DIVISION 7: THERMAL AND MOISTURE PROTECTION

SECTION 07 18 13

PEDESTRIAN TRAFFIC COATINGS

KRETUS® WPD 2.1 SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. Description: ICC-ES evaluated pedestrian traffic coating applied to plywood substrate.

1.2 RELATED SECTIONS INCLUDE

A. Division 01 – General Requirements.

B. Section 06 16 00 – Sheathing.

C. Section 07 62 00 – Sheet Metal Flashing and Trim.

D. Section 07 92 00 – Joint Sealants

1.3 REFERENCES (USE CURRENT VERSIONS ONLY)

A. ASTM C67: Sampling and Testing Brick and Structural Clay Tile.

B. ASTM D1242: Resistance of Plastic Materials to Abrasion.

C. ASTM D2299: Determining Relative Stain Resistance of Plastics.

D. ASTM D3746: Impact Test.

E. ASTM D570: Water Absorption of Plastics.

F. ASTM D756: Weight and Shape Changes of Plastics Under Accelerated Service Conditions.

G. ASTM E108/UL 790: Fire Tests of Roof Coverings.

H. ASTM E119: Fire Tests of Building Construction and Materials.

I. ASTM G115: Measuring and Reporting Friction Coefficients

J. ICC-ES Acceptance Criteria for Walking Decks AC39
   1. Section 4.1.10: Concentrated Load
   2. ICC-ES AC39 Section 4.1.7: Percolation

1.4 SUBMITTALS

A. Submit materials according to the guidelines in Section 01 30 00 - Administrative Requirements.

B. Product and System Data: Submit manufacturer's product data including surface preparation and application instructions. This includes the following:
   1. Completed Jobsite Checklists and Reports (kretus.com/pre-and-post-job-checklists).
   2. Technical Data Sheets (kretus.com/technical-data-sheets).
   3. Safety Data Sheets (kretus.com/safety-data-sheets).
   4. Installation Guides (kretus.com/installation-guides).

5. Maintenance and Cleaning Guide (kretus.com/project-planning).
6. Warranty (kretus.com/pre-and-post-job-checklists).
7. ICC-ES Report ESR-4448
8. Report showing manufacturer's products are in VOC Emission compliance with USGBC LEED v4, performed according to CDPH/EHLB/Standard Method V1.2.

C. Approved Applicator Letter/Certificate: Signed by manufacturer certifying that applicators comply with specified requirements.

D. Samples and Mockups
1. Must employ the same materials, tools, and preparation methods used in the project installation.
2. Sample Size: 3-by-6-inch.
3. Mockup Size: Minimum 50 SF unless otherwise specified by the manufacturer.
4. Manufacturer reserves the right to request additional mockup and testing.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Has a minimum of five years' experience in manufacturing materials submitted as part of this specification.

B. Approved Applicator Qualifications
1. Has written approval from the manufacturer.
2. Has at least five years' experience with similar projects and complexity and is capable of handling installations of similar nature in all phases: surface preparation, application of the product, finishing procedure, safety, and work ethic.

C. Source Limitations: Materials must be manufactured, approved, and distributed by KRETUS® (info@kretus.com, 714-694-2061, kretus.com). No other parties shall be allowed without written approval.

D. Existing Substrate Qualifications: If substrate has a history of existing failures, identify the cause. Manufacturer must be notified.

1.6 PRE-INSTALLATION MEETING

A. To review and clarify this specification and all supporting documents relating to this section and the project itself.

B. Takes place a minimum of two weeks before starting the work in this section.

C. Requires attendance of all parties directly affecting this section.

1.7 WARRANTY

A. The Manufacturer shall provide its standard materials warranty.

B. Approved Applicator shall furnish a warranty for workmanship.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Materials should be stored in an area that is clean and dry, between 60°F and 75°F, out of direct sunlight and inclement weather, and free of obstruction.

B. Deliver and store products in the Manufacturer's unopened packaging bearing the Manufacturer's brand name, identification, and batch number until ready for installation.

C. Jobsite Requirements
1. Provide a clearly marked storage area for all materials.
2. Provide adequate disposal on the jobsite for non-hazardous waste generated during the project.

D. Contractor Requirements
1. Promptly inspect deliveries to ensure that products comply with requirements and are not damaged.
2. The Contractor is responsible for materials furnished and shall replace, at its expense, such materials that are found to be defective in manufacture or that have become damaged in transit, handling, or storage.
3. Keep copies of Safety Data Sheets (SDS) on site for all materials.

