

ICC-ES Evaluation Report

ESR-2201

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 18 13—Pedestrian Traffic Coatings
REPORT HOLDER:
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EVALUATION SUBJECT:
WESTCOAT ALX STANDARD AND CUSTOM SYSTEMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012, 2009 and 2006 *International Building Code*® (IBC)
- * ■ 2012, 2009 and ~~2006~~ *International Residential Code*® (IRC)
- * ■ ~~2013 Abu Dhabi International Building Code (ADIBC)†~~

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Durability
- Wind resistance
- Fire classification
- Fire resistance

2.0 USES

WestCoat ALX Standard and Custom Systems are cementitious coating systems for use as walking deck and classified roof covering systems over plywood substrates. The systems, as described in Section 4.4 of this report, provide a Class A roof covering fire classification. The systems, as described in Section 4.5 of this report, are used as a component of a one-hour fire-resistance-rated assembly.

3.0 DESCRIPTION

3.1 General:

The ALX Standard and Custom Systems are walking deck and roof covering systems applied over plywood. The ALX Standard system consists of the materials described in Section 4.2 and the ALX Custom system consists of the material described in Section 4.3.

3.2 Materials:

3.2.1 Plywood Substrate: Plywood substrates must be exterior grade, ⁵/₈-inch-thick (15.9 mm) plywood complying with U.S. DOC PS-1 or PS-2.

3.2.2 Metal Lath: The metal lath must be 2.5 lb/yd² (1.36 kg/m²), hot-dipped galvanized, expanded metal lath, complying with ASTM C847. The Westcoat part number is WP-25 Metal Lath.

3.2.3 Staples: Staples must be corrosion-resistant, minimum No. 16 gauge staples with 1-inch-wide (25 mm) crowns and ⁵/₈-inch-long (15.9 mm) legs, complying with ASTM F1667. The Westcoat part number is WP-10 Staples.

3.2.4 WP-40 Sheet Membrane: The WP-40 Sheet Membrane is a self-adhering, nominally 40-mil-thick [0.04 inch (1.02 mm)] membrane recognized in [ESR-3585](#).

3.2.5 WP-81 Cement Modifier: The WP-81 Cement Modifier is a liquid admixture that is used with TC-1 Basecoat Cement, TC-2 Smooth Texture Cement, TC-3 Medium Texture Cement, and TC-5 Grout Texture Cement. Shelf life is one year when stored at temperatures between 40°F and 100°F (4.4°C and 37.8°C) and in a dry place.

3.2.6 TC-1 Basecoat Cement: The TC-1 Basecoat Cement is a proprietary dry-blend mixture including portland cement and silica sand. The product is packaged in 50-pound (22.5 kg) bags. Shelf life is one year when stored in dry conditions.

3.2.7 TC-2 Smooth Texture Cement: The TC-2 Smooth Texture Cement is a proprietary dry-blend mixture including portland cement and silica sand. The product is packaged in 50-pound (22.5 kg) bags. Shelf life is one year when stored in dry conditions.

3.2.8 TC-3 Medium Texture Cement: The TC-3 Medium Texture Cement is a proprietary dry-blend mixture including portland cement and silica sand. The product is packaged in 50-pound (22.5 kg) bags. Shelf life is one year when stored in dry conditions.

3.2.9 TC-5 Grout Texture Cement: The TC-5 Grout Texture Cement is a proprietary dry-blend mixture including portland cement and silica sand. The product is packaged in 50-pound (22.5 kg) bags. Shelf life is one year when stored in dry conditions.

3.2.10 SC-10 Acrylic Topcoat: The SC-10 Acrylic Topcoat is a proprietary, water-based liquid sealant used

as the topcoat of the WestCoat ALX system. This product is packaged in 1- or 5-gallon pails (3.78 or 18.9 L). Shelf life is two years when stored at temperatures between 40°F and 100°F (4.4°C and 37.8°C) and in a dry place.

3.2.11 SC-35X Water-Based Stain: The SC-35X Water-Based Stain is a proprietary blend of water-based acrylic and pigments, used to stain the TC-2 Smooth Texture Cement. The product is packaged in 1- or 5-gallon pails (3.78 or 18.9 L). Shelf life is three years when stored in dry conditions.

3.2.12 TC-40 Liquid Colorant: TC-40 Liquid Colorant is a proprietary iron oxide slurry formulated with high pigment levels used in the ALX Custom system to integrally color the TC-2 Smooth Texture Cement. The product is packaged in 10-ounce bottles. The shelf life is three years when stored at temperatures between 40°F and 100°F (4.4°C and 37.8°C) in a dry place.

