

# ICC-ES Evaluation Report

ESR-4743

Reissued January 2024

This report also contains:


- LABC Supplement

Subject to renewal January 2025



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<p><b>DIVISION: 07 00 00 — THERMAL AND MOISTURE PROTECTION</b></p> <p><b>Section: 07 21 00 — Thermal Insulation</b></p> <p><b>Section: 07 22 00 — Roof and Deck Insulation</b></p>	<p><b>REPORT HOLDER: BIG SKY INSULATIONS, INC.</b></p>	<p><b>EVALUATION SUBJECT: R-SHIELD® BOARDS, R-SHIELD® WITH PERFORM GUARD® BOARDS, R-SHIELD® WITH PERFORM GUARD<sup>2</sup> BOARDS, R-SHIELD GEOFOAM BLOCKS</b></p>	
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## 1.0 EVALUATION SCOPE

### Compliance with the following codes:

- 2018, 2015 and 2012 [International Building Code® \(IBC\)](#)
- 2018, 2015 and 2012 [International Residential Code® \(IRC\)](#)
- 2018, 2015 and 2012 [International Energy Conservation Code® \(IECC\)](#)

For evaluation for compliance with codes adopted by [Los Angeles Department of Building and Safety \(LADBS\)](#), see [ESR-4743 LABC and LARC Supplement](#).

### Properties evaluated:

#### R-Shield Boards:

- Surface-burning characteristics
- Physical properties/thermal resistance (R-values)
- Attic and crawl space installation
- Fire resistance (D2D R-Shield®)

#### R-Shield with Perform Guard Boards and R-Shield with Perform Guard<sup>2</sup> Boards:

- Surface-burning characteristics
- Physical properties/thermal resistance (R-values)
- Termite resistance

#### R-Shield Geofoam Blocks:

- Surface-burning characteristics
- Physical properties/compressive resistance

## 2.0 USES

### 2.1 R-Shield Boards:

R-Shield boards are used as nonstructural insulation in wall cavities, door cavities, ceiling and floor assemblies, and roof covering assemblies, or on the outside faces of exterior walls. The insulation boards may be installed on walls in attics and crawl spaces without a covering when installation is in accordance with Section 4.2.2.

The insulation boards may be used as the core of sandwich panels when specifically recognized in a current evaluation report.

The insulation boards may be used as exterior perimeter insulation around concrete slab edges, on foundation walls, or under flat concrete slab on grade construction, except in areas where the probability of termite exposure is “very heavy” as defined in 2018 and 2015 IBC Section 2603.8, 2012 IBC Section 2603.9 and IRC Section R318.4.

The insulation boards may be used as components of Class A, B, and C roof covering systems installed on steel decks, when installation is in accordance with Section 4.4. The insulation boards may be used as a roof insulation when recognized in an ICC-ES evaluation report on the roof covering system.

**2.1.1 R-Shield WSG Boards:** R-Shield WSG boards may be used as a component of a wall covering system when recognized in an ICC-ES report.

**2.1.2 R-Shield D2D Boards:** R-Shield D2D boards may be used as components of a Class A, B, or C roof covering system installed directly to steel decks, when installation is in accordance with Section 4.4 of this report.

### 2.2 R-Shield with Perform Guard Boards:

R-Shield with Perform Guard boards is used as nonstructural insulation. The boards are recognized for installation below grade in areas subject to termites in accordance with Section 4.5 of this report. When installation is in areas where the probability of termite infestation is “very heavy” as described in 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9), or IRC Section R316.7, use is limited to areas exposed to the *Reticulitermes* species.

The insulation boards may be used in wall cavities or on the outside faces of exterior walls. The insulation boards may be used as exterior perimeter insulation around concrete slab edges, on foundation walls, or under concrete slab on grade construction.

### 2.3 R-Shield with Perform Guard<sup>2</sup> Boards:

R-Shield with Perform Guard<sup>2</sup> boards is used as nonstructural insulation. The boards are recognized for installation below grade in areas subject to termites in accordance with Section 4.6 of this report.

The insulation boards may be used in wall cavities or on the outside faces of exterior walls. The insulation boards may be used as exterior perimeter insulation around concrete slab edges, on foundation walls, or under concrete slab on grade construction.

### 2.4 R-Shield Geofoam Blocks:

R-Shield Geofoam blocks are used as lightweight structural fill in floor cavities when installation is in accordance with Section 4.7 of this report.

