

## SECTION 033520 - STAINED CONCRETE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Providing stained concrete where scheduled on the Drawings and as specified herein.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of stain indicated.
  - 1. Material List: An inclusive list of required stain materials.
  - 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each exterior wood stain.
- B. Samples for Verification: For each color and stain material to be applied, with texture to simulate actual conditions, on representative Samples of actual substrates.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Maintenance Instructions: Submit manufacturer's maintenance and cleaning instructions.

#### 1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying exterior wood stains similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain primers, stains, and other finishes through one source from a single manufacturer.

#### 1.5 MOCK-UP

- A. Provide stained concrete floor finish mock-up, 10 feet long by 10 feet wide, illustrating completed finish including selected sheen level.
- B. Locate mock-up where directed.
- C. Accepted mock-up will serve as standard to judge quality and workmanship of completed polished concrete floor finish.
- D. Accepted mock-up may remain as part of the Work, if undisturbed.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened containers bearing manufacturer's name and label and the following information:
  - 1. Product name or title of material.
  - 2. Product description (generic classification).
  - 3. Manufacturer's stock number and date of manufacture.
  - 4. Contents by volume, for pigment and vehicle constituents.
  - 5. Thinning instructions.
  - 6. Application instructions.
  - 7. Color name and number.
  - 8. Handling instructions and precautions.
  - 9. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
  - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

#### 1.7 PROJECT CONDITIONS

- A. Temperature Limitations: Apply stains only when temperatures of surfaces to be stained and the surrounding air are between 45 deg F and 90 deg F for oil-based stain, or between 50 deg F and 90 deg F for latex-based stain.
- B. Weather Limitations: Do not apply stain in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; when temperatures are less than 5 deg F above the dew point; or to damp or wet surfaces.
  - 1. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before starting or continuing with coating operation.

## **PART 2 - MATERIALS**

### **2.1 MANUFACTURER**

- A. VOC Limits: any adhesives, sealants, paints, or coatings shall meet the VOC limits indicated in Section 018113 "Sustainable Design Requirements."• "
- B. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. L.M. Scofield Company, Douglasville, GA.
  - 2. Bomanite Corporation.
  - 3. Patterned Concrete Industries.

### **2.2 ACCEPTABLE MATERIALS**

- A. Stain: Lithochrome Chemstain by L.M. Scofield.
- B. Sealer: Cementone Clear Sealer by L.M. Scofield.
- C. Colors: As selected by Architect from manufacturer's standard colors.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for stain application. Surfaces to be stained must be thoroughly dry before stains are applied.
  - 1. Proceed with stain application only after unsatisfactory conditions have been corrected.
- B. Coordination of Work: Review other Sections in which coatings or curing compounds are provided to ensure compatibility of the total system for various substrates.

### **3.2 PREPARATION**

- A. Surface Preparation: Clean and prepare surfaces to be stained according to manufacturer's written instructions for each particular substrate condition and as specified.
- B. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not stain surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions
  - 1. Remove surface dirt, oil, or grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry.
- C. Mixing: Mix and prepare stains according to manufacturer's written instructions. Stir stain thoroughly before applying and frequently during application to maintain color consistency.
  - 1. Maintain containers used in mixing and application in a clean condition, free of foreign materials and residue.
  - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and then strain material before using.

### **3.3 APPLICATION**

- A. Minimum Spreading Rate: Apply stain at manufacturer's recommended spreading rate to ensure proper penetration. Use applicators and techniques best suited for substrate and type of stain material being applied.
  - 1. Do not apply stain on surfaces that are not sufficiently dry. Ensure that each coat is dry and hard before applying succeeding coat.
- B. Apply chemical stain in strict accordance with manufacturer's latest written instructions.
- C. Apply two coats of clear sealer to completed stain.

### **3.4 CLEANING**

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded materials from Project site.
- B. After completing staining, clean walls, finishes, window glass and other surfaces. Remove spattered stain by proper methods without scratching or damaging adjacent finished surfaces.

### **3.5 PROTECTION**

- A. Protect work of other trades, whether being stained or not, against damage from staining. Correct damage by cleaning, repairing or replacing, and re-staining as approved by Architect.

