STARRFOAM MANUFACTURING
3220 Avenue F East
Arlington, Texas 76011
(817) 654-4688
www.starrfoam.com

STARRFOAM INSULATION BOARDS

- StarRGard Insulation Boards
- StarRGard Plus Insulation Boards
- StarRFoam EPS Insulation Boards
- StarRFoam EIFS Grade (SWG) Insulation Boards
- StarROne-Coat Stucco Insulation Boards

CSI Section:
07 21 00 Thermal Insulation
07 22 00 Sheathing
07 25 00 Water-resistive barriers

1.0 RECOGNITION

StarRFoam Manufacturing's StarRGard, StarRGard Plus, StarRFoam EPS, StarRFoam EIFS Grade (SWG), StarROne-Coat Stucco insulation, and StarRFoam Geofoam EPS boards recognized in this report have been evaluated for use as nonstructural, foam plastic thermal insulation in accordance with Section 2603 of the IBC and Section R316 of the IRC, and as water-resistive barriers in accordance with Section 1403.2 of the IBC and Section R703.2 of the IRC. The physical, surface burning, water resistance, and thermal resistance properties of StarRFoam Insulation Boards, recognized in this report comply with the intent of the provisions of the following codes and regulations:

- 2018, 2015 and 2012 International Building Code® (IBC)
- 2018, 2015 and 2012 International Residential Code® (IRC)
- 2018, 2015 and 2012 International Energy Conservation Code®
- 2017 County of Los Angeles Building Code (LACBC) – attached Supplement
- 2017 County of Los Angeles Residential Code (LACRC) – attached Supplement

2.0 LIMITATIONS

StarRFoam Manufacturing's StarRGard, StarRGard Plus, StarROne-Coat Stucco insulation boards, StarRFoam EPS, StarRFoam EIFS Grade (SWG), and StarRFoam Geofoam EPS boards recognized in this report are subject to the following limitations:

2.1 The StarRFoam Insulation Boards recognized in this report shall be installed in accordance with the applicable code, the manufacturers installation instructions, and this report. Where there is a conflict, the most restrictive requirements shall govern.

2.2 In those instances where StarRFoam's insulation boards are installed on the exterior wall they shall be covered with a code complying exterior wall system. The system must include a water resistive barrier except as noted in this report.

2.3 In areas of "Very Heavy" termite infestation probability, protection against termites is required in accordance with section 3.2.5 of this ER, or IBC Section 2603.8 or IRC Section R318.4.

2.4 The structural performance of StarRFoam's EPS boards recognized in this report was not evaluated and is not part of the scope of recognition of this report. Verification of compliance shall be determined by a separate research report or as otherwise determined by the building official.

2.5 All perforations, panel joints, and fastener locations shall be sealed in accordance with this report and the manufacturer's published installation instructions.

2.6 The insulation boards shall not be used as a nailing base for exterior wall coverings. Siding fasteners shall penetrate through the StarRFoam Sheathing or Boards and into the framing members.

2.7 StarRFoam EPS Insulation Boards, StarRFoam EIFS Grade (SWG) Insulation Boards, StarROne-Coat Stucco insulation boards, StarRGard Boards and StarRGard Plus Boards are manufactured by StarRFoam Manufacturing in Arlington, Texas.

3.0 PRODUCT USE

StarRFoam's Insulation Boards recognized in this report are noted in Tables 1 and 2 and are for use as nonstructural sheathing panels in Type V Construction under the IBC and buildings constructed in accordance with the IRC.

3.1 Installation: StarRFoam's panels shall be fastened at 12 inches (305 mm) on center along all framing members. Fasteners used to attach the boards to framing shall be either 6d ring shank nails with a 0.93-inch-diameter (24 mm) plastic washer, or 16-gage staples having a 1-inch-wide (25.4 mm) crown. The legs of the staple shall penetrate through the boards into the frame at least 1 inch (25.4 mm).

3.2 Design

3.2.1 Surface Burning Characteristics: The StarRFoam insulation boards recognized in this report exhibit a flame spread index of less than 25 and a smoke-developed index of less than 450 when tested in accordance with the requirements of ASTM E84.