## 3.0 DESCRIPTION

### 3.1 General:

The R-Shield EPS products described in Sections 3.2 through 3.7 are molded, closed-cell expanded polystyrene (EPS). The insulation boards described in Sections 3.2 through 3.6 comply with ASTM C578. The geofoam blocks described in Section 3.7 comply with ASTM D6817. All insulation boards and geofoam blocks have a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested at a thickness of 6 inches (152 mm) in accordance with ASTM E84 and have thermal resistance values noted in [Table 1](#). The maximum thicknesses and requirements for installation of a thermal barrier for the specific insulation types are described in the applicable sections of Section 4.0.

### 3.2 R-Shield Boards:

R-Shield 100, 130, 150, 250, 400, and 600 boards are manufactured at minimum densities of 0.90, 1.15, 1.35, 1.80, 2.40 and 3.00 pcf (14.4, 18.4, 21.6, 28.8, 38.4 and 48.0 kg/m<sup>3</sup>) and comply with ASTM C578 Type I, Type VIII, Type II, Type IX, Type XIV and Type XV, respectively.

**3.2.1 R-Shield WSG Boards:** R-Shield WSG boards are manufactured at a minimum density of 0.90 pcf (14.4 kg/m<sup>3</sup>) and comply with ASTM C578 Type I and ASTM E2430.

**3.2.2 R-Shield EPS D2D Boards (Types I, VIII, II, IX, XIV and XV):** R-Shield 100, 130, 150, 250, 400, and 600 D2D boards are manufactured at minimum densities of 0.90, 1.15, 1.35, 1.80, 2.40 and 3.00 pcf (14.4, 18.4, 21.6, 28.8, 38.4 and 48.0 kg/m<sup>3</sup>), and comply with ASTM C578 Type I, Type VIII, Type II, Type IX, Type XIV and Type XV, respectively.

**3.3 R-Shield with Perform Guard Boards:**

R-Shield 100, 130, 150, 250, 400, and 600 with Perform Guard boards are factory-treated for termite resistance. The boards are manufactured at minimum densities of 0.90, 1.15, 1.35, 1.80, 2.40 and 3.00 pcf (14.4, 18.4, 21.6, 28.8, 38.4 and 48.0 kg/m<sup>3</sup>), and comply with ASTM C578 Type I, Type VIII, Type II, Type IX, Type XIV and Type XV, respectively.

**3.4 R-Shield with Perform Guard<sup>2</sup> Boards:**

R-Shield 100, 130, 150, 250, 400, and 600 with Perform Guard<sup>2</sup> boards are factory-treated for termite resistance. The boards are manufactured at minimum densities of 0.90, 1.15, 1.35, 1.80, 2.40 and 3.00 pcf (14.4, 18.4, 21.6, 28.8, 38.4 and 48.0 kg/m<sup>3</sup>), and comply with ASTM C578 Type I, Type VIII, Type II, Type IX, Type XIV and Type XV, respectively.

**3.5 R-Shield Geofoam Blocks:**

R-Shield EPS15, EPS19, EPS22, EPS29, EPS39, and EPS46 Geofoam blocks are manufactured at minimum densities of 0.90, 1.15, 1.35, 1.80, 2.40 and 2.85 pcf (14.4, 18.4, 21.6, 28.8, 38.4 and 45.7 kg/m<sup>3</sup>), and comply with ASTM D6817 Type EPS15, EPS19, EPS22, EPS29, EPS39 and EPS46, respectively.

## 4.0 INSTALLATION

### 4.1 General:

R-Shield boards, R-Shield with Perform Guard boards, R-Shield with Perform Guard<sup>2</sup> boards and R-Shield 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 must be available at all times on the jobsite during installation.

### 4.2 R-Shield Boards:

**4.2.1 General:** R-Shield boards must be attached to supports in a manner that will hold the insulation securely in place. The insulation boards must not be used structurally to resist transverse, vertical or in-plane loads except when this is specifically recognized in a separate evaluation report. The boards must not be used as exterior stud wall bracing. Wall bracing must be provided in accordance with 2018 and 2015 IBC Section 2308.6 (2012 IBC Sections 2308.9.3 and 2308.12.4 or IRC Section R602.10).

The insulation boards must not be used as a nailing base for exterior finish materials. Fasteners used to attach exterior finish material over insulation boards must comply with a current ICC-ES evaluation report for proprietary wall covering materials, IBC Section 1404 or 1405, IRC Table 703.4, and the installation instructions from the finish manufacturer. For cementitious exterior wall coating applications, fasteners for insulation board thicker than 1½ inches (38 mm) must be considered for lateral resistance to ensure support for the exterior wall coatings. Finish materials over the insulation boards must be structurally adequate to resist the required horizontal forces perpendicular to the wall.

