

# UL Evaluation Report

## UL ER11812-03

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**DIVISION: 06 00 00 - WOOD, PLASTICS, AND COMPOSITES**

**Sub-level 2: 06 12 00 - Structural Panels**

**Sub-level 3: 06 12 19 - Shear Wall Panels**

**Sub-level 2: 06 16 00 - Sheathing**

**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 25 00 - Weather Barriers**

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

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## 1. SUBJECT:

**FOAM-CONTROL® NAILBASE**

**FOAM-CONTROL® NAILBASE 2-Ci**

**FOAM-CONTROL® CLIMATE 3-Ci**

## 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 Quality Documentation (AC10), dated June 2014

**The products were evaluated for the following properties**

### **Foam-Control Nailbase:**

- Surface Burning Characteristics –Insulation Component (ANSI/UL723, ASTM E84)
- Physical Properties –Insulation Component (ASTM C578)
- Roofing Systems for Exterior Fire Exposure (ANSI/UL790, ASTM E108)
- Uplift Tests For Roof Covering Systems, (ANSI/UL1897)

### **Foam-Control Nailbase 2-Ci:**

- Surface Burning Characteristics –Insulation Component (ANSI/UL723, ASTM E84)
- Physical Properties –Insulation Component (ASTM C578)

### **Foam-Control Climate 3-Ci:**

- Surface Burning Characteristics –Insulation Component (ANSI/UL723, ASTM E84)
- Physical Properties –Insulation Component (ASTM C578)
- Water Resistive Barrier –Insulation Component (AC71)
- Air Barrier –Insulation Component (ASTM E2178)

### 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)
- ANSI/UL:
  - ANSI/UL723 (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- ASTM:
  - ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
  - ASTM E2178, Standard Test Method for Air Permeance of Building Materials
- U.S. Department of Commerce:
  - DOC PS-2, Performance Standard for Wood-Based Structural-Use Panels

### 4. USES

#### 4.1 Foam-Control Nailbase:

Foam-Control Nailbase is used as insulation on the interior or exterior of above grade walls or as roof insulation. Installation shall be in accordance with Section 6.2 of this report.

#### 4.2 Foam-Control Nailbase 2-Ci:

Foam-Control Nailbase 2-Ci is used as insulation on the interior or exterior of above grade walls. Installation shall be in accordance with Section 6.3 or Section 6.5 of this report.

#### 4.3 Foam-Control Climate 3-Ci:

Foam-Control Climate 3-Ci is used as insulation on the interior or exterior of above grade walls. Installation shall be in accordance with Section 6.4 or Section 6.5 of this report.

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 6.6.

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 6.6.

### 5. PRODUCT DESCRIPTION

#### 5.1 General:

Foam-Control Nailbase, Foam-Control Nailbase 2-Ci and Foam-Control Climate 3-Ci are insulation products consisting of ASTM C578 Type I Foam-Control Expanded Polystyrene (EPS) laminated to Oriented Strand Board (OSB).

ASTM C578 Type I Foam Control EPS is recognized in [UL ER11812-01](#) and is a 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, 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 OSB facer is 7/16 inch thick in compliance with U.S. Department of Commerce, DOC PS-2, Performance Standard for Wood-Based Structural-Use Panels.

## 5.2 Foam-Control Nailbase:

Foam-Control Nailbase consists of Type I Foam-Control EPS laminated to a 7/16 inch OSB facing. Foam-Control Nailbase is available in thicknesses of 2, 4, 6, 7-3/4, 9-3/4, and 11-3/4 inches.

**Table 1 –Thermal Resistance of Foam-Control Nailbase**

<b>THICKNESS, in.</b>	<b>THERMAL RESISTANCE<sup>1</sup>, min., °F-ft<sup>2</sup>-h/Btu</b>
2	6.2
4	13.4
6	20.6
7-3/4	26.9
9-3/4	34.1
11-3/4	41.3

1 – Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75F mean temperature

## 5.3 Foam-Control Nailbase 2-Ci:

Foam-Control Nailbase 2-Ci consists of Type I Foam-Control EPS laminated to a 7/16 inch OSB facing.

