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# ICC-ES Report

# ESR-2355

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Reissued 03/2017
This report is subject to renewal 03/2018.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**
**SECTION: 07 57 00—COATED FOAM ROOFING**

**REPORT HOLDER:**

## PRO-TECH PRODUCTS, INC.

**3003 NORTH 73RD STREET**
**SCOTTSDALE, ARIZONA 85251**

**EVALUATION SUBJECT:**

## PRO-TECH EC-100 COATED FOAM ROOFING SYSTEM

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# ICC-ES Evaluation Report

**ESR-2355**

*Reissued March 2017*

*This report is subject to renewal March 2018.*

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**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**
**Section: 07 57 00—Coated Foam Roofing**

**REPORT HOLDER:**

**PRO-TECH PRODUCTS, INC.**
**3003 NORTH 73RD STREET**
**SCOTTSDALE, ARIZONA 85251**
**(800) 538-7303**
**www.pro-techproducts.com**

**EVALUATION SUBJECT:**

**PRO-TECH EC-100 COATED FOAM ROOFING SYSTEM**

## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2012 and 2009 *International Building Code®* (IBC)
- 2012 and 2009 *International Residential Code®* (IRC)

**Properties evaluated:**

- Physical properties
- Impact resistance
- Wind resistance
- Fire classification
- Elimination of thermal barrier

## 2.0 USES

The Pro-Tech EC-100 Coated Foam Roofing System described in this evaluation report is used in the construction of classified roof coverings as noted in Table 1. The roof covering systems recognized in this report may be used on buildings of any type of construction.

## 3.0 DESCRIPTION

### 3.1 General:

The Pro-Tech EC-100 Coated Foam Roofing System consists of Pro-Tech 10-011 spray polyurethane foam (SPF) plastic insulation covered with Pro-Tech EC-100 acrylic elastomeric coating. When installed as described in this report, these systems have roof classifications as set forth in Table 1.

### 3.2 Spray Polyurethane Foam Plastic Insulation:

**3.2.1 General:** Pro-Tech 10-011 is a two-component spray-applied, foam plastic insulation complying with ASTM C1029 Type III and is produced in densities of between 2.5 and 3.0 pcf (40 and 43 kg/m$^3$). The liquid components (designated as component A and component R) are available in 55-gallon (208 L) containers and 275-gallon (1041 L) totes. The liquid components must be stored at temperatures between 70°F (21°C) and 90°F (32°C) for several days before application and must not be exposed to direct sunlight. The shelf life of Pro-Tech 10-011 liquid components is six months in unopened containers.

**3.2.2 Surface-burning Characteristics:** Pro-Tech 10-011 foam plastic insulation has a flame-spread index of 25 or less for densities up to 3.0 pcf (43 kg/m$^3$) when tested in accordance with UL 723 (ASTM E84) at a maximum thickness of 4 inches (102 mm). The classified roof assemblies noted in Table 1 are recognized for use without a thermal barrier based on testing in accordance with UL 1256, which is specified in IBC Section 2603.4.1.5.

### 3.3 Coatings:

**3.3.1 Pro-Tech EC-100 Acrylic Elastomeric Coatings:** Pro-Tech EC-100 acrylic elastomeric coating is single-component, liquid-applied, 100 percent acrylic coatings complying with ASTM D6083. The coatings are available in 5-gallon (19 L), 55-gallon (208 L) and 275-gallon (1041 L) totes, and have a shelf life of 12 months when stored in factory-sealed containers at temperatures between 60°F (15.5°C) and 110°F (44°C).

### 3.4 Impact and Foot Traffic Resistance:

The coated foam roof coverings described in this report meet requirements of the Resistance to Foot Traffic Test described in Section 5.5 of FM 4470, as referenced in IBC Section 1504.7.

## 4.0 INSTALLATION

### 4.1 Preparation of Substrate:

The substrates to be covered must be free of grease, oil, loose particles, moisture and other foreign materials that would impair adhesion of the foam to the substrate. Gravel-surfaced roofs must be cleaned by vacuuming or other suitable means to remove any loose gravel and dirt before application of the insulation. Areas not receiving an application of insulation must be masked off or otherwise protected from overspray.

### 4.2 Substrates:

**4.2.1 Wood Substrates:** Wood substrates must be minimum $^{15}/_{32}$-inch-thick (11.9 mm), code-complying, exterior grade or Exposure 1 wood structural panels. All wood structural panel substrate edges must be supported by blocking or have tongue-and-groove joints as required

by IBC Section 2603.4.1.5 or IRC Section R314.5.2, as applicable. The wood surface must be primed, when specifically required, in accordance with the Pro-Tech Products installation instructions.

**4.2.2 Noncombustible Substrates:**

**4.2.2.1 Concrete Substrates:** Structural concrete must have a minimum compressive strength of 2500 psi (17.2 MPa). The concrete substrate must be thoroughly cured and primed or otherwise treated in accordance with Pro-Tech Products installation instructions to ensure adequate adhesion.

**4.2.2.2 Metal Substrates:** Metal substrates must be a minimum of No. 22 gage [0.03 inch thick (0.76 mm)] galvanized steel deck. Metal decks must be cleaned of any adhesion inhibitors. If free of rust or loose scale, the steel surface may be cleaned by use of an air jet, vacuum equipment, or hand or power broom to remove loose dirt. Grease, oil or other obvious contaminants must be removed by a suitable detergent or cleaner. Application of a primer before application of the insulation must be in accordance with the Pro-Tech Products installation instructions.

**4.3 Roof Slope:**

The insulation is spray-applied to roofs that have a minimum slope of $^1/_4$:12 (2 percent) and a maximum slope as specified in Table 1.

