

# ICC-ES Evaluation Report

ESR-5150

Reissued January 2024


This report also contains:

- FBC Supplement

Subject to renewal January 2025

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<p><b>DIVISION: 07 00 00– THERMAL AND MOISTURE</b></p> <p><b>Section: 07 21 00– Thermal Insulation</b></p>	<p><b>REPORT HOLDER: GENYK</b></p>	<p><b>EVALUATION SUBJECT: ELITE 2.0 SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION</b></p>	
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## 1.0 EVALUATION SCOPE

### 1.1 Compliance with the following codes:

- 2021, 2018, 2015 and 2012 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015 and 2012 [International Residential Code® \(IRC\)](#)
- 2021, 2018, 2015 and 2012 [International Energy Conservation Code® \(IECC\)](#)

### Properties evaluated:

- Physical properties
- Surface-burning characteristics
- Thermal resistance (*R*-values)
- Vapor permeability
- Air permeability
- Attic and crawl space installation

### 1.2 Evaluation to the following green standard:

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

### Attributes verified:

See Section 3.1

## 2.0 USES

ELITE 2.0 insulation is a closed cell spray foam insulation used as a nonstructural thermal insulating material for Type V construction under the IBC and dwellings under the IRC. The insulation may be used as a vapor retarder when installed in accordance with Section 3.4. 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.

## 3.0 DESCRIPTION

### 3.1 ELITE 2.0 INSULATION:

ELITE 2.0 insulation is a medium density rigid spray-applied cellular polyurethane foam plastic insulation. It is a two component, closed-cell, one-to-one by volume spray foam system with a nominal density of 2.0 pcf (32 kg/m<sup>3</sup>). The foam is produced by blending Polymeric Isocyanate (A component) with the ELITE 2.0 resin (B component). The Polymeric Isocyanate (A component) has a shelf life of twelve months when stored in factory-sealed containers at temperatures between 50°F (10°C) and 100°F (37°C). ELITE 2.0 resin (B component) has a shelf life of 6 months when stored in factory-sealed containers at temperatures between 50°F (10°C) and 77°F (25°C). ELITE 2.0 insulation is available in a choice between a neutral color or the Genyk lime green color.

The attributes of the insulation have been verified as conforming to the provisions of ICC 700-2008 Section 703.2.1.1.1(c) 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.

### 3.2 Surface-burning Characteristics:

ELITE 2.0 insulation, at a maximum thickness of 4 inches (102 mm) and a nominal density of 2.0 pcf (32 kg/m<sup>3</sup>), has a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 (UL 723). There are not any thickness limitations when covered by a code-prescribed thermal barrier excepted as noted in Section 4.3.2

### 3.3 Thermal Resistance (R-values):

ELITE 2.0 insulation has a thermal resistance, *R*-value, at a mean temperature of 75°F (24°C) as shown in Table 1.

### 3.4 Vapor Permeance:

ELITE 2.0 insulation has a vapor permeance of between 0.1 perm (5.7x10<sup>-12</sup> kg/Pa-s-m<sup>2</sup>) and 1 perm (5.7x10<sup>-11</sup> kg/Pa-s-m<sup>2</sup>) at a minimum thickness of 1½ inches (38.1 mm) when tested in accordance with ASTM E96, Procedure A (Desiccant Method) and qualifies as a Class II vapor retarder under the IBC and IRC.

### 3.5 Air Permeability:

The insulation at a minimum thickness of 1.0 inch (25.4 mm), 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 E283.

### 3.6 DC 315 Coating:

DC 315 Coating, manufactured by International Fireproof Technology, Inc. ([ESR-3702](#)), is a single-component, water-based liquid-applied intumescent coating. The coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf life of one (1) year when stored in factory-sealed containers at temperatures between 50°F (10°C) and 80°F (27°C).

## 4.0 DESIGN AND INSTALLATION

### 4.1 General:

ELITE 2.0 insulation must be installed in accordance with the manufacturer's published installation instructions and this report. A copy of the manufacturer's published installation must be available at all times during installation.

### 4.2 Application:

ELITE 2.0 insulation must be applied using spray equipment specified in the manufacturer's published installation instructions. ELITE 2.0 insulation must be applied when the ambient and substrate temperature is between 15°F (-9°C) and 95°F (35°C). The insulation must be used in areas that have a service temperature no greater than 176°F (80°C). The foam plastic must not be used in electrical outlets or junction boxes, or in continuous contact with rain or water. The substrate must be clean, dry and free of frost, ice, loose debris or contaminations that will interfere with adhesion of the spray foam insulation. The ELITE 2.0 product is applied in passes having a maximum thickness of 3 inches (76 mm) per pass. When multiple passes are required, applicators should wait until the core temperature of the foam has dropped below 100°F (38°C) before subsequent passes can be sprayed.