Foam-Control Nailbase 2-Ci is available in thicknesses of 1-5/16, 1-9/16, 2-1/4, and 2-7/8 inches.

**Table 2 – Thermal Resistance of Foam-Control Nailbase 2-Ci**

<b>THICKNESS, in.</b>	<b>THERMAL RESISTANCE<sup>1</sup>, min., °F-ft<sup>2</sup>-h/Btu</b>
1-5/16	3.8
1-9/16	5.1
2-1/4	7.6
2-7/8	10.1

1 – Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75F mean temperature

## 5.4 Foam-Control Climate 3-Ci:

Foam-Control Climate 3-Ci consists of Type I Foam-Control EPS laminated to a 7/16 inch OSB facing on one side and polymeric film on the other side.

Foam-Control Climate 3-Ci is available in thicknesses of 1-5/16, 1-9/16, 2-1/4, and 2-7/8 inches.

**Table 3 – Thermal Resistance of Foam-Control Climate**

<b>THICKNESS, in.</b>	<b>THERMAL RESISTANCE<sup>1</sup>, min., °F-ft<sup>2</sup>-h/Btu</b>
1-5/16	3.8
1-9/16	5.1
2-1/4	7.6
2-7/8	10.1

1 – Overall R-value is calculated based on a combination of the R-value of the OSB and the EPS at 75F mean temperature

## 6. INSTALLATION

### 6.1 General:

Foam-Control Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci 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 Nailbase:

Foam-Control Nailbase must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of Foam-Control Nailbase Boards with a thermal barrier as required by Section [2603.4](#) of the IBC or Section [R316.4](#) of the IRC, as applicable.

Foam-Control Nailbase may be used as vapor retarders based on perm values described in Tables 4 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 4 – Water Vapor Permeance of Foam-Control Nailbase**

<b>THICKNESS, in.</b>	<b>PERMEANCE<sup>1</sup>, max., perms</b>
2	1.2
4	0.8
6	0.6
7-3/4	0.5
9-3/4	0.4
11-3/4	0.4

1 – Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

### 6.2.1 Foam-Control Nailbase Used in Roofing:

Foam-Control Nailbase may be 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 Roofing System, Uplift Resistance, in accordance with UL 1897.

### 6.3 Foam-Control Nailbase 2-Ci:

Foam-Control Nailbase 2-Ci must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of Foam-Control Nailbase 2-Ci boards with a thermal barrier as required by Section [2603.4](#) of the IBC or Section [R316.4](#) of the IRC, as applicable.

Foam-Control Nailbase 2-Ci may be used as vapor retarders based on perm values described in Tables 5 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 Nailbase 2-Ci**

THICKNESS, in.	PERMEANCE <sup>1</sup> , max., perms
1-5/16	1.5
1-9/16	1.3
2-1/4	1.1
2-7/8	1.0

1 – Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

### 6.4 Foam-Control Climate 3-Ci:

Foam-Control Climate 3-Ci must be attached to the structure in a manner that will hold the insulation securely in place.

The interior of the building must be separated from the EPS component of Foam-Control Nailbase 3-Ci boards with a thermal barrier as required by Section [2603.4](#) of the IBC or Section [R316.4](#) of the IRC, as applicable.

Foam-Control Climate 3-Ci may be used as vapor retarders based on perm values described in Tables 5 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 4 – Water Vapor Permeance of Foam-Control Climate 3-Ci**

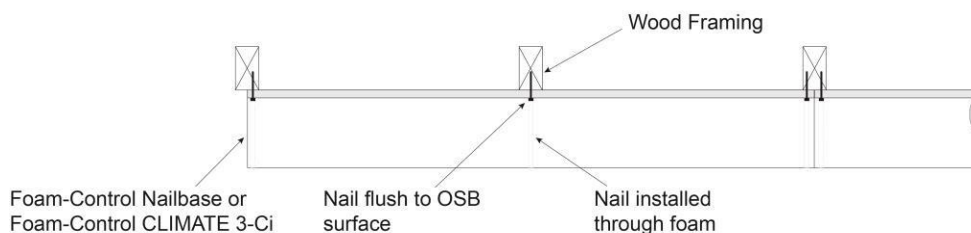
THICKNESS, in.	PERMEANCE <sup>1</sup> , max., perms
1-5/16	0.2
1-9/16	0.2
2-1/4	0.2
2-7/8	0.2