E. Handling
1. Adhere to all Safety Data Sheets.
2. All materials are to be treated as dangerous substances without firsthand knowledge.
3. No untrained personnel shall touch, relocate, or use the materials without proper training or supervision.
4. No congregating, eating, smoking, or drinking of any kind is allowed on or near the materials.

1.9 FIELD CONDITIONS

A. If any of the following requirements are not met, the Manufacturer must be consulted before the installation begins.

B. Environmental Requirements
1. Refer to Manufacturer documents for application temperatures.
2. The site shall be free of other trades during and, for a period of 24 hours, after installation.
3. The Approved Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.
4. The Approved Applicator shall ensure that the site is properly ventilated and shall provide its own power and any necessary equipment to get the job done correctly and in a timely manner.

C. Safety Requirements
1. All open flames and spark-producing equipment shall be removed from the work area prior to the commencement of installation.
2. "No Smoking" signs shall be posted at the entrances to the work area.
3. The Facility Owner shall be responsible for the removal of foodstuffs from the work area.
4. Non-related personnel in the work area shall be kept to a minimum.

D. Substrate
1. Plywood must have a minimum thickness of 3/4 inch (19.1 mm) or as required by Table 2304.8 (3) of the 2021, 2018 and 2015 IBC [Table 2304.7 (3) of the 2012 IBC] and must be exterior grade complying with U.S. DOC PS-1 or PS-2.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. KRETUS® Inc., 1055 W. Struck Ave, CA 92867 (info@kretus.com, 714.694.2061, kretus.com).

2.2 MATERIALS REQUIRED FOR SYSTEM SPECIFIED

A. BASE COAT
1. KRETUS® APC ACRYLIC ADMIX
a. Kretus® APC Acrylic Admix: A high-solids acrylic co-polymer admixture intended for application with APC cement-sand blends to reduce curing times. The admixture is available in 1-gallon (3.79 L) pails, 5-gallon (18.93 L) pails, 50-gallon (189.27 L) drums, and 275-gallon (1040.99 L) totes and has a shelf life of 36 months from the date of manufacture when stored properly in unopened containers.
2. KRETUS® APC BASECOAT
a. Kretus® APC Basecoat: A cement-sand blend when combined with Kretus® APC Acrylic Admix is intended as the base and screed coats in the system. Kretus® APC Basecoat is

available in 50-pound (22.68 kg) bags and has a shelf life of 12 months when stored properly in unopened containers.

B. BOND COAT
1. Fiberglass Chopped-Strand Mat
2. KRETUS® BONDER RESIN
   a. A single-component acrylic resin intended for application with the fiberglass mat. The resin is available in 1-gallon (3.79 L) pails, 5-gallon (18.93 L) pails, 50-gallon (189.27 L) drums, and 275-gallon (1040.99 L) totes and has a shelf life of 36 months from the date of manufacture when stored properly in unopened containers.

C. SCREED COAT
1. KRETUS® ACRYLIC POLYMER CONCRETE ACRYLIC ADMIX
2. KRETUS® ACRYLIC POLYMER CONCRETE BASECOAT

D. TEXTURE COAT (OPTIONAL)
1. KRETUS® APC ACRYLIC ADMIX
2. KRETUS® APC TEXTURE 2.0
   a. Kretus® APC Texture 2.0: A cement-sand blend when combined with Kretus® APC Acrylic Admix is intended as the optional texture coat in the system. Kretus® APC Texture 2.0 is available in 50-pound (22.68 kg) bags and has a shelf life of 12 months when stored properly in unopened containers.

E. SEALER/TOP COAT
1. KRETUS® ACRYLIC SEALER WB BASE
   a. Kretus® Acrylic Sealer WB: A water-based acrylic intended as the sealer coat in the system. Kretus® Acrylic Sealer WB is available in 5-gallon (18.93 L) pails and has a shelf life of 36 months from the date of manufacture when stored properly in unopened containers.
2. KRETUS® WB COLORANT
   a. Kretus® WB Colorant: A water-based colorant intended for use with the sealer/topcoat. Kretus® WB Colorant is available in 16-oz (0.47 L) pails and has a shelf life of 36 months from the date of manufacture when stored properly in unopened containers.