3.2.2 Thermal Barrier: Insulation boards noted in this report are required to be separated from the interior of the building by a thermal barrier complying with Section 2603.4 of the IBC or Section R316.4 of the IRC. Where penetrations occur in StarRGard or StarRGard Plus boards approved flashing shall be provided.

3.2.3 Water-resistive Barrier: The StarRGard and StarRGard Plus Boards, with all joints and perforations sealed using approved flashing tape, meet the requirements of Exception 2 of Section 1402.2 of the 2018 IBC (Exception 2 of Section 1403.2 of the 2015 and 2012 IBC) and exception 2 of 2018, 2015 and 2012 IRC Section 703.1.1.

3.2.4 Thermal Resistance: Values for thermal resistance are shown in Table 1 of this report.

3.2.5 Installation of Cementious (Stucco) Exterior Wall Coatings with StarRGard, StarRGard Plus: The exterior coating on StarRGard and StarRGard Plus is an alternative to water-resistive-barriers specified in Section 1403.2 of the 2018 IBC, Section 1404.2 of the 2015 and 2012 IBC and Section R703.2 of the IRC, as applicable. A drainage plane must be provided with a second layer of water-resistive barrier shall be provided between the StarRGard, StarRGard Plus, and the wood studs. The additional layer of water-resistive barrier shall meet the requirements of ASTM E2556 Type I for the 2018 and 2015 IBC and one layer of Grade D paper when meeting the requirements of the 2012 IBC and 2018, 2015 and 2012 IRC. Weep screeds shall be provided as required in Section 2512.1.2 of the IBC and Section 703.7.2.1 of the 2018 and 2015 IRC and 703.6.2.1 of the 2012 IRC.

3.2.6 Attics and Crawlspaces: StarRFoam EPS, StarRGard or StarRGard Plus boards may be used in attics and crawlspaces without a thermal or ignition barrier provided all the following conditions are satisfied:

a) Entry to the attic or crawl space is only to service utilities, and no storage is permitted.
b) There are no interconnected attic or crawlspace areas.
c) Air in the attic or crawl space is not circulated to other parts of the building.
d) Attic ventilation is provided when required by 2018 IBC Section 1202.2, 2015 and 2012 IBC Section 1203.2 or IRC Section R806 except when air-impermeable insulation is permitted in unvented attic in accordance with Section R806.4 of the IRC. Under-Floor (crawlspace) ventilation is provide when required ty IBC Section 1203.3 or IRC Section R408.1, as applicable.
e) The foam plastic insulation is limited to the maximum thickness and density as described in this report.

3.2.7 Use in Areas Subject to Termites: StarRFoam insulation boards treated with Lanxess Preventol® TM-EPS Preservative insecticide is recognized for installation in areas subject to termites as noted in their evaluation report, ICC-ES ESR-2918.

4.0 PRODUCT DESCRIPTION

4.1 StarRGard EPS Board: StarRGard EPS Boards are rigid, closed cell, molded EPS boards, available up to 4-inches (101.6 mm) thick and, 2-feet (610 mm) or 4-feet (1220 mm) widths by 8-feet (2438 mm) long and have tongue and groove or shiplap edges on the long side. StarRGard EPS Boards have a 1- mil-thick polypropylene covering applied to each face. StarRGard qualifies as a water-resistive barrier when installed as directed. StarRGard EPS Boards conform with ASTM C578, Types I, VIII, II, IX, XIV, XV.

4.2 StarRGard Plus Insulation Boards: StarRGard Plus Insulation Boards are manufactured using BASF Neopor® EPS beads formed into ASTM C578 Types I, VIII, II, II (1.45) and IX rigid thermal insulation boards. The insulation boards have a 1.0-mil-thick polypropylene film laminated to each face. StarRGard Plus qualifies as a water-resistive barrier when installed as directed. The Neopor® board is recognized by an approved evaluation entity for use as a foam plastic insulation and is specified in the approved quality assurance manual. StarRGard Plus boards are gray in color, 4 feet (1220 mm) wide, and available in lengths ranging from 4 feet to 10 feet (1220 mm to 3048 mm) and thicknesses ranging from ¼-inch to 4 inches (6.35 mm to 101.6 mm). See Table 1 for EPS Type, density, and thermal resistance.

