

ICC-ES Evaluation Report

ESR-2492

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**DIVISION: 07 00 00—THERMAL AND MOISTURE
PROTECTION**
Section: 07 18 13—Pedestrian Traffic Coatings
REPORT HOLDER:
QUALITY SYSTEMS, INC.
 1101 MENZLER ROAD
 NASHVILLE, TENNESSEE 37210
www.permacrete.com
EVALUATION SUBJECT:
**PERMA-CRETE® DECK COATING PRODUCTS FINISH
SYSTEM**

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

- Durability
- Wind uplift resistance
- Weather resistance

2.0 USES

The Perma-Crete® Deck Coating Products Finish System is used in exterior applications as a covering for walking decks on concrete substrates. Use of the system in roofing applications is outside the scope of this report.

3.0 DESCRIPTION

3.1 General:

The Perma-Crete® Deck Coating Products Finish System is a polymer modified, cementitious coating system consisting of a concrete substrate covered with the following four layers: a proprietary skim (base) coat consisting of Perma-Crete® Matrix Mix with Perma-Crete® Bonding Additive; a texture (top) coat of Perma-Crete® Matrix Mix with Perma-Crete® Bonding Additive; and two coats of Perma-Crete® Perma-Seal. Refer to Figure 1 for more details.

3.2 Materials:

3.2.1 Concrete Substrate: Concrete decks must comply with the applicable code.

3.2.2 Perma-Crete® Matrix Mix: Matrix Mix is a concrete compound with a blend of cements and additives. The dry Matrix Mix product has a shelf life of one year when stored unopened and protected from extreme heat and freezing. Storage temperatures must be within the range of 40°F to 90°F (4.4°C to 32.4°C).

3.2.3 Perma-Crete® Bonding Additive: Bonding Additive is a water-soluble acrylic polymer compound that is used with Matrix Mix to prepare the skim (base) coat and the texture (top) coat. Bonding Additive has a shelf life of one year when stored in unopened containers and protected from extreme heat and freezing. Storage temperatures must be within the range of 40°F to 90°F (4.4°C to 32.4°C).

3.2.4 Perma-Crete® Perma-Seal: Perma-Seal is an acrylic emulsion formulated with or without colored pigments. Perma-Seal has a shelf life of one year when stored in unopened containers and protected from freezing and extreme heat. Storage temperatures must be within the range of 40°F to 90°F (4.4°C to 32.4°C).

3.2.5 Metal Flashing: Metal flashing must be minimum 0.019-inch-thick [0.48 mm (26 gage)], corrosion-resistant metal having a minimum G90 galvanized coating. Flashing must be rigid enough to avoid excessive deflection and ponding.

4.0 INSTALLATION

4.1 General:

The manufacturer's published application instructions and this report must be strictly adhered to, and a copy of the manufacturer's published instructions must be available at all times on the jobsite during application.

The Perma-Crete® Deck Coating Products Finish System must be applied by contractors recognized by Quality Systems, Inc. Control joints and expansion joints must be installed at all known deck stress concentration points throughout the surface of the deck, to control cracking caused by shrinkage and deflection, in accordance with the manufacturer's published installation instructions. Refer to Figure 1 for typical installation detail.

No other additives, such as sand, aggregates, rapid binders, antifreeze or accelerators, may be added to any components of the Perma-Crete® Matrix Mix Deck Coating Products Finish System.

4.2 Preparation of Substrates:

Before application of the finish system, the concrete substrate must be clean, structurally sound, and free of loose material, voids, projections, or other conditions that

may interfere with the application of the finish system. The substrate surface must have no planar irregularities greater than $\frac{1}{4}$ inch (6.4 mm) within any 48-inch (1219 mm) radius. Additionally, if there are gaps or any damage in the substrate exceeding $\frac{1}{4}$ inch (6.4 mm) in any direction, the substrate must be repaired. The substrate must be sloped for proper drainage in accordance with the requirements of the applicable code. All penetrations through and terminations of the substrate must be protected with sealants, caulking, or metal flashing, in accordance with the requirements of the applicable code and the manufacturer's published installation instructions. The surface temperature of the substrate, and the ambient temperature, must be at or above 40°F (4.4°C) at the time of application of the finish system.