2.3 PRODUCT REQUIREMENTS

A. Fire-retardant, waterproof, wearing surface for pedestrian traffic complying with ICC-ES Acceptance Criteria for Walking Decks AC39.

PROPERTIES	TEST METHOD	RESULTS
Freeze Thaw (50 cycles)	ASTM C67	Pass
Abrasion	ASTM D1242	1.6-2.3%
Chemical Resistance	ASTM D2299	Pass: No Change to Exposed Surface*
Impact	ASTM D3746	Pass: No Cracking
Water Absorption	ASTM D570	Pass: 5.27%
Accelerated Aging	ASTM D756	Pass: No Crazing, Cracking, Spalling, Softening, or Surface Deterioration
Spread of Flame, Intermittent Flame, and Burning Brand	ASTM E108 / UL 790	Class A Fire Retardant Roof Covering
1-Hour Fire Rating	ASTM E119	Pass
Weatherometer (2,000 hours)	ASTM G115	Pass: No Crazing, Cracking, Spalling, Softening, or Surface Deterioration
Concentrated Load	ICC-ES AC39 Section 4.1.10	Pass: No Damage

Percolation	ICC-ES AC39 Section 4.1.7	Pass: 0.03 inch (0.762 mm), No Moisture on Underside

2.4 RELATED MATERIALS

A. Metal Flashing: Metal flashing must be a minimum No. 26 gage [(0.019 inch (0.483 mm)], corrosion-resistant metal.

B. Metal Lath: Metal lath is minimum 2.5-pound-per-square-yard (1.36 kg/m2), galvanized-diamond-mesh, expanded metal lath complying with ASTM C847.

C. Staples: Staples must be corrosion-resistant, minimum No. 16 gauge [0.0598 inch (1.519 mm)] staples with 1-inch (25.4 mm) crowns and minimum 5/8-inch-long (15.9 mm) legs.

D. KRETUS® high-grade polyurethane sealant (caulk): Must be polyurethane single-component caulk. The sealant is available in cartridge tubes and has a shelf life of 12 months when stored properly in unopened containers.

E. Fiberglass Mat: The chopped-strand fiberglass mat, weighing 3/4 ounce per square yard (25.4 g/m2), is available in rolls of various widths.

F. All other materials must be manufactured or approved by KRETUS® (info@kretus.com, 714-694-2061, kretus.com).

PART 3 EXECUTION

3.1 EXAMINATION

A. Coordinate with adjacent trades to ease construction process.

B. Verify project site conditions under Section 01 00 00.

C. Before starting installation, correct all unsatisfactory conditions.

3.2 SURFACE PREPARATION

A. Prevent damage to substrate during preparation.

B. Cleaning and Dust Removal: Wear shoe covers. Remove all leftover dust and any loose particles by using dust collector. Completely remove all existing coatings, oil, water, adhesives, dust, debris, and other substances that may impede system's adhesion.

C. Kretus WPD 2.1 System: The Kretus® WPD 2.1 System must be installed over exterior-grade plywood using a 21/2-pound-per-square-yard (1.36 kg/m2) galvanized metal lath. The 3/4-inch-thick (19.1 mm) plywood deck is prepared as described in Section 4.1 and the metal lath is fastened to the plywood substrate with a minimum overlap of ¾ inch (19.05 mm). The metal lath must overlap metal flashing a minimum of 1 ½ inches (38 mm). Fasteners must be No. 16 gage staples having a 1-inch (25.4 mm) crown and 5/8-inch-long (15.9 mm) legs and must be applied at the rate of approximately 12 staples per square foot (129 staples per square meter). Staples must be perpendicular to and cover caulked joints in the substrate.

3.3 MIXING

A. Follow Manufacturer's printed instructions. Careful measurements and thorough mixing are essential for a proper cure.

B. Review KRETUS® Mixing Station Guide for general handling, storage, and preparation procedures.

3.4 SYSTEM INSTALLATION

A. General
1. It is essential to read and understand all Manufacturer instructions, guidelines, application methods, and the proper use of all application equipment.
2. The system shall follow the contour of the substrate unless the Architect has specified pitching or other leveling work.
3. Immediately prior to the application of any part of the system, the surface prepared shall be clean, dry, free of any contaminations, and any remaining dust or loose particles shall be removed using a vacuum.
4. The handling, mixing, and addition of components shall be performed in a safe manner to achieve the desired results in accordance with experiences of the materials and working condition.
5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.