1 – Overall Perm Rating is calculated based on a combination of the perm rating of the OSB (at 50% RH) and the EPS

### 6.5 Foam-Control 2-Ci and Foam-Control Climate 3-Ci Used as Wall Bracing:

Foam-Control Nailbase 2-Ci and Foam-Control Climate 3-Ci are used as a wall bracing material for exterior walls when installed with the OSB side applied directly to wood framing members. Installation requires a specialty nail gun which installs code specified diameter fasteners through the insulation and flush against the OSB surface. Minimum fastener diameter must be 0.113 inch. Minimum fastener penetration into framing members must be 1-1/2 inch.

**Figure 1 – Installation of Foam-Control Nailbase 2-Ci and Foam-Control Climate 3-Ci as Wall Bracing**



When installed in accordance with Figure 1, Foam-Control Nailbase 2-Ci and Foam-Control Climate 3-Ci are sheathing alternatives to:

- IRC bracing methods using wood structural panels (WSP), including portal frames, in accordance with IRC Section [R602.10](#) and [R602.12](#)
- IBC Conventional Wall Bracing provisions, Section [2308.9.3](#) Method 3, for Type V construction and the alternative bracing methods in accordance with Section [2308.9.3.1](#) and [2308.9.3.2](#)
- IBC performance-based provisions, Section [2306.1](#) and [2306.3](#) for light-frame wood wall assemblies

### 6.6 Foam-Control Climate 3-Ci Used as a Water-Resistive Barrier

Foam-Control Climate 3-Ci 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.

Holes from fastener installation and joints between boards must be covered with Foam-Control Climate Tape.

A minimum 0.019 inch (0.48 mm) corrosion-resistance weep screed with a vertical attachment flange

measuring a minimum of 3-1/2 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 Climate 3-Ci at the front of the window opening.

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

## **7. CONDITIONS OF USE**

### **7.1 General:**

The Foam-Control Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci 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 Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci 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.

### **7.2 Foam-Control Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci:**

The EPS component of Foam-Control Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci 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, 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](#)) for the Foam-Control EPS component of Foam-Control Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci.
- See UL Online Certifications Directory for Class A, B or C roof-covering assemblies UL Classified in accordance with UL 790 ([TGfU](#)) for Foam-Control Nailbase.
- See UL Online Certifications Directory for Roof Deck Constructions for assemblies UL Classified in accordance with UL 1897 ([TGik](#)) for Foam-Control Nailbase.
- See UL Online Certifications Directory for Polystyrene Thermal Insulation, Rigid Cellular, UL Classified in accordance with ASTM C578 ([QORW](#)) for the Foam-Control EPS component of Foam-Control Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci.

### **7.3 Manufacturing Locations:**

The products are manufactured at the following locations described in Table 6 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 6 – Manufacturing Locations**

<b>LISTEE</b>	<b>LOCATION</b>	<b>PLANT ID NO.</b>
ACH Foam Technologies, Inc.	5250 North Sherman Street Denver, Colorado 80216	U-1
ACH Foam Technologies, Inc.	13695 Mt. Anderson Street Reno, NV 89506	U-53
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
Noark Enterprises, Inc.	10101 Highway 70 East North Little Rock, Arkansas 72117	U-24
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

## **8. SUPPORTING EVIDENCE**

### **8.1 Foam-Control Nailbase:**

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

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

### **8.2 Foam-Control Nailbase 2-Ci:**

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

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

### **8.3 Foam-Control Climate 3-Ci:**

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

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

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

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

## **9. IDENTIFICATION**

The Foam-Control Nailbase, Foam-Control Nailbase 2-Ci, and Foam-Control Climate 3-Ci described in this evaluation report are identified by a marking bearing the report holder's name (AFM), the plant identification, the product name, the UL Classification Mark, and the evaluation report number UL ER11812-03. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Classification Mark certificate.

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