The interior of the building must be separated from the insulation boards with a thermal barrier as required by IBC Section 2603.4 or IRC Section R316.4, except when installation is in accordance with Section 4.2.2 of this report.

In areas where the probability of termite infestation is defined as "very heavy" and when foam plastic insulation is used with wood construction, the foam plastic must be installed in accordance with 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC Section R316.7. Areas of very heavy termite infestation must be determined in accordance with 2018 and 2015 IBC Figure 2603.8 (2012 IBC Figure 2603.9) and 2018 IRC Figure R301.2 (7) (2015 and 2012 IRC Figure R301.2 (6)), as applicable.

Insulation boards for use as roof insulation must be installed in accordance with Section 4.4 or as recognized in an ICC-ES evaluation report on a roof covering system.

The insulation board may be used as the core material for doors that do not require a fire-resistance rating, when installed in accordance with IBC Sections 2603.4.1.7, 2603.4.1.8, and 2603.4.1.9 or IRC Sections R316.5.5 and R316.5.6.

**4.2.2 Special Use—Attics and Crawl Spaces:** When R-Shield 100, R-Shield 130, R-Shield 150 and R-Shield 250 boards, with a maximum nominal thickness of 2 inches (50.8 mm), are installed with mechanical fasteners on vertical walls and the underside of the surface above in attics and crawl spaces, the prescriptive ignition barrier required by IBC Section 2603.4.1.6 and IRC Sections R316.5.3 and R316.5.4 may be omitted, where the following conditions apply:

1. Attic ventilation is provided in accordance with 2018 IBC Section 1202.2 (2015 and 2012 IBC Section 1203.2) or IRC Section R806, as applicable, except unvented attic assemblies are permitted under the conditions prescribed in 2018, 2015 and 2012 IRC Section R806.5.
2. Under-floor (crawl space) ventilation is provided when required by 2018 IBC Section 1202.4, 2015 IBC Section 1203.4, 2012 IBC Section 1203.3 or IRC Section R408.1, as applicable, except unvented crawl spaces are permitted under the conditions prescribed in 2018, 2015 and 2012 IRC Section R408.3.
3. Combustion air is provided in accordance with Section 701 of the *International Mechanical Code*<sup>®</sup> (IMC).

#### 4.3 R-Shield Boards (Type I-WSG):

R-Shield WSG boards must be installed as part of an exterior cementitious wall covering, an EIFS system or other proprietary wall system, when installation is in accordance with an ICC-ES evaluation report on the wall covering system.

#### 4.4 R-Shield D2D Boards:

**4.4.1 Application Directly to Steel Roof Decks without a Thermal Barrier:** R-Shield D2D roof insulation may be used as a component of a Class A, B, or C roof covering installed on steel decks without a thermal barrier, when installation is in accordance with Sections 4.4.2, 4.4.3 and 4.4.4.

##### 4.4.2 Materials:

**4.4.2.1 Steel Deck:** Steel roof decking must be minimum No. 22 MSG [0.030 inch (0.76 mm)], 1½-inch-deep (38 mm), unperforated, painted or galvanized steel decking, with flutes spaced a maximum of 6 inches (152 mm) on center. The deck must be welded or mechanically fastened to structural supports in accordance with the applicable code.

**4.4.2.2 Foam Plastic Insulation:** The R-Shield D2D insulation boards may have a maximum thickness as follows: up to 9.0 inches (229 mm) for R-Shield 100, 7.2 inches (183 mm) for R-Shield 130, 6.0 inches (152 mm) for R-Shield 150, and 4.5 inches (114 mm) for R-Shield 250, 3.6 inches (91 mm) for R-Shield 400 and 3.0 inches (76 mm) for R-Shield 600.

**4.4.2.3 Cover Board:** When used, the cover board in the roof covering assembly is ¼-inch-thick (6.4 mm) Dens-Deck<sup>®</sup> Roof Board, manufactured by Georgia-Pacific Corporation, or ½-inch-thick (12.7 mm) wood-fiber board complying with ASTM C208.