- B. Provide "Wet Paint" signs to protect newly stained finishes. After completing staining operations, remove temporary protective wrappings provided by others to protect their work.

**END OF SECTION 033520**



## SECTION 035416 - HYDRAULIC CEMENT UNDERLAYMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes hydraulic-cement-based, polymer-modified, self-leveling underlayment for application below interior floor coverings.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Sustainable Documentation Submittals:
  - 1. VOC content data. Provide for all underlayment products used inside the weatherproofing system and applied on site.
    - a. Product information or statement from manufacturer indicating the VOC content of the product in grams per liter (g/L).
  - 2. Recycled Content:
    - a. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. State percentages specific to product, not average recycled content amounts from manufacturing facility.
    - b. Include statement indicating costs for each product having recycled content.
  - 3. Regional Material:
    - a. Product data for regional materials within 500 miles of construction site indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material.
    - b. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.
    - c. For metal products, provide statement from manufacturer indicating location for scrap and other recycled materials include in the product and its distance from the project site.
- C. Shop Drawings: Include plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Product Certificates: Signed by manufacturers of underlayment and floor-covering systems certifying that products are compatible.
- C. Minutes of preinstallation conference.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.
- C. Fire-Resistance Ratings: Where indicated, provide hydraulic-cement underlayment systems identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
- D. Sound Transmission Characteristics: Where indicated, provide hydraulic-cement underlayment systems identical to those of assemblies tested for STC and IIC ratings per ASTM E 90 and ASTM E 492 by a qualified testing agency.
- E. Preinstallation Conference: Conduct conference at .

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

- 1.7 PROJECT CONDITIONS
- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.
1. Place hydraulic-cement-based underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F.
- 1.8 COORDINATION
- A. Coordinate application of underlayment with requirements of floor-covering products and adhesives, to ensure compatibility of products.

## PART 2 - PRODUCTS

- 2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS
- A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thickness of 1/4 inch and that can be feathered at edges to match adjacent floor elevations.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
- a. Ardex; K-15 Self-Leveling Underlayment Concrete.
- b. Dayton Superior Corporation; Levelayer.
- c. MAPEI Corporation; Ultraplan Easy.
- d. Maxxon Corporation; Level-Right.
- e. Specialty Construction Brands, Inc., an H.B. Fuller company; TEC Smooth Start TEC EZ Level.
- f. Teck Specialties; Teck 2800.
- g. USG Corporation; Levelrock SLC 300.
2. Cement Binder: ASTM C 150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.
3. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
4. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
- B. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.
1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.
- C. Water: Potable and at a temperature of not more than 70 deg F.
- D. Reinforcement: For underlayment applied to wood substrates, provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.
- E. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.
1. VOC Limits: Any adhesives, sealants, paints, or coatings used inside the weatherproofing system and applied on site shall meet the VOC limits indicated in Section 018113 "Sustainable Design Requirements."
- 2.2 ACCESSORIES
- A. Sound Mat:
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
- a. Maxxon Corporation; Acoustimat II.

## PART 3 - EXECUTION

- 3.1 EXAMINATION
- A. Examine substrates, with Installer present, for conditions affecting performance.
1. Proceed with application only after unsatisfactory conditions have been corrected.
- 3.2 PREPARATION
- A. General: Prepare and clean substrate according to manufacturer's written instructions.

1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
  2. Fill substrate voids to prevent underlayment from leaking.
  - B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
    1. Moisture Testing: Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
  - C. Wood Substrates: Mechanically fasten loose boards and panels to eliminate substrate movement and squeaks. Sand to remove coatings that might impair underlayment bond and remove sanding dust.
    1. Install underlayment reinforcement recommended in writing by manufacturer.
  - D. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.
  - E. Sound Control Mat and Board: Install sound control materials according to manufacturer's written instructions.
    1. Do not install mechanical fasteners that penetrate through the sound control materials.
- 3.3 APPLICATION
- A. General: Mix and apply underlayment components according to manufacturer's written instructions.
    1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
    2. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.
  - B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
  - C. Apply underlayment to produce uniform, level surface.
    1. Apply a final layer without aggregate to product surface.
    2. Feather edges to match adjacent floor elevations.
  - D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.
  - E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
  - F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.
- 3.4 PROTECTION
- A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

**END OF SECTION 035416**