4.3 StarRFoam EPS Insulation Boards: StarRFoam EPS Insulation Boards are closed cell, molded EPS boards, and conform with ASTM C578, Types I, II, VII, and IX. Boards are available in ¼- inch to 5- inch thickness (127 mm) 4-feet (1220 mm) wide by 4-feet (1220 mm) or 8-feet (2438 mm) long with square edges.

4.4 StarRFoam EIFS Grade (SWG) Insulation Board: StarRFoam EIFS Grade (SWG) Insulation Boards are closed cell, molded EPS Boards, having a minimum nominal density of 0.9 pound per cubic foot (pcf) (14.4 kg/m^3) and comply with ASTM C 578 as Type I, StarRFoam EIFS Grade (SWG) Insulation boards are available up to 5-inches (127 mm)

thick, 2-feet (610 mm) or 4-feet (1220 mm) wide by 8-feet (2438 mm) long and have tongue and groove or shiplap edges.

4.5 StarROne-Coat Stucco Insulation Board: StarROne-Coat Insulation Boards are closed cell, molded EPS Boards, having a nominal density of 1.5 pcf (24 kg/m^3). StarROne-Coat Stucco Insulation boards and comply with ASTM C 578 as Type I, are available up to 1-1/2 inches (38.1 mm) thick and 2-feet (610 mm) or 4-feet (1220 mm) wide by 8-feet (2438 mm) long and have tongue and groove or shiplap edges.

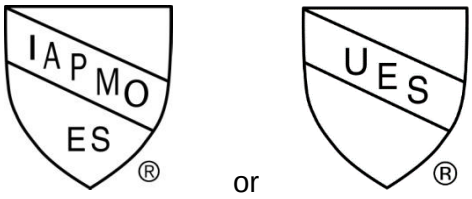
4.6 StarRFoam Geofoam: StarRFoam Geofoam is an expanded polystyrene product used for engineering and geotechnical fill applications having properties as noted in Table 2. It is available in 4-foot (1220 mm) widths, 8 to 16 feet long (2.44 m to 4.88 m) and 1 to 50 inches thick (25.4 mm to 1,270 mm).

5.0 IDENTIFICATION

StarRFoam Manufacturing's StarRGard, StarRGard Plus, StarROne-Coat Stucco insulation boards, StarRFoam EPS, StarRFoam EIFS Grade (SWG), and StarRFoam Geofoam EPS boards are identified with the manufacturer's name, the product name, the EPS type, density, and thickness, the IAPMO ES Mark of Conformity and the evaluation report number (ER-598).

In addition to the markings noted above, boards treated with Lanxess Preventol® TM-EPS Preservative insecticide must bear the name of the inspection agency, the minimum dosage level in parts per million by volume, the end use, and the ICC-ES report number ESR-2918 in accordance with that report.

Either Mark of Conformity may be used as follows:



IAPMO UES ER-598

6.0 SUBSTANTIATING DATA

The following data was reviewed, evaluated and used to establish recognition of StarRFoam Manufacturing's StarRGard, StarRGard Plus, StarROne-Coat Stucco insulation boards, StarRFoam EPS, StarRFoam EIFS Grade (SWG), and StarRFoam Geofoam EPS boards for the uses described in Section 1.0. The test reports are from laboratories in compliance with ISO/IEC 17025.

6.1 Manufacturer's Literature and Installation Instructions.

6.2 Data in accordance with Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015, editorially revised October 2017.

6.3 Reports of testing for thermal resistance in accordance with ASTM C518.

6.4 Engineering Evaluation of Flammability Characteristics.

6.5 Reports of testing in accordance with Acceptance Criteria for Foam Plastic Sheathing Panels Used as Weather-resistive Barriers (AC71) Approved February 2003, editorially revised January 2018 and ASTM E331 to qualify the panels as a water-resistive barrier.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research carried out by IAPMO Uniform Evaluation Service on StarRFoam Manufacturing's StarRGard, StarRGard Plus, StarRFoam EPS, StarRFoam EIFS Grade (SWG), and StarROne-Coat Stucco insulation boards to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.7 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