Water blasting, sand blasting or acid etching may be used for cleaning the surfaces in accordance with the manufacturer's published application instructions.

4.3 Skim (Base) Coat:

One 40-pound (18.2 kg) bag of Matrix Mix described in Section 3.2.2 is mixed with 1 gallon (3.8 L) of Bonding Additive. Additional Bonding Additive may be added to the mixture to adjust workability. The material must be mixed in such batches as can be used during a six-hour work period. The mixture must be allowed to set in the mixing pail for approximately three to five minutes, then remixed briefly to produce a uniform consistency. The mixture is troweled, squeegeed or sprayed with a hopper gun assembly to a minimum uniform thickness of $\frac{1}{8}$ inch (3.2 mm) over the concrete substrate. The skim (base) coat must be allowed to dry for approximately three hours at or above 40°F (4.4°C), until moisture has evaporated from the surface of the skim (base) coat, or a sufficient period of time to permit the skim (base) coat to develop enough rigidity to resist cracking or other physical damage during application of the texture (top) coat.

4.4 Texture (Top) Coat:

Matrix Mix and Bonding Additive are mixed as described in Section 4.3. Once the surface of the skim (base) coat is dry, the texture (top) coat, with a minimum uniform $\frac{1}{8}$ -inch (3.2 mm) thickness, is applied over the skim (base) coat. The total thickness of the skim (base) and texture (top) coats must be a minimum of $\frac{1}{4}$ inch (6.4 mm). The texture (top) coat must be allowed to dry for approximately three to four hours at or above 40°F (4.4°C), until moisture has evaporated from the surface of the texture (top) coat. Additional coats of the Matrix Mix may be applied. The final coat of the texture (top) coat must be allowed to dry for approximately three to four hours at or above 40°F (4.4°C), until moisture has evaporated from the surface of the texture (top) coat, before the Perma-Seal coating is applied.

4.5 Perma-Seal Coating:

Once the surface of the texture (top) coat is dry, Perma-Seal is applied in two coats using a brush, a roller or an airless sprayer, to a minimum dry thickness of 10 mils (0.25 mm) per coat or approximately 1 gallon per 235 ft² (5.8 m²/L) for the first coat and 1 gallon per 290 ft² (7.1 m²/L) for the second coat. The first coat of Perma-Seal must be allowed to dry to the touch before application of the second coat.

4.6 Method of Repair:

The damaged area must be clean and dry, and all existing damaged materials removed. Materials must be replaced in the same manner as described in Section 4.0.

4.7 Wind Uplift Resistance:

The deck construction over which the finish system is installed must be designed to resist the minimum design wind pressures set forth in the applicable code.

5.0 CONDITIONS OF USE

The Perma•Crete[®] Deck Coating Products Finish 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 system must be applied in accordance with this report and the manufacturer's published installation instructions and the applicable code. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 The finish system must be applied only by contractors trained by Quality Systems, Inc., to perform application of the finish system.
- 5.3 Recognition of the finish system in this evaluation report is limited to use on concrete substrates.
- 5.4 Use of the system in roofing applications is outside the scope of this report.
- 5.5 The coating products are manufactured in Nashville, Tennessee, under a quality control program with inspections by RADCO Inc. (AA-650).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Walking Decks (AC308), dated May 2008.

7.0 IDENTIFICATION

Each container or package of material used as a part of the Perma•Crete[®] Deck Coating Products Finish System covered by this report must be labeled with the manufacturer's name (Quality Systems, Inc.) and address; the product name; shelf life; date of manufacture or lot number; name of the inspection agency (RADCO Inc.); and the evaluation report number (ESR-2492).



