance values vary based on insulation thickness.

**6.2.1 Foam-Control Insulation Boards and Foam Control R-SHIELD Used in Roofing:**

Foam-Control Insulation 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.

Foam-Control R-SHIELD 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 UL790.

## **6.2.2 Foam-Control Insulation Boards and Foam-Control R-SHIELD Used in Attics and Crawl Spaces:**

Foam-Control Insulation Boards and Foam-Control R-SHIELD may be used on walls of attics and crawl spaces, without the coverings listed in Section [2603.4.1.6](#) of the IBC or Sections [R316.5.3](#) and [R316.5.4](#) of the IRC, as follows:

1. Entry to the attic or crawl space is limited to service of utilities, and no storage is permitted. Utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, gas or electric hot water heaters, and gas or electric furnaces.
2. There are no interconnected crawl space areas
3. Air in the attic or crawl space is not circulated to other parts of the building.
4. Under-floor (crawl space) ventilation is provided when required by Section [1203.3](#) of the IBC or Section [R408.1](#) IRC, as applicable
5. Combustion air is provided in accordance with IMC Section [701](#) (2015 IMC).
6. Foam-Control Insulation boards are limited to a maximum thickness of 4 inches (102 mm) for Foam-Control 100, or a maximum thickness of 3-¼ inches (82.6 mm) for Foam-Control 130, or a maximum thickness of 2-2/3 inches (67.8 mm) for Foam-Control 150, or a maximum thickness of 2 inches (51 mm) for Foam-Control 250.

## **6.2.3 Foam-Control R-SHIELD Used as a Water-Resistive Barrier**

Foam-Control R-SHIELD with a minimum of 1 inch (25.4 mm) thickness may be used as an alternative to the water-resistive barrier required by IBC Section [1404.2](#) and IRC Section [R703.2](#) when installed in accordance with this Section.

Foam-Control R-SHIELD must be installed directly to framing members spaced a maximum of 24 inches (610 mm) on center. Foam-Control R-SHIELD must be installed horizontally with tongue edges facing upward or installed vertically with no horizontal joints. Vertical joints must be backed by framing members.

Foam-Control R-SHIELD is attached with 1 inch (25.4 mm) wide crown No. 16 gage corrosion-resistant staples spaced 6 inches (152mm) on center. Fastener crowns and joints between boards must be covered with Foam-Control R-SHIELD Tape. A minimum 0.019-inch (0.48 mm) corrosion-resistance weep screed with a vertical attachment flange measuring a minimum of 3-½ inches (89mm) must be provided at the bottom of the wall. The installation of the weep screed must be in accordance with IBC Section [2512.1.1](#) or Section [R703.6.2.1](#) of the IRC, as applicable.

Flashing of flanged window penetrations must be installed in accordance with IBC Section [1405.4](#). The flashing tape must completely cover the framing sill and extend a minimum of 8 inches (203 mm) up the sides of the opening and 6 inches (152 mm) onto the face of the Foam-Control R-SHIELD at the front of the window opening.

Flashing of small penetrations (e.g. pipes) must be with a silicone sealant complying with ASTM C920.