Brian Gerber, P.E., S.E.
Vice President, Technical Operations
Uniform Evaluation Service

Richard Beck, PE, CBO, MCP
Vice President, Uniform Evaluation Service

GP Russ Chaney
CEO, The IAPMO Group

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

TABLE 1 – EPS BOARD DENSITY AND THERMAL RESISTANCE

Product	EPS Nominal Density	ASTM C578 Designation	Minimum Density of EPS (pcf)	Thermal Resistance °F·ft²·hr/BTU per inch of thickness @ 75°F
StarRGard	1.0 pcf	Type I	0.9	4.0
	1.25 pcf	Type VIII	1.15	4.1
	1.50 pcf	Type II	1.35	4.4
	2.0 pcf	Type IX	1.8	4.6
	2.5 pcf	Type XIV	2.4	4.5
	3.0 pcf	Type XV	3.0	4.5
StarRGard Plus	Neopor®	Type I	0.9	4.3
		Type VIII	1.15	4.5
		Type II	1.35	4.5
		Type II (1.45)	1.45	4.6
		Type IX	1.80	4.6
StarRFoam EPS	1.0 pcf	Type I	0.9	4.0
StarROne-Coat Stucco Insulation Boards	1.5 pcf	Type I	0.9	4.3
StarRFoam EIFS Grade (SWG)	1.0 pcf	Type I	0.9	4.0

For **SI**: 1 inch = 25.4 mm, 1°F-ft²·h/BTU=0.176110 K·m²/W, 1 pcf = 16 kg/m³

TABLE 2 -GEOFOAM INSULATION COMPRESSIVE RESISTANCE VALUES

Product Name	ASTM D6817 Designation	Minimum Density of EPS (pcf)	Compressive Resistance (1% Strain) (psi)
StarRGeoFoam	Type EPS39	2.40	15.0
	Type EPS46	2.85	18.6

For **SI**: 1 inch = 25.4 mm, 1 pcf = 16 kg/m³, 1 psi = 6.895 kPa

COUNTY OF LOS ANGELES SUPPLEMENT

STARRFOAM MANUFACTURING
3220 Avenue F East
Arlington, Texas 76011
(817) 654-4688
www.starrfoam.com

STARRGARD, STARRGARD PLUS, STARRFOAM EPS, STARRFOAM EIFS GRADE (SWG), AND STARRONE-COAT STUCCO INSULATION BOARDS

CSI Section:

07 21 00 Thermal Insulation
07 22 00 Sheathing
07 25 00 Water-resistive barriers

1.0 RECOGNITION

StarRFoam Manufacturing's StarRGard, StarRGard Plus, StarRFoam EPS, StarRFoam EIFS Grade (SWG), and StarROne-Coat Stucco insulation boards recognized in this report have been evaluated for use as nonstructural, foam plastic thermal insulation, subject to the requirements of ER-598 and this supplemental report. The physical, surface burning, water resistance, and thermal resistance properties of Star R Foam EPS Insulation Boards, StarRFoam EIFS Grade (SWG) Insulation Boards, StarROne-Coat Stucco insulation boards, and StarRGard Boards comply with the intent of the provisions of the following codes and regulations:

- 2017 County of Los Angeles Building Code
- 2017 County of Los Angeles Residential Code

2.0 LIMITATIONS

StarRGard Boards, StarRFoam EPS Insulation Boards, Star R Foam EIFS Grade (SWG) Insulation Boards, and StarROne-Coat Stucco insulation boards recognized in this report are subject to the following limitations:

2.1 The design, installation, conditions of use and identification of the StarRFoam Manufacturing's StarRGard, StarRGard Plus, StarRFoam EPS, StarRFoam EIFS Grade (SWG), and StarROne-Coat Stucco insulation boards shall be in accordance with the 2018, 2015 or 2009 International Building Code and the 2018, 2015, 2012 or 2009 International Residential Code as noted in ER-598.

This supplement expires concurrently with ER-598.