**4.4 Foam Plastic Insulation Application:**

Pro-Tech 10-011 liquid components must be dispensed at a 1:1 ratio at the temperature and pressure specified in the manufacturer's installation instructions. The liquid components must be applied to the prepared substrate in passes that have thicknesses between $^1/_2$ inch and $1^1/_2$ inches (12.7 mm to 38 mm). Application of the foam plastic insulation must be performed in accordance with ambient-temperature, humidity and wind-speed requirements noted in the manufacturer's published installation instructions. The foam insulation must not be applied to wet or damp substrates, or when dew, condensation, precipitation, or freezing temperatures are expected prior to completion of application of the foam and coating. The finished foam surfaces must be smooth and free of voids, pinholes and crevices.

**4.5 Coating Application:**

The coating is applied to the foam substrate at the application rate specified in Table 1, in multiple passes of contrasting colors up to the thickness prescribed in Pro-Tech Products' Installation Guide Specifications. The coating must be applied no less than two hours nor more than 72 hours following the application of the spray foam insulation. The insulation must be dry and free of dirt and foreign material when the coating is applied. The base coat must be applied the same day as the insulation unless a deviation from this requirement is specifically approved by Pro-Tech Products. The coating must be cured for a sufficient time as specified in Pro-Tech Products' installation instructions before subsequent layers are applied. The ambient temperature must be greater than 50ºF (10ºC) during application and above 32ºF (0ºC) for at least a 24-hour period after application.

**4.6 Wind Resistance:**

The allowable wind uplift pressure for the coated foam plastic roof covering is limited to that permitted by the code for the roof deck and structural framing.

**4.7 Reroofing:**

Prior to installation of new roof coverings, inspection in accordance with IBC Section 1510 or IRC Section R907, and approval from the code official having jurisdiction, are required. Installation must be over uninsulated systems only. Prior to installation of the spray-applied foam plastic insulation, the roof surface must be prepared to assure adequate adhesion. All loose rock, cementitious coatings, peeling paint, dirt and debris must be removed by brooming, power vacuuming or wire brushing. Where the existing roof covering is removed to the substrate, the deck is prepared as set forth in Section 4.2.1, 4.2.2.1 or 4.2.2.2.

## 5.0 CONDITIONS OF USE

The Pro-Tech EC-100 Coated Foam Roofing System 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 installation and application of the Pro-Tech EC-100 Coated Foam Roofing System must comply with the applicable code, the report holder's published application instructions and this evaluation report. If there are any conflicts between the report holder's application instructions and this evaluation report, this report governs.

**5.2** All materials must be applied by installers approved by Pro-Tech Products.

**5.3** Where moderate or heavy foot traffic occurs, such as for maintenance of equipment, the roof covering must be adequately protected to prevent rupture or wearing of the surface.

**5.4** The deck and supporting structure to which the Pro-Tech EC-100 Coated Foam Roofing System is applied must be designed to withstand the applicable wind pressures determined in accordance with ASCE 7.

**5.5** Flashing must be installed in accordance with IBC Section 1503.2 or IRC Section R903.2, as applicable.

**5.6** The Pro-Tech 10-011 plastic insulation is manufactured in Mount Airy, North Carolina, and Clearfield, Utah, under a quality control program with inspections by ICC-Evaluation Services.

Pro-Tech EC-100 acrylic elastomeric coating is manufactured in Scottsdale, Arizona, under a quality control program with inspections by ICC-Evaluation Services, LLC.

## 6.0 EVIDENCE SUBMITTED

**6.1** Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated May 2015.

**6.2** Reports of testing in accordance with ASTM D6083.

**6.3** Reports of "Resistance to Foot Traffic" testing in accordance with Section 5.5 of FM 4470.

**6.4** Reports of testing in accordance with UL 723.

**6.5** Reports of testing in accordance with UL 790.

**6.6** Reports of testing in accordance with UL 1256.

## 7.0 IDENTIFICATION

Containers of Pro-Tech 10-011 liquid components are labeled with the Pro-Tech Products company name and address, the product name (Pro-Tech 10-011), the component type (A or R), the date of manufacturer, the shelf life, the lot numbers, the flame spread index, and the evaluation report number (ESR-2355).

Containers of Pro-Tech EC-100 acrylic elastomeric coating are labeled with the Pro-Tech Products name and address, the product name, the lot number, the manufacturing date, the shelf life, and the evaluation report number (ESR-2355).

**TABLE 1—PRO-TECH EC-100 COATED FOAM ROOFING SYSTEM FIRE CLASSIFICATION**

| SYSTEM NO. [1] | ROOF DECK TYPE | FOAM PLASTIC INSULATION | | COATING | | TOP SURFACING | MAXIMUM ROOF SLOPE | ROOF CLASSIFICATION |
|---|---|---|---|---|---|---|---|---|
| | | Product Designation | Minimum Thickness (inches) | Type | Application Rate | | | |
| 1 | Noncombustible | 10-011 | 1 | Pro-Tech EC-100 acrylic elastomeric coating | Two applications at 1.75–1.85 gal/sq./coat | None | 1:12 | A |
| 2 | Noncombustible | 10-011 | 1 | Pro-Tech EC-100 acrylic elastomeric coating | 3.7 gal/sq., maximum | Roofing granules at 50 lbs/sq. | 4:12 | A |
| 3 | Minimum $^{15}/_{32}$-thick plywood | 10-011 | 1.5 | Pro-Tech EC-100 acrylic elastomeric coating | 3.7 gal/sq., maximum | Roofing granules at 50 lbs/sq. | $^{1}/_{2}$:12 | B |

For **SI:** 1 inch = 25.4 mm.

[1]Roof covering systems may be applied over an existing uninsulated roof covering without changing the existing roof covering's fire classification.