B. BASE COAT
1. For the base coat, combine 1 gallon (3.8 L) of Kretus® APC Acrylic Admix with one 50-pound (22.7 kg) bag of Kretus® APC Basecoat per batch. The mixture must be spread evenly over the metal lath at a rate of 30 ft2 (2.8 m2) per batch so that the base coat completely covers all staples and voids in the metal lath.

C. BOND COAT
1. For the bond coat, lay the fiberglass mat over the base coat with cutouts to fit around drains, vents and other penetrations of the substrate. The fiberglass mat overlaps must be between ¼ and 1/2 inch (6.3 and 12.7 mm). Saturate the fiberglass mat with Kretus® Bonder Resin at a rate of 45 ft2 per gallon (1.1 m2 per L) and let the material dry for 8 hours. After drying, any pinholes must be sealed with Kretus® Bonder Resin applied at a rate of 100 ft2 per gallon (2.45 m2 per L). The surface must be clean and free of embedded foreign materials, blemishes, air pockets and bubbles. Any adversely affected areas must be cut out and fiberglass mat and Kretus® Bonder Resin reapplied to cover the cutout areas. The repaired area must be allowed to cure for between 2 and 6 hours before installing the screed coat.

D. SCREED COAT
1. For the screed coat, combine 1 gallon (3.8 L) of Kretus® APC Acrylic Admix with one 50-pound (22.7 kg) bag of Kretus® APC Basecoat per batch. The mixture must be spread evenly over the bond coat at a rate of 100 ft2 (9.3 m2) per batch.

E. TEXTURE COAT (OPTIONAL)
1. For the optional texture coat, combine 1 gallon (3.8 L) of Kretus® APC Acrylic Admix with one 50-pound (22.7 kg) bag of Kretus® APC Texture per batch. The mixture must be spread evenly over the screed coat at a rate of 125 ft2 (11.61 m2) per batch. For a knockdown texture, apply the batch with a hopper gun at a pressure of 30 to 60 psi (2.1 to 4.2 kg/cm2) and flatten any high points with a finishing trowel.

F. SEALER/TOP COAT
1. For the sealer/topcoat, combine 5 gallons (19 L) of Kretus® APC Acrylic Sealer WB Base with 16 ounces (0.47 L) of WB Colorant and apply with a non-shed roller at 150 ft2 per gallon (3.7 m2 per L) over a smooth screed coat or at 100 ft2 per gallon (2.45 m2 per L) over a texture coat.
After curing, if the coating is damaged, the system, including all coatings and metal lath, must be completely removed, the substrate prepared, and the system reapplied as described in Sections 4.1 and 4.2.
2. Provide cove base cap strip if specified.

3.5 JOINT CUTTING, PREPARATION, AND FILLING

A. Follow Manufacturer's preparation and application guidelines and drawings.

3.6 FIELD QUALITY CONTROL

A. The following tests and reporting shall be conducted by the Approved Applicator:
   1. condition of the area being installed
   2. temperature: date, time, air temperature, concrete surface temperatures, dew point
   3. product installed and coverage rates
   4. batch number of all materials
   5. project report shall be submitted upon completion of the work

B. Replica of the system as installed must be provided to Manufacturer for approval and warranty.

C. Facility Owner reserves the right to invoke material testing procedures at any time and any number of times during the application process.

D. Facility Owner may engage service of an independent testing laboratory to sample materials being used on the jobsite. Samples of material may be taken, identified, and certified in the presence of the Approved Applicator.

3.7 CLEANING, CURING, AND PROTECTION

A. Cleaning
   1. Perform detailed cleaning at floor termination to leave a cleanable surface for subsequent work of other sections.
   2. Remove any spillage of cured and uncured materials from the site with a suitable solvent. Dispose of any temporary floor covering and leftover materials in accordance with federal, local, and building requirements.

B. Curing and Protection
   1. After completion of an application, do not allow traffic on coated surfaces for a period of 24 hours.
   2. Allow material to cure in compliance with Manufacturer instructions, taking care to prevent contamination during the installation and curing process.
   3. “Return to Service” means the system can be walked on. However, typical resinous coatings require 7 days at 70°F to reach full cure. During this period, standing water, caustic chemicals, cleaning, or heavy traffic should be avoided as it may cause permanent damage to the finish.

END OF SECTION