

ICC-ES Evaluation Report

ESR-5063

Reissued September 2024


This report also contains:

- CBC Supplement

Subject to renewal September 2025

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<p>DIVISION: 07 00 00 — THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 21 00 — Thermal Insulation</p>	<p>REPORT HOLDER: SHUNDA POLYURETHANE LTD.</p>	<p>EVALUATION SUBJECT: KAWARTHA 2000</p>	
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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018 and 2015 [International Building Code® \(IBC\)](#)
- 2021, 2018 and 2015 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Surface-burning characteristics
- Physical properties
- Thermal resistance (R-values)
- Air permeability

1.2 Evaluation to the following green code:

- 2008 ICC 700 [National Green Building Standard™](#) (ICC 700-2008)

Attributes verified:

See Section 3.4

2.0 USES

Kawartha 2000 insulation is used as a nonstructural thermal insulating material in Type V construction under the IBC and dwellings under the IRC. The insulation is for use in wall cavities, floor assemblies, ceiling assemblies, or attics and crawl spaces when installed in accordance with Section 4.4. Under the IBC and the IRC, the insulation may be used as air-impermeable insulation when installed in accordance with Section 4.4.

3.0 DESCRIPTION

3.1 Kawartha 2000 Insulation:

Kawartha 2000 insulation is a two-component, medium-density, closed-cell, spray-applied foam plastic with a nominal core density of 2.0 pcf. The polyurethane foam is produced by combining Shunda Polyurethane Ltd. Polymethylene Polyphenylene Isocyanate (A component) and Shunda Polyurethane Ltd. Kawartha 2000 resin (B component). The product has a shelf life of six (6) months when stored in factory-sealed containers at temperatures between 50°F (10°C) and 77°F (25°C).

3.2 Surface-burning Characteristics:

The Kawartha 2000 insulation, at a maximum thickness of 4 inches (102 mm) and a nominal density of 2.0 pcf, has a flame-spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 (UL 723).

3.3 Thermal Resistance:

Kawartha 2000 insulation has a thermal resistance, *R*-value, at a mean temperature of 75°F (24°C) as shown in [Table 1](#).

3.4 Air Permeability:

Kawartha 2000 insulation, at a minimum 1.1-inch (28.3 mm) thickness, is considered air-impermeable insulation in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) and IRC Section R806.5, based on testing in accordance with ASTM E2178.

The attributes of the Kawartha 2000 insulation have been verified as conforming to the provisions of ICC 700-2008 Section 703.1.2.1 as an air impermeable insulation. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

4.0 DESIGN AND INSTALLATION

4.1 General:

4.2 Application:

Kawartha 2000 insulation must be applied using spray equipment specified by Shunda Polyurethane Ltd. The insulation must not be used in areas having a maximum service temperature greater than 176°F (80°C), must not be used in electrical outlet or junction boxes or in contact with rain or water, and must be protected from the weather during and after application. Where Kawartha 2000 is used as an air-impermeable barrier, such as in unventilated attic spaces regulated by 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) or IRC Section R806.5, the insulation must be installed at a minimum thickness of 1.1 inches (28.3 mm). The insulation is applied to the intended thickness, with the first pass being at the maximum thickness set forth in the manufacturer's published installation instructions. Where multiple passes are required, the cure time between each pass is in accordance with the manufacturer's instructions.

4.3 Thermal Barrier:

Kawartha 2000 must be separated from the interior of the building by an approved thermal barrier of 1/2-inch-thick (12.7 mm) gypsum wallboard or an equivalent thermal barrier complying with and installed in accordance with the applicable code. When installation is within an attic or crawl space as described in Section 4.4, a thermal barrier is not required between the foam plastic and the attic or crawl space, but is required between the insulation and the interior of the building.

4.4 Attics and Crawl Spaces:

When Kawartha 2000 insulation is installed within attics or crawl spaces where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code, and must be installed in a manner so that the insulation is not exposed. The attic or crawl space area must be separated from the interior of the building by an approved thermal barrier as described in Section 4.3.

Kawartha 2000 insulation, as described in this section, may be installed in unvented attics in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) or IRC Section R806.5 when installed at the minimum thickness specified in Section 3.4.

5.0 CONDITIONS OF USE:

The Kawartha 2000 insulation described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The product must be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2 The insulation must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Section 2603.4.

- 5.3 The insulation must not exceed the thickness and density noted in Section 3.2 of this report.
- 5.4 The insulation must be protected from the weather during and after application.
- 5.5 The insulation must be applied by installers certified by Shunda Polyurethane Ltd.
- 5.6 Use of the insulation in areas where the probability of termite protection is “very heavy” must be in accordance with IBC Section 2603.9 or IRC Section 318.4, as applicable.
- 5.7 The A and B components of the insulation are produced under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with [ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation \(AC377\)](#), dated February 2023.
- 6.2 Reports of air leakage testing in accordance with ASTM E2178.

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5063) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, the A and B components of the Kawartha 2000 are identified by a label bearing the report holder’s (Shunda Polyurethane Ltd.) address, product name [Polymethylene Polyphenylene Isocyanate (A component) or Kawartha 2000 (B component)], lot number, date of manufacture and the expiration date.
- 7.3 The report holder’s contact information is the following:

SHUNDA POLYURETHANE LTD.
190 SILVER STAR BOULEVARD, UNIT 9 & 10
SCARBOROUGH, ONTARIO M1V 0E5
CANADA
(905) 754-0568
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TABLE 1—THERMAL RESISTANCE (R-VALUES) OF KAWARTHA 2000

THICKNESS (inches)	R-VALUE (°F.ft ² .h/Btu) ¹
1.0	6.4
2.0	12
3.0	18
3.5	21
4.0	23

For **SI**: 1 inch = 25.4 mm; 1°F.ft².h/Btu = 0.176110K.m².h/W.

¹R-values are calculated based on tested K-values a 1- and 3.5-inch thicknesses.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 21 00—Thermal Insulation

REPORT HOLDER:

SHUNDA POLYURETHANE LTD.

EVALUATION SUBJECT:

KAWARTHA 2000

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that Kawartha 2000 insulation, described in ICC-ES evaluation report ESR-5063, has also been evaluated for compliance with the codes noted below.

Applicable code edition(s):

- 2022 California Building Code (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS**2.1 CBC:**

The Kawartha 2000 insulation, described in Sections 2.0 through 7.0 of the evaluation report ESR-5063, complies with CBC Chapters 12 and 26, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 12 and 26, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Kawartha 2000 insulation, described in Sections 2.0 through 7.0 of the evaluation report ESR-5063, complies with CRC Chapters 3 and 8, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of CRC Chapters 3 and 8, as applicable.

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