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**Legacy report on the 1997 *Uniform Building Code*™****DIVISION: 07—THERMAL AND MOISTURE PROTECTION**  
**Section: 07180—Traffic Coatings****MER-KO WEATHER DECK FIRE-RETARDANT WALKING DECK****MER-KOTE PRODUCTS, INC.**  
**501 SOUTH VAN NESS AVENUE**  
**TORRANCE, CALIFORNIA 90501****1.0 SUBJECT**

Mer-Ko Weather Deck Fire-retardant Walking Deck.

**2.0 DESCRIPTION****2.1 General:**

The Mer-Ko Weather Deck surface is a multi-layer coating for exterior walking roof-deck surfaces on plywood or concrete substrates. The multi-layer coating consists of a glass-fiber-reinforced, synthetic-latex weatherproof membrane covered by Bodycoat, a trowel-applied latex mastic. Filler-F, a textured color filler coat of the same composition, is applied to the Bodycoat. The final surface is treated with Mer-Ko Seal.

**2.2 Materials:**

**2.2.1 Slip Sheet:** The asphalt-saturated glass-fiber slip sheet shall weigh 25 pounds per 100 square feet (1.2 kg/m<sup>2</sup>). The slip sheet is manufactured by the Consolidated Fiberglass Products Company, Bakersfield, California, and is identified as Conbase W-1.

**2.2.2 Weather Deck Emulsion:** Weather Deck Emulsion is a neoprene latex with stabilizers. Packaged in five-gallon (18.9 L) containers, the material has a six-month shelf life when stored at temperatures between 35°F and 120°F (2°C and 49°C).

**2.2.3 Mer-Ko Membrane Filler:** Mer-Ko Membrane Filler is a mixture of 90-mesh silica sand with aluminous cement and an antioxidant. Packaged in 40-pound (18 kg) containers, the material has a six-month shelf life.

**2.2.4 Mer-Ko Flashing Paste:** Mer-Ko Flashing Paste consists of compounded rubber latex. Packaged in five-gallon (18.9 L) containers, the material has a six-month shelf life when stored at temperatures between 35°F and 120°F (2°C and 49°C).

**2.2.5 Burlap:** The burlap weighs 7<sup>1</sup>/<sub>2</sub> ounces per square yard (254 g/m<sup>2</sup>). The burlap is used to reinforce flashing at perimeter areas.

**2.2.6 Glass Fiber Mat:** The glass fiber mat weighs 1<sup>1</sup>/<sub>2</sub> to 3 pounds per 100 square feet (0.07 to 0.15 kg/m<sup>2</sup>), and is packaged in rolls.

**2.2.7 Weather Deck Bodycoat Powder:** Weather Deck Bodycoat Powder is a blend of aluminous cement and graded 16 to 30 mesh silica sand. The material is packed in 50-pound (22 kg) containers.

**2.2.8 Filler-F:** Filler-F is a blend of silica sand and aluminous cement with coloring oxides. The material is packed in 40-pound (18 kg) sacks.

**2.2.9 Mer-Ko Seal:** Mer-Ko Seal is a high-solids, acrylic-latex resin sealer. Packaged in five-gallon (18.9 L) containers, the material has a six-month shelf life when stored at temperatures between 35°F and 120°F (2°C and 49°C).

**2.3 Preparation of Substrates:**

The substrate surface must be clean, dry, and free of dust and any other contamination at the time of material application. A minimum roof deck slope of <sup>1</sup>/<sub>4</sub> unit vertical in 12 units horizontal (2% slope) is required for drainage.

**2.3.1 Concrete Base Material:** Concrete surfaces must be clean, sound and have a finish equivalent to steel troweling to provide a smooth, uniform surface, free of depressions and ridges. All holes, cracks and joints must be cleaned and filled with Mer-Ko Underlay-L. All high spots must be removed by chipping or grinding.

**2.3.2 Plywood Surface:** Plywood substrates shall be minimum <sup>5</sup>/<sub>8</sub>-inch-thick (15.9 mm), exterior-grade plywood complying with UBC Standard 23-2, and installed in accordance with the 1997 *Uniform Building Code*™ (UBC), with all edges blocked or tongue-and-grooved. Face plies must be perpendicular to the supports. The plywood must be attached to all blocking and end bearings with countersunk wood screws or screw-shank nails equivalent to 10d common nails, spaced 6 inches (152 mm) on center, or as otherwise required by the UBC, whichever is more restrictive.

**2.4 Application:**

No portion of the Weather Deck System shall be installed when the ambient temperature is below 35°F (2°C) or above 120°F (49°C), or when precipitation is expected or occurring. The deck perimeter is flashed with No. 28 gage galvanized steel or equivalent. Slip sheets are applied to the deck, ending 2 inches (51 mm) from all vertical surfaces. Slip sheet edges shall be lapped a minimum of 2 inches (51 mm), and shall be bonded together using Mer-Ko adhesive. The slip sheet must be bonded to the deck using the Mer-Ko primer material along all perimeter and intermediate locations, to limit the unbonded area to a maximum of 4,000 square feet

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(372 m<sup>2</sup>). Mer-Ko primer material batches consist of 2 gallons (7.5 L) of neoprene Weather Deck Emulsion mixed with 40 pounds (18 kg) of membrane filler. This primer is brush-applied along the deck perimeter, extending 12 inches (305 mm) onto the slip sheet surface, at the rate of 1.4 gallons per 100 square feet (0.57 L/m<sup>2</sup>), yielding a 20-mil (0.51 mm) dry-film thickness. The primed area is allowed to dry for a minimum of one hour, and is then covered with burlap and Mer-Ko Flashing Paste.

