

ICC-ES Evaluation Report

ESR-1044

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This report is subject to re-examination in two years.

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DIVISION: 07 00 00—FINISHES
Section: 07 84 26—Thermal Barriers for Plastics
REPORT HOLDER:

**W. R. GRACE & CO. – CONN.
CONSTRUCTION PRODUCTS DIVISION
62 WHITTEMORE AVENUE
CAMBRIDGE, MASSACHUSETTS 02140
www.graceconstruction.com**

EVALUATION SUBJECT:
MONOKOTE® Z-3306 THERMAL BARRIER
1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

Property evaluated:

Thermal barrier

2.0 USES

Monokote® Z-3306 Thermal Barrier is a spray-applied cementitious coating applied over polyurethane or polystyrene foam plastic substrates to form a thermal barrier on interior surfaces, cooler walls, and freezer walls.

3.0 DESCRIPTION

Monokote® Z-3306 Thermal Barrier material is a cementitious mixture that is mixed in the field at a ratio of approximately 1½ parts water to 1 part cementitious mixture by weight. The product is available in 42-pound (19 kg) bags and has a shelf life of one year from the date of manufacture when stored unopened. The mixture is spray-applied to a minimum 3/8-inch (9.5 mm) thickness over the following substrates:

- Maximum 2-inch-thick (51 mm) polyurethane foam plastic having a maximum 2.3 lb/ft³ (36.8 kg/m³) density, and having maximum flame-spread and smoke-developed indices of 45 and 450, respectively. Minimum dry density of the thermal barrier is 20 lb/ft³ (320 kg/m³).
- Maximum 4-inch-thick (102 mm) polystyrene foam plastic having a maximum 5 lb/ft³ (80 kg/m³) density, and having maximum flame-spread and smoke-developed indices of 25 and 450, respectively. Minimum dry density of the thermal barrier is 24 lb/ft³ (384 kg/m³).

4.0 INSTALLATION

Installation of Monokote® Z-3306 Thermal Barrier must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation. The product is installed using equipment supplied by W.R. Grace & Co. The installed thickness can be verified during inspection using a probe tool available from W.R. Grace & Co.

4.1 Substrates:

Substrates must be free of oil, grease, dirt, loose paint, decomposed foam or any other matter which would impair adhesion. All clips, hangers, supports, sleeves and other attachments must be placed prior to the application of the thermal barrier material.

When application is on polystyrene foam, Fiberlock Technologies, Inc., Firebond 7460 Concentrate (Clear) or 7450 Adhesive (Clear) must be applied to the clean, dry surface. The Firebond 7460 Concentrate must be applied at a rate of 1000 ft²/gallon (24.6 m²/L); the Firebond 7460 Concentrate, diluted one to one with potable water, must be applied at a rate of 500 ft²/diluted gallon (12.3 m²/L); and the 7450 Adhesive must be applied at a rate of 500 ft²/gallon (12.3 m²/L). The concentrate or adhesive must be applied in accordance with the installation instructions published by Fiberlock Technologies, Inc.

To prevent cracking of the coating on the wall surfaces below, no roof traffic is permitted until the Monokote® Z-3306 Thermal Barrier coating has dried and full bond strength has been attained on the surfaces. Drying time varies according to relative humidity and temperature. Air and substrate temperature must be a minimum of 40°F (4.4°C) during application and drying. With ventilation and fan-forced circulation, drying is typically complete in ten to fourteen days.

4.2 Coolers:

The Monokote® Z-3306 Thermal Barrier is permitted to be used on cooler walls, provided the material is cooled at a maximum rate of 1°F (-17.2°C) per hour until a minimum temperature of 35°F (1.7°C) is attained. A means to relieve internal vacuum during cool-down must be provided, such as by opening the cooler door.

4.3 Freezers:

Monokote® Z-3306 Thermal Barrier is permitted to be used on freezer walls, provided the material is cooled to 35°F (1.7°C) as detailed in Section 4.2 of this report. The temperature of the freezer room must be maintained at

35°F (1.7°C) for a minimum of seven days, so that residual moisture is removed and all components are in equilibrium. After the seven-day period, the temperature of the freezer room is permitted to be dropped to an operating temperature as low as -50°F (-45.5°C) at a rate not to exceed 1°F (-17.2°C) per two-hour increment, with the total daily drop not exceeding a maximum of 10°F (12.2°C).

4.4 Patching:

Patching material is sprayed through a standard browning or finishing nozzle, and may be troweled in place.

5.0 CONDITIONS OF USE

The Monokote® Z-3306 Thermal Barrier 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 Materials and application must comply with this report, the manufacturer's published installation instructions 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 coating is limited to interior locations which include cold storage facilities.

- 5.3 The coating shall be protected from accidental damage by vehicles and similar equipment, and material handling.

6.0 EVIDENCE SUBMITTED

- 6.1 Installation instructions and product specifications.
- 6.2 Reports containing results of testing performed in accordance with ASTM E 84 and UL 1715 (UBC Standards 8-1 and 26-3).
- 6.3 A quality control manual.

7.0 IDENTIFICATION

Each bag of Monokote® Z-3306 Thermal Barrier as described in this report is identified by a stamp bearing the manufacturer's name (W. R. Grace & Co. – Conn.), the product name, mixing instructions, shelf life in the form of the expiration date, and the evaluation report number (ESR-1044).

Each container of the Fiberlock Technologies products described in Section 4.1 is identified by a label bearing the manufacturer's name (Fiberlock Technologies, Inc.) and the product name.