ICC-ES Evaluation Report

ESR-1640

Reissued April 2024

Subject to renewal April 2026

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION **Section: 07 21 00—Thermal Insulation**	**REPORT HOLDER:** **HDC HYUNDAI ENGINEERING PLASTICS CO., LTD.**	**EVALUATION SUBJECT:** **SOLARPOL EXPANDABLE POLYSTYRENE BEADS, GRADE F**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

- Physical properties
- Surface-burning characteristics

2.0 USES

Solarpol Expandable Polystyrene Beads, Grade F, are used by manufacturers to produce expanded polystyrene (EPS) insulation boards.

3.0 DESCRIPTION

Solarpol expandable polystyrene Grade F beads are designated as F251, F251L, F351, F351L, F451 and F451L. Boards manufactured with the Solarpol beads are produced through the introduction of heat, without additives. This process expands the beads, which are then molded into insulation boards with nominal densities and thicknesses no greater than those specified in Table 1. The end use of the polystyrene beads, including the manufacture of boards, is outside the scope of this report. At nominal densities and maximum thicknesses no greater than those specified in Table 1, insulation boards produced from the Solarpol beads have a flame-spread index of 25 or less and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E84 (UBC Standard 8-1). Solarpol Expandable Polystyrene Beads, Grade F, have been qualified in accordance with section 4.5.15.1.1 of the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12). The expandable beads can be used to produce expanded polystyrene products that comply with ASTM C578 (with types as shown in Table 1), provided the final product is recognized in a current ICC-ES evaluation report and has been qualified in accordance with Section 4.5.15.1.2 of the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

4.0 INSTALLATION

Installation is as noted in the corresponding current ICC-ES evaluation report on foam plastic assemblies, or as otherwise permitted by the code official under Section 2603 of the IBC, Section R316 of the IRC, and Section 2602 of the UBC.

5.0 CONDITIONS OF USE:

The Solarpol expandable polystyrene beads, Grade F, 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 nominal density and maximum thickness of the insulation boards are as noted in Table 1.

5.2 Products manufactured from the beads must be recognized in a current ICC-ES evaluation report.

5.3 The beads are produced by Hyundai Engineering Plastics Co., Ltd., in Ulsan City, South Korea, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (revised October 2017).

7.0 IDENTIFICATION

7.1 The bead containers must bear a label noting the product designation; the name and address of Hyundai Engineering Plastics Co., Ltd.; the evaluation report number (ESR-1640).

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

HDC HYUNDAI ENGINEERING PLASTICS CO., LTD.
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TABLE 1—INSULATION BOARD NOMINAL DENSITY AND MAXIMUM THICKNESS

TYPE[1]	NOMINAL DENSITY (pcf)	MAXIMUM THICKNESS (inches)
I	1.0	6
VIII	1.25	5
II	1.5	5
IX	2.0	6

For **SI:** 1 pcf = 16.018 kg/m^3, 1 inch = 25.4 mm.
[1]Type is as designated in ASTM C578-06.