**4.4.2.4 Roof Covering:** The roof covering membrane must be a mechanically attached, fully adhered or ballasted EPDM or thermoplastic membrane listed in an ICC-ES evaluation report as part of a Class A, B, or C roof covering assembly. Thermoplastic membranes include polyvinyl chloride (PVC), modified PVC, chlorosulphonated polyethylene (CSPE), and thermoplastic polyolefin (TPO). The membrane is limited to a maximum nominal thickness of 0.045 inch (1.1 mm). The evaluation report on the roof covering assembly must specify one of the following assemblies as the only components of the classified roof covering assembly permitted under the conditions of this report:

- a. A generic EPS insulation board having the same density and installed thickness as the R-Shield roof insulation listed in [Table 1](#) of this report, the cover board described in Section 4.4.2.3, and the roof covering membrane described in this section (Section 4.4.2.4), installed over a steel deck as described in Section 4.4.2.1.
- b. A generic EPS insulation board having the same density and installed thickness as the R-Shield roof insulation listed in this report, the roof covering membrane described in this section (Section 4.4.2.4), and stone ballast, installed over a steel deck as described in Section 4.4.3 of this report.

**4.4.3 Installation:** The R-Shield roof insulation boards are loosely laid directly over the steel deck in single or multiple layers, to a maximum total thickness and density as noted in Section 4.4.2.2. The top layer of insulation must be placed so that the labeling required in Section 7.0 is facing up. Tapered EPS foam boards may be installed, provided the maximum allowable thickness is not exceeded. The cover board described in Section 4.4.2.3, when required, is laid over the insulation.

The method of attaching the roof covering, cover boards, and insulation boards to the steel roof deck must be in accordance with the ICC-ES evaluation report on the roof covering membrane, and as described in Section 4.4.2.4 of this report.

**4.4.4 Reroofing:** New roofing must not be applied over existing roof covering assemblies. Additional EPS foam insulation may be added over the existing EPS foam insulation, provided inspection in accordance with 2018 and 2015 IBC Section 1511 (2012 IBC Section 1510) or 2018 and 2015 IRC Section R908 (2012 IRC Section R907) indicates the existing EPS is sound material, the density of the EPS being added is equal to the density of the existing EPS, the existing EPS meets the requirements of this report, and the total thickness of the existing EPS plus the new EPS being added conforms to Section 4.4.2.2. The existing roof covering and, if necessary, the cover board must be removed before new roofing materials, having characteristics specifically described in this report, can be installed.

#### **4.5 R-Shield with Perform Guard Boards:**

R-Shield with Perform Guard boards is installed as specified in Section 4.2.1 of this report, except that use is not restricted in areas where the probability of termite infestation is defined as “very heavy” under 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC Section R316.7.

#### **4.6 R-Shield with Perform Guard<sup>2</sup> Boards:**

R-Shield with Perform Guard<sup>2</sup> is installed as specified in Section 4.2.1 of this report, except that use is not restricted in areas where the probability of termite infestation is defined as “very heavy” under 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC Section R316.7.

#### **4.7 R-Shield Geofoam Blocks:**

R-Shield Geofoam blocks must be in accordance with the manufacturer’s installation instructions and as noted in Section 5.8. The insulation blocks must not be used structurally to resist loads except as provided for in Section 5.8.2 and 5.8.3.

The interior of the building must be separated from the geofoam blocks with a thermal barrier as required by IBC Section 2603.4, except when installation is in accordance with Section 5.8.1.

## **5.0 CONDITIONS OF USE**

The R-Shield boards, R-Shield with Perform Guard boards, R-Shield with Perform Guard<sup>2</sup> boards and R-Shield Geofoam blocks described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The insulation boards 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.
- 5.2** The insulation boards must be separated from the building interior with a thermal barrier complying with the applicable code, such as 1/2-inch (12.7 mm) gypsum wallboard installed in accordance with the applicable code, except as described in Sections 4.2.2, 4.4 and 4.7 of this report.
- 5.3** Exterior walls must be protected by a water-resistive barrier complying with IBC Section 1404.2 or IRC Section R703.2, and by wall coverings that provide the necessary structural resistance to wind and seismic forces in spanning between wall framing members.
- 5.4** In areas where the probability of termite infestation is defined as “very heavy”, the foam plastic must be installed in accordance with 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC Section R316.7, except as permitted for R-Shield Perform Guard EPS in Section 4.5 or for R-Shield Perform Guard EPS<sup>2</sup> in Section 4.6.
- 5.5** Walls on which the boards are applied must be braced in accordance with the applicable code.
- 5.6** When R-Shield D2D insulation boards are installed directly to a steel roof deck without a thermal barrier for structures regulated under the IBC, the following conditions apply:
  - 5.6.1** The insulation boards must be part of a Class A, B, or C roof covering system as described in Section 4.4 of this report. The insulation boards may be installed without a thermal barrier as addressed in IBC Section 2603.4.1.5.
  - 5.6.2** Reroofing must be in accordance with Section 4.4.4.