3.2.13 SC-70 Stone Glaze: The SC70 Stone Glaze is a proprietary acrylic lacquer sealant. The product is packaged in 1- or 5-gallon pails (3.78 or 18.9 L). The shelf life is five years when stored at temperatures between 40°F and 100°F (4.4°C and 37.8°C) in a dry place.

4.0 INSTALLATION

4.1 General:

Installation of the WestCoat ALX Standard and Custom Systems must be in accordance with the manufacturer's published installation instructions, the applicable code and this report. The manufacturer's installation instructions must be available on the jobsite during application. The system must be installed only when the ambient temperature is between 55°F and 90°F (13°C and 32°C). Materials must not be applied if precipitation is occurring or expected.

4.1.1 Preparation of Plywood Substrate: Plywood must be clean, dry, and free from dirt or foreign materials that may prevent adhesion of the base coat, and must be installed to framing in accordance with the requirements of the applicable code at a maximum framing spacing of 16 inches (406 mm) on center. All plywood edges must be blocked with nominally 2-by-4 wood members, or panel edges must be tongued and grooved. All through-penetrations and terminations of the sheathing must be protected with metal flashing in accordance with the applicable code. Adequate drainage must be provided in accordance with the applicable code.

4.1.2 WP-40 Sheet Membrane: The WP-40 Sheet Membrane must be applied over all plywood joints in 6- or 12-inch-wide (152 or 305 mm) strips or may be applied over the entire plywood deck. When installed in accordance with Section 4.5, installation is limited to use over all plywood joints in 6- or 12-inch-wide (152 or 305 mm) strips.

4.1.3 Metal Lath: The metal lath, as described in Section 3.2.2, must be installed with lath edges parallel to plywood substrate joints and offset from the substrate joints by a minimum of 2 inches (51 mm). The lath must be held back $\frac{1}{2}$ inch (12.7 mm) from all deck edges and stapled to the plywood substrate with no less than 16 staples per square foot (174 staples per square meter). Lath must be lapped 1 to 2 inches (25 to 51 mm) at seams and stapled to the plywood substrate every 1 to 2 inches (25.4 to 50.8 mm).

4.1.4 Base Coat: The base coat mixture consists of one 50-pound (22.5 kg) bag of TC-1 Basecoat Cement combined with $1\frac{1}{4}$ gallons (4.73 L) of WP-81 Cement Modifier and up to 1 quart of water (946.4 mL), then mixed until uniform consistency is achieved. The mixture results

in a 4.5-gallon (17 L) batch. The base coat mixture must be applied onto the lath at a rate of 40 square feet (3.68 square meters) per 4.5-gallon (17 L) batch. The minimum dry thickness of the base coat must be 0.142 inch (3.6 mm). Prior to the application of the slurry coat, the base coat must be smoothed with a trowel and allowed to cure until firm.

4.1.5 Slurry Coat:

The slurry coat mixture consists of one bag of TC-1 Basecoat Cement, 1 gallon (3.78 L) of WP-81 Cement Modifier, and up to $\frac{1}{2}$ gallon (1.89 L) of water, mixed until uniform consistency is achieved. The slurry coat mixture must be applied onto the cured base coat at a rate of 100 to 150 square feet (9.2 to 13.9 m²) per 4.5-gallon (17.0 L) batch, to result in a minimum dry thickness of the slurry coat of 0.063 inch (1.60 mm). The slurry coat must be smoothed with a trowel and allowed to cure until firm.

4.2 ALX Standard System: Following installation in accordance with Section 4.1:

4.2.1 Texture Coat: The texture coat mixture consists of one bag of TC-3 Medium Texture Cement, 1 gallon (3.78L) of WP-81 Cement Modifier and $\frac{1}{2}$ gallon (1.89 L) of water, mixed until uniform consistency is achieved. The texture coat must be applied with a hopper gun onto the slurry coat at a rate of 150 to 200 square feet (13.9 to 18.6 m²) per batch, to result in a minimum dry thickness of 0.047 inch (1.2 mm). The texture coat must be leveled with a trowel and allowed to cure until firm.

4.2.2 Top Coat: The SC-10 Acrylic TopCoat must be applied over the cured texture coat with a roller in one or two applications, for a total coverage rate of 125 square feet per gallon (3.04 m²/L), to a minimum thickness of 6 mils (0.152 mm). The coating must be allowed to cure until dry.

4.3 ALX Custom system: Following installation in accordance with Section 4.1;

4.3.1 Grout Coat: The grout coat mixture consists of one 50-pound (22.5 kg) bag of TC-5 Grout Texture Cement combined with 1 gallon (3.78 L) of WP-81, and up to $\frac{1}{2}$ gallon (1.89 L) of water, then mixed until uniform consistency is achieved. The mixture results in a 4.5-gallon (3.78 L) batch. The grout coat mixture must be applied onto the slurry coat at a rate of 200 square feet (18.6 m²) per 4.5 gallon (17.0 L) batch. The minimum dry thickness of the grout coat must be 0.047 inch (1.2 mm). Prior to application of the texture coat, the grout coat must be smoothed with a trowel and allowed to cure until firm.