### 4.3 Thermal Barrier:

**4.3.1 Application with a Prescriptive Thermal Barrier:** Elite 2.0 insulation 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, IBC Section 2603.4 or IRC Section R316.4, as applicable. 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. There is no thickness limit when installed behind a code-prescribed thermal barrier.

**4.3.2 Application without a Prescriptive Thermal Barrier:** Elite 2.0 insulation may be installed without a thermal barrier prescribed in IBC Section 2603.4 and IRC Section R316.4, when installation is in accordance with this section. The insulation and coating may be spray-applied to the interior facing of walls, the underside or roof sheathing or roof rafters, and in crawl spaces, and may be left exposed as an interior finish without a prescriptive thermal barrier. The thickness of the insulation applied to the underside of ceilings or roof sheathing must not exceed 9 1/2 inches (241.3 mm). The thickness of the insulation applied to vertical wall surfaces must not exceed 5 1/2 inches (139.7 mm). The insulation must be covered on all surfaces with DC 315 ([ESR-3702](#)) at a minimum wet film thickness of 23 mils [0.023-inch (0.58 mm)] [15 dry mils [0.015-inch (0.38 mm)], at a rate of 1.44 gallon (5.45 L) per 100 square feet (9.2 m<sup>2</sup>). The substrate must be dry, clean, and free of dirt and loose debris or other substances that could interfere with the adhesion of the coating. The coating must be applied in accordance with the coating manufacturer's installation instructions when the ambient or surface temperature is below 50°F (10°C) or above 80°F (27°C) and relative humidity of more than 85%.

### 4.4 Ignition Barrier – Attics and Crawl Spaces:

**4.4.1 Application with a Prescriptive Ignition Barrier:** When ELITE 2.0 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 and IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirement for the type of construction required by the applicable code, and must be installed in a manner such that the foam plastic 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 4.3.1. The insulation may be installed in unvented attics when the foam plastic is applied at a minimum thickness of 1.0 inch (25.4 mm) in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) or 2021, 2018, 2015 and 2012 IRC Section R806.5, as applicable.

**4.4.2 Application without a Prescriptive Ignition Barrier:** Elite 2.0 insulation may be installed within an attic or crawl space without a prescriptive ignition barrier when all of the following conditions apply:

1. Entry to the attic or crawl space is only for the service of utilities and no storage is permitted.
2. There are no interconnected attic or crawl space areas.
3. Air in the attic or crawl space is not circulated to other parts of the building.
4. Attic ventilation is provided when required by 2021 and 2018 IBC Section 1202.2 (2015 IBC Section 1203.2) or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) or IRC Section R806.5.
5. Underfloor (crawl space) ventilation is provided when required by 2021 and 2018 IBC Section 1202.4 [2015 and 2012 IBC Section 1203.3 or IRC Section R408.1, as applicable.
6. Combustion air is provided in accordance with IMC (International Mechanical Code®) Section 701.
7. If hot work is to be performed, all necessary procedures, precautions and limitations must be observed in accordance with OSHA 1926 Subpart J Standard 1926.352 requirements for hot work (welding / cutting) performed in the vicinity of combustible materials.
8. An installation certificate with the following information must be posted at each entrance:
  - Product name and installation thickness.
  - Manufacturer name, address and contact information.
  - Installation contractor name, address and contact information.
  - Attestation that the product(s) have been installed in accordance with the manufacturer's installation instructions and the requirements of the evaluation report.

- A notice that the certificate is not to be removed or altered.
- A list of limitations for the space including the following:
  - o Entry to the space is only to service utilities, and no storage is permitted.
  - o FIRE SAFETY WARNING: If hot work is to be performed, all necessary procedures, precautions and limitations must be observed in accordance with OSHA 1926 Subpart J Standard 1926.352 requirements for hot work (welding / cutting) performed in the vicinity of combustible materials.

In attics and crawl spaces, Elite 2.0 insulation may be spray-applied to the underside of the roof sheathing and /or rafters, and to the vertical walls and the underside of floors as described. The thickness of the foam plastic applied to the underside of the wood floor or roof sheathing must not exceed 11<sup>1</sup>/<sub>2</sub> inches (292.1 mm). The thickness of the spray foam insulation applied to vertical wall surfaces in attics and crawl spaces must not exceed 7<sup>1</sup>/<sub>2</sub> inches (190.5 mm). The insulation may be left exposed without a prescriptive ignition barrier or an intumescent coating.

The insulation may be installed in unvented attics at a minimum thickness of 1.0 inch (25.4 mm) in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) and IRC Section R806.5.