- 5.6.3** Permanent placards bearing the following words are attached to roof hatches and where other roof access is located: "This roof covering includes foam plastic insulation applied directly to a steel deck. The existing roofing membrane, slip sheets, and cover boards must be removed before reroofing. Limits also exist for cover boards and membranes. See ICC-ES evaluation report ESR-4743 before reroofing."
- 5.7** Maximum thickness is as noted in Section 3.1 of this report, except where noted otherwise in Section 4.0.
- 5.8** When geofoam blocks are installed, the following conditions of use apply:
- 5.8.1** The geofoam blocks must be separated from the building interior with a minimum 1-inch-thick (25.4 mm) layer of concrete or masonry on all faces as required by IBC Section 2603.4.1.1, except in buildings of Type V construction where separation may be by a minimum nominally ½-inch-thick wood structural panel when installation is in accordance with IBC Section 2603.4.1.14. Where the thermal barrier consists of a minimum 1-inch-thick (25.4 mm) layer of concrete or masonry, the thickness of the geofoam blocks in the floor assembly may exceed 4 inches (102 mm). The design of the concrete or masonry covering is outside the scope of this report and must comply with all applicable code requirements for the occupancy and type of construction for the specific project.
- 5.8.2** The design loads to be resisted by the geofoam blocks must be determined in accordance with the IBC. The compressive resistance of the geofoam blocks at 1 percent strain is listed in [Table 2](#) as determined in accordance with ASTM D6817. The use of the geofoam blocks is limited to floor applications where the uniform and localized loading does not exceed the compressive resistance of the geofoam blocks at 1 percent strain.
- 5.8.3** Design calculations and details for the specific applications, verifying compliance with this report and applicable codes, must be furnished to the code official. 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.
- 5.8.4** Use of the geofoam blocks is limited to applications where the geofoam will not be subject to direct exposure to hydrocarbons.
- 5.8.5** Penetrations through the thermal barrier described in Section 5.8.1 shall be subject to approval by the code official. When the geofoam blocks are used in a fire-resistance-rated floor assembly, penetrations through the assembly must be protected in accordance with 2018 IBC Section 714.5 or 2015 and 2012 IBC Section 714.4. If used, through-penetration firestop systems must be tested in accordance with ASTM E814 or UL 1479, as required by 2018 IBC Section 714.5.1.2, 2015 IBC Section 714.4.1.2 or 2012 IBC Section 714.4.1.1.2
- 5.9** The products are manufactured at Belgrade, Montana under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

### 6.1 R-Shield Boards:

- 6.1.1** Data in accordance with the [ICC-ES Acceptance Criteria for Foam Plastic Insulation \(AC12\)](#), dated June 2015 (Editorially revised October 2017), including reports of tests in accordance with Appendix B.
- 6.1.2** Data in accordance with UL1256.
- 6.1.3** Test reports of room corner fire tests in accordance with UBC Standard 26-3.
- 6.1.4** Test report in accordance with NFPA 286.

### 6.2 R-Shield with Perform Guard and R-Shield with Perform Guard<sup>2</sup>:

- 6.2.1** Data in accordance with the [ICC-ES Acceptance Criteria for Foam Plastic Insulation \(AC12\)](#), dated June 2015 (Editorially revised October 2017).
- 6.2.2** Data in accordance with the [ICC-ES Acceptance Criteria for Termite-resistant Foam Plastics \(AC239\)](#), dated October 2008 (Editorially revised February 2018).

### 6.3 R-Shield Geofoam Blocks:

Data in accordance with the [ICC-ES Acceptance Criteria for Rigid Cellular Polystyrene \(RCPS\) Geofoam Used in Interior Floor Applications \(AC452\)](#), dated October 2013 (Editorially revised February 2018).

## 7.0 IDENTIFICATION

**7.1** R-Shield Boards, R-Shield with Perform Guard boards, R-Shield with Perform Guard<sup>2</sup> boards and R-Shield Geofoam blocks are marked on each board with the report holder's name (Big Sky Insulations, Inc.); the plant ID number (BSI-1); the ASTM type or product name; and the evaluation report number (ESR-4743). Additionally, an inspection agency certificate, including the flame-spread index, the smoke-developed index, and the thermal-resistance (*R*-value) (for insulation complying with ASTM C578), and compressive resistance (for insulation complying with ASTM D6817), is provided with each shipment of insulation boards.