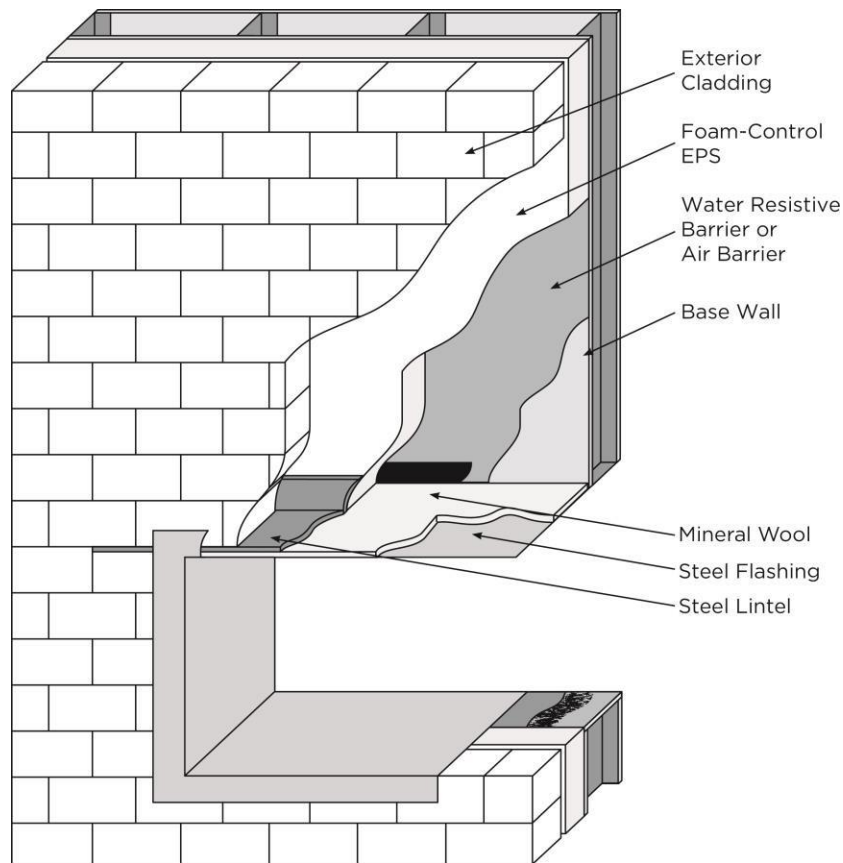
#### **6.2.4 Foam-Control Insulation Boards and Foam-Control R-SHIELD used on the exterior of above grade walls:**

Foam-Control Insulation Boards and Foam-Control R-SHIELD are used on the exterior of above grade walls as follows:

- Exterior Walls of One- and Two-Family Dwellings in accordance with the 2015 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 IBC,
- Exterior walls of Type V construction in accordance with Section [2603.2](#), [2603.3](#), and [2603.4](#) of the IBC, or
- Exterior walls of buildings more than one story of Types I, II, III, or IV construction in accordance with Section [2603.5](#) of the IBC, when part of
  - a UL Classified Exterior Wall System in accordance with NFPA 285. See Section 7.2.
  - an Exterior Wall System in accordance with NFPA 285. See Table 7.

**Table 7 – NFPA 285 Compliant Assembly Options – See Figure 1**

Base Wall Options	
<ol style="list-style-type: none"> <li>1) Cast Concrete Walls</li> <li>2) CMU Cast Concrete Walls</li> <li>3) Steel Stud Framed Wall                             <ol style="list-style-type: none"> <li>a. 25 GA. (min.) 3-5/8" (min.) steel studs spaced 24" o.c. (max.)</li> <li>b. Lateral Bracing Every 4 ft. vertically</li> <li>c. 5/8" Type X Gypsum Wallboard Interior</li> <li>d. Cavity Insulation i.                                     <ol style="list-style-type: none"> <li>None</li> <li>ii. Any Class A, B, or C Fiberglass batt insulation (faced or unfaced)</li> <li>iii. Any noncombustible insulation</li> </ol> </li> <li>e. Any 1/2" (min.) Exterior Gypsum Sheathing</li> </ol> </li> </ol>	
Water Resistive Barrier / Air Barrier Options Over Base Wall	
<ol style="list-style-type: none"> <li>1) None</li> <li>2) BASF Enershield HP</li> <li>3) BASF Enershield I</li> <li>4) Carlisle Barritech NP</li> <li>5) Carlisle Barritech VP</li> <li>6) Dupont Fluid Applied WB</li> <li>7) Dupont Tyvek Commercialwrap (1 or 2 layers)</li> <li>8) Grace Perm-A-Barrier VPS</li> <li>9) Tremco EXOAir 230</li> </ol>	
Foam-Control EPS Exterior Insulation Options	
<ol style="list-style-type: none"> <li>1) 10-3/4" (max.) Foam-Control 100</li> <li>2) 8-1/4" (max.) Foam-Control 130</li> <li>3) 7" (max.) Foam-Control 150</li> <li>4) 5-1/4" (max.) Foam-Control 250</li> <li>5) 4" (max.) Foam-Control 400</li> <li>6) 3-1/4" (max.) Foam-Control 600</li> </ol>	
Exterior Cladding Options	
<ol style="list-style-type: none"> <li>1) Brick - Nominal 4" clay brick or veneer with 2" (max.) air gap behind the cladding. Brick with ties/anchors 24" o.c. (max.)</li> <li>2) Concrete - 2" (min.) with 2" (max.) air gap behind the cladding</li> <li>3) Concrete Masonry Units - 4" (min.) with 2" (max.) air gap behind the cladding</li> <li>4) Limestone - 2" (min.) with non-open joints installation technique such as shiplap</li> <li>5) Natural Stone Veneer - 2" (min.) with non-open joints installation technique such as shiplap</li> <li>6) Precast Artificial Stone - 1-1/2" (min.) complying with ICC-ES, AC 51 with non-open joint installation technique</li> <li>7) Terra Cotta Cladding - 1-1/4" (min.) solid with non-open joint installation technique such as shiplap</li> <li>8) Stucco - 3/4" (min.) exterior cement plaster and lath</li> </ol>	
Fire Stopping at Floor Line Options	
<ol style="list-style-type: none"> <li>1) Mineral wool fiber fire stop in each stud cavity at floor line. Thickness equal to stud cavity depth. Follow manufacturer instruction for installation.</li> </ol>	
Window Header Detail	
<ol style="list-style-type: none"> <li>1) 25 GA. (min.) sheet metal (steel) flashing with 1" thick, 4 pcf mineral wool over interior of sheet steel</li> <li>2) Header design equal or better than item 1</li> </ol>	