4.3.2 Texture Coat: The texture coat mixture consists of one bag of TC-2 Smooth Texture Cement combined with 1 gallon (3.78 L) of WP-81 Cement Modifier and up to $\frac{1}{2}$ gallon (1.89 L) of water mixed until uniform consistency is achieved. Up to 4 ounces (0.118 L) of TC-40 Liquid Colorant may be added and mixed until color is uniform. The mixture results in a 4.5-gallon (17.0 L) batch. The color coat mixture must be applied onto the grout coat at a rate of 175 to 200 square feet (16.3 to 18.6 m²) per 4.5-gallon (3.78 L) batch. The minimum dry thickness of the texture coat must be 0.047 inch (1.2 mm). Prior to the application of the stain, the texture coat must be smoothed with a trowel and allowed to cure until firm.

4.3.3 Stain: SC-35X Water-Based Stain must be applied over the texture coat with a sprayer, brush, or broom at a coverage rate of 200 to 400 square feet (18.6 to 37.2 m²) per gallon (3.79 L). The SC-35X Water-Based Stain must be allowed to completely dry before application of the next coat.

4.3.4 Top Coat: The top coat consists of SC-70 Stone Glaze that must be applied over the stain with a sprayer, brush, or roller in two applications, for a total coverage rate of 125 square feet (11.6 m²) per gallon (3.79 L). The top coat must be allowed to cure until dry.

4.4 Class A Roof Covering over Plywood Deck:

When the WestCoat ALX Standard and Custom Systems are applied over a minimum 5/8-inch-thick (15.9 mm) plywood substrate with all edges blocked and installed in accordance with Section 4.0 at a maximum roof slope of 1/4 inch per 1 foot (2% slope), the system provides a Class A roof classification.

4.5 One-hour Fire-resistance-rated Construction:

When the WestCoat ALX Standard and Custom systems are installed in accordance Section 4.0, except that the WP-40 Sheet Membrane is only applied over all plywood joints in 6- or 12-inch-wide (152 or 305 mm) strips (see Section 4.1.2), over 5/8-inch-thick (15.9 mm) exterior-grade plywood complying with PS-1, with nominally 2-by-8 wood joists spaced at a maximum of 16 inches (406 mm) on center, and all plywood joints blocked, the assembly can be recognized as an alternative for the double wood floor described in Item 13 of Table 721.1(3) of the 2012 IBC [Table 720.1(3) of the 2009 and 2006 IBC]. The design bending stress must be limited to 78 percent of the code-prescribed design values for the wood joist.

4.6 Wind Resistance:

Installation must be limited to buildings with a maximum height of 40 feet (12.2 m) above grade, in Exposure B areas, with either an ultimate design wind speed of 130 mph (209 km/h) under the 2012 IBC or a maximum 3-second-gust basic wind speed of 100 miles per hour (161 km/h) under the 2009 and 2006 IBC and the 2012, 2009 and 2006 IRC. The plywood and its attachment to support framing must be adequate to resist the required wind load.

4.7 Method of Repair:

The damaged area must be completely removed, including the base coat and lath. New metal lath must be stapled to the clean, dry substrate, and the system reapplied as described in Sections 4.1 through 4.6 of this report. If

substrate damage occurs, the retention of the strength properties of the system must be investigated.

5.0 CONDITIONS OF USE

The WestCoat ALX Standard and Custom Systems described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Materials must be manufactured and applied in accordance with this report, the applicable code, and the manufacturer's published installation instructions. In the event of conflict between this report and the manufacturer's installation instructions, this report governs.

5.2 The WP-81 Cement Modifier, TC-1 Basecoat Cement, TC-2 Smooth Texture Cement, TC-3 Medium Texture Cement, TC-5 Grout Texture Cement, SC-10 Acrylic Topcoat, SC-35X Water-Based Stain, TC-40 Liquid Colorant and SC-70 Stone Glaze products are produced under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Walking Decks (AC39), dated October 2013.

7.0 IDENTIFICATION

The WP-81 Cement Modifier, TC-1 Basecoat Cement, TC-2 Smooth Texture Cement, TC-3 Medium Texture Cement, TC-5 Grout Texture Cement, SC-10 Acrylic Topcoat, SC-35X Water-Based Stain, TC-40 Liquid Colorant and SC-70 Stone Glaze products must be labeled with the WestCoat name and address, the date of manufacture, the shelf life, and the lot number or production number. In addition to the above, the products are labeled with the ICC-ES report number (ESR-2201).