Bundles of R-Shield insulation board include instructions regarding *R*-value required by ASTM C578.

In addition to the marking noted above, each R-Shield D2D insulation board has the following wording: "When used in reroofing applications, limits exist for cover board and membrane. See ICC-ES evaluation report ESR-4743 before reroofing."

In addition to the foam plastic board markings noted above, R-Shield insulation boards for use under Section 4.2.2, in attics and crawl spaces, are labeled with one of the following: "Styropek", "Flint Hills", "Nova", or "StyroChem".

**7.2** The report holder's contact information is the following:

**BIG SKY INSULATIONS, INC.**  
**15 ARDEN DRIVE**  
**BELGRADE, MONTANA 59714**  
[www.bigskyrcontrol.com](http://www.bigskyrcontrol.com)

**TABLE 1—R-SHIELD INSULATION BOARD THERMAL RESISTANCE VALUES<sup>1,2</sup>**

Product	ASTM TYPE	MINIMUM DENSITY (pcf)	THERMAL RESISTANCE (per 1 inch thickness) (°F-ft <sup>2</sup> -h/Btu)
R-Shield 100	Type I	0.90	3.6
R-Shield 130	Type VIII	1.15	3.8
R-Shield 150	Type II	1.35	4.0
R-Shield 250	Type IX	1.80	4.2
R-Shield 400	Type XIV	2.40	4.2
R-Shield 600	Type XV	3.00	4.2

For **SI**: 1 pcf = 16.018 kg/m<sup>3</sup>, 1°F-ft<sup>2</sup>-h/Btu = 0.176 m<sup>2</sup>-K/W.

<sup>1</sup>Thermal resistance (*R*) values are based on tested values between 1 and 4 inches and must be multiplied by the installed thickness for thicknesses greater than 1 inch (25 mm). Maximum foam plastic thickness recognized in this report is 9 inches.

<sup>2</sup>The values listed are the minimum required by ASTM C578.

**TABLE 2—R-SHIELD GEOFOAM INSULATION BLOCK COMPRESSIVE RESISTANCE VALUES<sup>1</sup>**

Product	ASTM TYPE	MINIMUM DENSITY (pcf)	COMPRESSIVE RESISTANCE (at 1% strain) (psi)
R-Shield EPS15	Type EPS15	0.90	3.6
R-Shield EPS19	Type EPS19	1.15	5.8
R-Shield EPS22	Type EPS22	1.35	7.3
R-Shield EPS29	Type EPS29	1.80	10.9
R-Shield EPS39	Type EPS39	2.40	15.0
R-Shield EPS46	Type EPS46	2.85	18.6

For **SI**: 1 pcf = 16.018 kg/m<sup>3</sup>, 1 psi = 6894.8 Pa.

<sup>1</sup>The values listed are the minimum required by ASTM D6817.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 21 00—Thermal Insulation**  
**Section: 07 22 00—Roof and Deck Insulation**

**REPORT HOLDER:****BIG SKY INSULATIONS, INC.****EVALUATION SUBJECT:****R-SHIELD® BOARDS, R-SHIELD® WITH PERFORM GUARD® BOARDS, R-SHIELD® WITH PERFORM GUARD<sup>2</sup> BOARDS AND R-SHIELD GEOFOAM BLOCKS****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that R-Shield® Boards, R-Shield® with Perform Guard® Boards, R-Shield® with Perform Guard<sup>2</sup> Boards and R-Shield Geofoam Blocks described in ICC-ES evaluation report [ESR-4743](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code editions:**

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

**2.0 CONCLUSIONS**

The R-Shield® Boards, R-Shield® with Perform Guard® Boards, R-Shield® with Perform Guard<sup>2</sup> Boards and R-Shield Geofoam Blocks, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4743](#), comply with the LABC Chapters 7, 14, 15 and 26, the LARC Sections R316 and R318 and LARC Chapters 6 and 9, and are subjected to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The R-Shield® Boards, R-Shield® with Perform Guard® Boards, R-Shield® with Perform Guard<sup>2</sup> Boards and R-Shield Geofoam Blocks, described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-4743](#).
- The design, installation, conditions of use and identification are in accordance with the 2018 *International Building Code*® (IBC) and 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report [ESR-4743](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Reroofing applications must comply with Section 4.4.4 of the evaluation report [ESR-4743](#) and LABC Section 1511 or LARC Section R908, as applicable.

This supplement expires concurrently with the evaluation report, reissued January 2024.