PERMA•CRETE®

A
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of Quality
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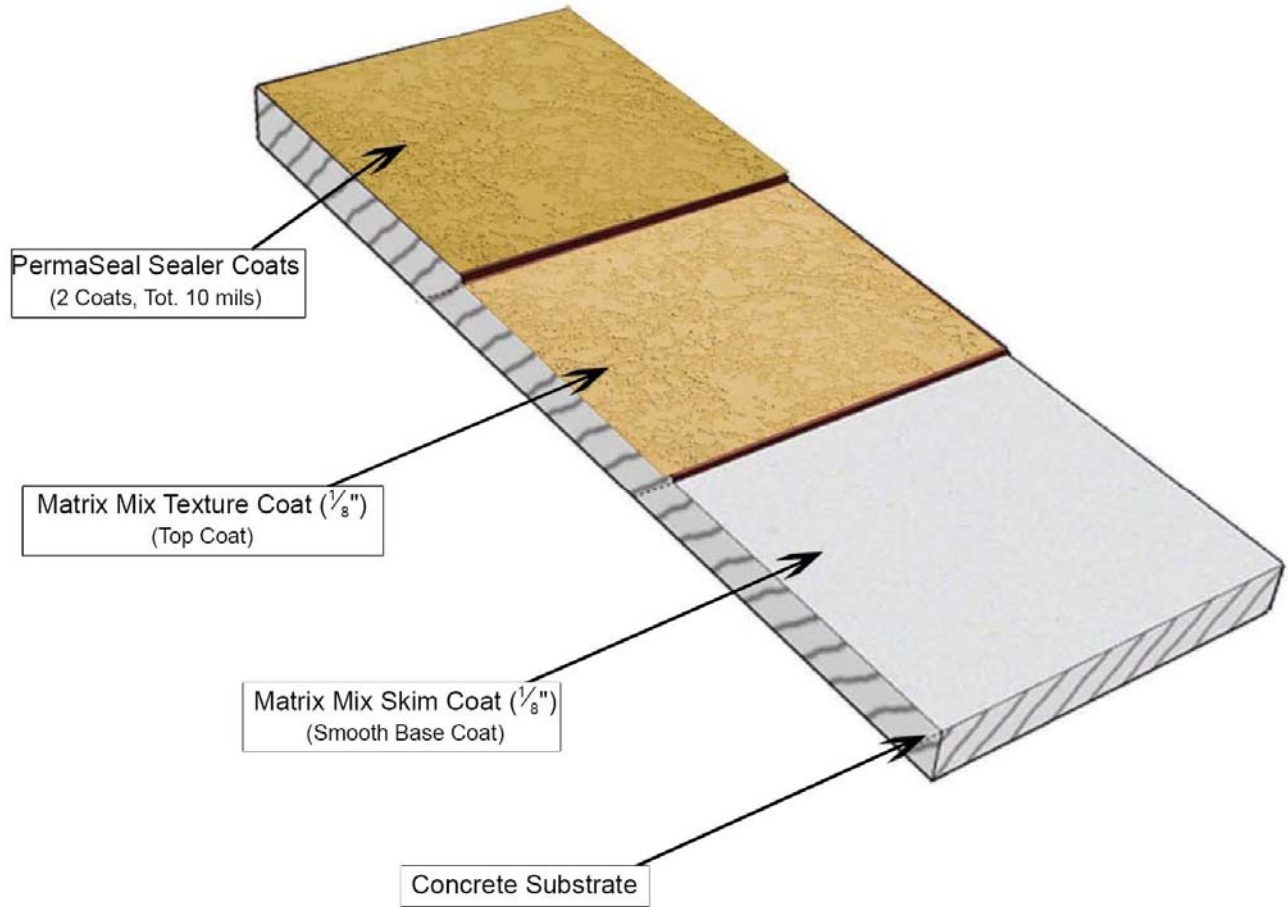


FIGURE 1—TYPICAL INSTALLATION DETAIL