Mer-Ko Flashing Paste is first brush-applied to the primed area, and burlap of appropriate size is installed on it and saturated with the flashing paste. The burlap must extend 3 to 4 inches (76 to 102 mm) up all vertical surfaces, and must be tightly forced into all corners. Mer-Ko primer material is next trowel-applied to the slip sheet at the rate of 1.25 gallons per 100 square feet (0.51 L/m<sup>2</sup>). A glass-fiber mat is immediately rolled over the primer at right angles to the slip sheet, and completely covered with Mer-Ko flashing paste. Mer-Ko flashing paste is applied at the rate of 3 gallons per 100 square feet (1.22 L/m<sup>2</sup>), in two coats, for a 30-mil (0.76 mm) dry-film thickness. Glass mat edges are lapped a minimum of 2 inches (51 mm). An additional coating of the flashing paste is brush-applied to all areas to fill holes and other voids. The entire area is allowed to dry overnight, or to dry enough to walk on.

Bodycoat is then trowel-applied over the dry membrane in two coats, for a total minimum thickness of  $\frac{1}{8}$  inch (3.2 mm). The composition of the bodycoat mixture consists of a ratio of 1 gallon (3.7 L) of the Weather Deck Emulsion to 50 pounds (22 kg) of Weather Deck Bodycoat powder. Each coat is allowed to dry a minimum of two hours before the application of the next coat. After the Bodycoat has completely dried, all surface irregularities are removed by light scraping with an 80-grit sanding stone or a mason's trowel. Debris must be swept away. Filler-F color coat, with a composition consisting of a ratio of 2 gallons (7.5 L) of the Weather Deck Emulsion to one 36-pound (16 kg) sack of Filler-F, is brush- or trowel-applied to the entire deck and to vertical surfaces at the rate of 1.5 gallons per 100 square feet (0.61 L/m<sup>2</sup>), for a 15-mil (0.38 mm) dry-film thickness. The surface is then allowed to dry for a minimum of two hours and is then sanded using a power sander with medium-grit sandpaper. Mer-Ko Seal, in a chosen color, is then applied, in two coats, each at the rate of 200 square feet per gallon (4.9 m<sup>2</sup>/L), over the entire deck surface. Total seal thickness is 0.02 inch (0.5 mm). Weather Deck Emulsion must be protected from freezing and from high temperatures. The overall thickness of the applied system is  $\frac{1}{4}$  inch to  $\frac{5}{16}$  inch (6.4 mm to 7.9 mm).

## 2.5 Class A Roof Covering Over Plywood Deck:

The installation is as follows:

1. The plywood is as described in, and is installed as set forth in, Section 2.3.2 of this report, with all joints blocked and with a minimum slope of  $\frac{1}{4}$  unit vertical in 12 units horizontal (2% slope). Plywood panel joints are filled and

sealed with Mer-Ko Underlay-L, an underlayment emulsion mixture.

2. One layer of 10-inch-wide (254 mm) polypropylene cloth is placed over the underlayment mixture at plywood joints.
3. A second layer of underlayment mixture is placed over the cloth, encapsulating the cloth.
4. The Weather Deck is applied over the substrate prepared as described in this section, in accordance with Section 2.4 of this evaluation report. The minimum thickness is 0.322 inch (8 mm).

## 2.6 One-hour Fire-resistive Construction:

The Mer-Ko Weather Deck Fire-retardant Walking Deck covering installed in accordance with this report over  $\frac{5}{8}$ -inch-thick (15.9 mm) exterior-grade plywood with 2-inch-by-8-inch (51 mm by 23 mm) joists spaced 16 inches (406 mm) on center, with all plywood joints blocked, may be substituted for the double wood floor described in Footnote 13 of Table 7-C of the UBC. When installed over nominal 2-by-8 joists, the design bending stress assigned to the joists shall be limited to 78 percent of the UBC described design values.

## 2.7 Identification:

Each container bears the Mer-Kote Products, Inc., name and address, the product name, the shelf life, the name of the quality control agency (Ramtech Laboratories, Inc.), and the evaluation report number (ER-3389). Additionally, the slip sheets are identified by the name Conbase W-1.

## 3.0 EVIDENCE SUBMITTED

Data in accordance with the Acceptance Criteria for Walking Decks (AC39), dated March 2000, and a quality control manual.

## 4.0 FINDINGS

**That the Mer-Ko Weather Deck described in this report complies with the 1997 *Uniform Building Code*™ for use on exterior walking roof decks on concrete and plywood substrates, subject to the following conditions:**

- 4.1 The material is applied in accordance with this report by applicators approved by the manufacturer.
- 4.2 Installation is limited to buildings a maximum of 40 feet (12 192 mm) in height, located in Exposure B areas with a maximum basic wind speed of 80 miles per hour (129 km/h).
- 4.3 The product is manufactured at the Mer-Kote plant located in Torrance, California, with follow-up inspections by Ramtech Laboratories, Inc. (AA-655).
- 4.4 The Mer-Kote Weather Deck is a Class A roofing system when installed in accordance with Section 2.5 of this report.

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