**Figure 1 – NFPA 285 Wall Assembly**

### **6.3 Foam-Control Geofoam Blocks:**

Foam-Control 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% strain 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 Section [2603.4](#) of the IBC or Section [R316.4](#) of the IRC, as applicable.

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 Insulation Boards, Foam-Control R-SHIELD and the Foam-Control 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 Insulation Boards, Foam-Control R-SHIELD and Foam-Control 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 Insulation Boards, Foam-Control R-SHIELD and Foam-Control Geofoam Blocks without the Perform Guard or Perform Guard2 treatment must be installed in accordance with IBC Section [2603.9](#) of the IBC or Section [R318.4](#) of the IRC, as applicable.

The use of Foam-Control Insulation Boards, Foam-Control R-SHIELD and Foam-Control Geofoam Blocks with the Perform Guard or Perform Guard2 treatment are not restricted in areas where the probability of termite infestation is defined as “very heavy” in accordance with Section [2603.9](#) of the IBC or Section [R318.4](#) of the IRC, as applicable.

## **7.2 Foam-Control Insulation Boards and Foam-Control R-SHIELD:**

The Foam-Control Insulation Boards and Foam-Control R-SHIELD 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 IBC or Section [R316.4](#) of the IRC, as applicable.

For a listing of applicable UL Certifications for Foam-Control Insulation Boards, see the Online Certifications Directory for the following categories. Foam-Control R-SHIELD is UL Certified for BRYX, QORW and FWFO, only.

- See UL Online Certifications Directory for Foamed Plastic, UL Classified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#)).
- See UL Online Certifications Directory for Polystyrene Thermal Insulation, Rigid Cellular, UL Classified in accordance with ASTM C578 ([QORW](#)).
- 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 Roof Deck Constructions for assemblies UL Classified in accordance with UL 1897 ([TGIK](#))
- See UL Online Certifications Directory for Exterior Walls for assemblies UL Classified in accordance with NFPA 285 (FWFO):
  - Exterior Wall System [EWS0001](#)
  - Exterior Wall System [EWS0002](#)
  - Exterior Wall System [EWS0003](#)

## **7.3 Foam-Control Geofoam Blocks:**

Foam-Control 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 IBC or Section [R316.4](#) of the IRC, as applicable. 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 IBC.

Design loads to be resisted by the Foam-Control 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 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.

For a listing of applicable UL Certifications for Foam-Control Geofoam Blocks, see the Online Certifications Directory for the following categories:

- See UL Online Certifications Directory for Foamed Plastic, UL Classified for Surface Burning Characteristics in accordance with UL723 ([BRYX](#)).
- See UL Online Certifications Directory for Foamed Plastic, UL Classified for Interior Building Construction in accordance with UL1715 ([OERU](#)).