## 5.0 CONDITIONS OF USE:

ELITE 2.0 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 This evaluation report and the manufacturer's published installation instructions, when required by the code official, must be submitted at the time of permit application.
- 5.2 ELITE 2.0 insulation and applicable coating must be installed in accordance with the manufacturer's published installation instructions, this report and the applicable code. The instructions within this report govern if there are any conflicts between the manufacturer's published installation instructions and this report.
- 5.3 ELITE 2.0 insulation must be separated from the interior of the building by an approved thermal barrier, as described in Section 4.3.1. In attics and crawl spaces, the insulation must be separated from the interior of the attic or crawl space by an ignition barrier, as described in Section 4.4.1 except when installed in accordance with Sections 4.3.2 and 4.4.2.
- 5.4 ELITE 2.0 insulation must be protected from the weather during application.
- 5.5 ELITE 2.0 insulation must be applied by installers approved by GENYK.
- 5.6 Use of ELITE 2.0 insulation in areas where probability of termite infestation is "very heavy" must be in accordance with 2021, 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC R318.4, as applicable.
- 5.7 Jobsite certification and labeling of the insulation must comply with 2021, 2018 and 2015 IRC Sections N1101.10.1 and N1101.10.1.1 (2012 IRC Sections N1101.12.1 and N1101.12.1.1) and IECC Sections C303.1.1, C303.1.1.1, R303.1.1 and R303.1.1.1, as applicable.
- 5.8 When installed in accordance with Section 4.4.2 of this report, the associated installation certificate(s) containing the required information referenced in Section 4.4.2 must be installed at each entrance to the crawlspace or attic, as applicable. The certificate(s) must be red in color and constructed of durable materials, such as metal, plastic, or laminated paper.
- 5.9 When used in unvented attics in accordance with Section 4.4.2 of this report, installation with a vapor diffusion port in accordance with 2021 IBC Section 1202.3, Item 5.2 or 2021 and 2018 IRC Section R806.5, Item 5.2 is outside the scope of this report.
- 5.10 ELITE 2.0 insulation is 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 June 2023.
- 6.2 Report on water vapor transmission tests in accordance with ASTM E96 (desiccant method).
- 6.3 Reports of room corner fire testing in accordance with NFPA 286.

- 6.4 Reports of fire testing in accordance with Appendix X of AC377.
- 6.5 Reports of air permeance testing in accordance with ASTM E283.

**7.0 IDENTIFICATION**

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5150) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, components for ELITE 2.0 insulation are identified with the manufacturer’s name (GENYK), address and telephone number; the product trade name (ELITE 2.0); product type (A or B component); use instructions; the density; the flame-spread and smoke-developed indices; the evaluation report number (ESR-5150).

The International Fireproof Technology Inc. DC315 Coating is identified with the manufacturer’s name and address, the product name, date of manufacture, shelf life or expiration date, manufacturer’s instructions for application and evaluation report number ([ESR-3702](#)).

- 7.3 The report holder’s contact information is the following:

**GENYK**  
**1701, 3E AVENUE**  
**SHAWINIGAN, QUEBEC, G9T2W6**  
**CANADA**  
**(819) 729-0395**  
[www.genyk.com](http://www.genyk.com)  
[mariolefebvre@genyk.com](mailto:mariolefebvre@genyk.com)

**TABLE 1—THERMAL RESISTANCE (R-VALUES)<sup>1</sup>**

THICKNESS (inches)	R-VALUE (°F.ft <sup>2</sup> .h/Btu)
1	7
2	14
3.5	25
4	29
5	36
6	43
7	50
8	57
9	65
10	72
11	79
12	86
13	93

For SI: 1 inch = 25.4 mm; 1°F.ft<sup>2</sup>.hr/Btu = 0.176 110 k.m<sup>2</sup>/W.

<sup>1</sup>Calculated R-values are based on tested K-values at 1- and 3.5-inch thicknesses.

\*R-values greater than 10 are rounded to the nearest whole number.

**DIVISION: 07 00 00 THERMAL AND MOISTURE**  
**Section: 07 21 00—Thermal Insulation**

**REPORT HOLDER:**

GENYK

**EVALUATION SUBJECT:**

ELITE 2.0 SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Elite 2.0 insulation, recognized in ICC-ES evaluation report ESR-5150, has also been evaluated for compliance with the codes noted below.

**Applicable code editions:**

- 2023 *Florida Building Code—Building*
- 2023 *Florida Building Code—Residential*

**2.0 CONCLUSIONS**

The Elite 2.0 insulation, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-5150, complies with the *Florida Building Code—Building* or *Florida Building—Residential*. The design requirements must be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-5150 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable, with the following conditions:

Installation must meet requirements of Section 1403.8 and 2603.8 of the *Florida Building Code—Building* and Sections R318.7 and R318.8 of the *Florida Building Code—Residential*, as applicable.

Use of the Elite 2.0 insulation for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* or the *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

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