#### 7.4 Manufacturing Locations:

The products are manufactured at the following locations described in Table 8 under the UL LLC Listing or Classification and Follow-Up Service Program, which includes audits in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC 10.

**Table 8 – Manufacturing Locations**

LISTEE	LOCATION	PLANT ID NO.
ACH Foam Technologies, Inc.	5250 North Sherman Street Denver, Colorado 80216	U-1
ACH Foam Technologies, Inc.	111 West Fireclay Avenue Murray, Utah 84107	U-2
ACH Foam Technologies, Inc.	2731 White Sulfur Road Gainesville, Georgia 30503	U-4
ACH Foam Technologies, Inc.	13695 Mt. Anderson Street Reno, NV 89506	U-53
ACH Foam Technologies, Inc.	1400 North 3rd St. Kansas City, Kansas 66101	U-8
ACH Foam Technologies, Inc.	90 Trowbridge Drive Fond Du Lac, Wisconsin 54936-0669	U-37
ACH Foam Technologies, Inc.	809 East 15th Street Washington, Iowa 52353	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
Cellofoam North America, Inc.	326 McGhee Road Winchester, Virginia 22603	U-14
Henry Products, Inc.	302 South 23rd Avenue Phoenix, AZ 85009	U-62
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
Poliestireno Alfa-Gamma S.A. de C.V.	Boulevard México Km. 2.5 exejido Aquiles Serdan C.P. 35080 Gómez Palacio, Durango Mexico	U-67
PFB Manufacturing LLC, dba Plasti-Fab EPS Product Solutions	116 Pine Street South Lester Prairie, Minnesota 55354	U-22
Therma Foam, LLC	1240 Hwy 77 N Hillsboro, Texas 76645	U-25
Thermal Foams, Inc.	2101 Kenmore Ave Buffalo, NY 14207	U-26
Thermal Foams/Syracuse Inc.	6173 S Bay Rd Cicero, NY 13039	U-27

## **8. SUPPORTING EVIDENCE**

### **8.1 Foam-Control Insulation Boards:**

**8.1.1** Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2012 (editorially revised August 2013).

**8.1.2** Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239), dated October 2008 (editorially revised February 2014).

**8.1.3** UL Classification reports in accordance with UL 723, ASTM C578, UL 790, UL 1256, 1897 and NFPA 285. See UL Product Certification Categories (BRYX), (QORW), (TGFU), (TJBX), (TGIK) and (FWFO) respectively.

See links to UL's On-Line Certification Directory in Section 7.2.

**8.1.4** Reports and analysis of wall fire tests in accordance with NFPA 285.

**8.1.5** Documentation of quality system elements described in AC10.

### **8.2 Foam-Control R-SHIELD:**

**8.2.1** Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2012 (editorially revised August 2013).

**8.2.2** Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239), dated October 2008 (editorially revised February 2014).

**8.2.3** Data in accordance with ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels used as Water Resistive Barriers (AC71), dated February 2003.

**8.2.4** Data in accordance with ASTM E2178 Standard Test Method for Air Permeance of Building Materials.

**8.2.5** UL Classification reports in accordance with UL 723, ASTM C578, ASTM E2430 and NFPA 285. See UL Product Certification Categories (BRYX), (QORW) and (FWFO).

See links to UL's On-Line Certification Directory in Section 7.2.

**8.2.6** Reports and analysis of wall fire tests in accordance with NFPA 285.

**8.2.7** Documentation of quality system elements described in AC10.

### **8.3 Foam-Control Geofoam Blocks:**

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

See links to UL's On-Line Certification Directory for BRYX and QORW in section 7.3.

**8.3.2** Data in accordance with ICC-ES Acceptance Criteria for Termite Resistant Foam Plastics (AC239), dated October 2008.

**8.3.3** Documentation of quality system elements described in AC10.



## 9. IDENTIFICATION

The Foam-Control Insulation Boards, Foam-Control R-SHIELD and Foam-Control Geofoam Blocks described in this evaluation report are identified by a marking bearing the report holder's name (AFM), the plant identification, the product name, the ASTM type designation, the UL Classification Mark, and the evaluation report number UL ER11812-01. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Classification Mark certificate.

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