

## SECTION 09671 - WATERPROOF FLOORING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes elastic latex waterproof flooring systems.
  - 1. Application Method: Troweled.
  - 2. Location: Mechanical Penthouses
- B. Related Sections include the following:
  - 1. Division 7 Section "Joint Sealants" for sealants installed at joints in flooring systems.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each waterproof flooring component required.
- B. Samples for Initial Selection: For each type of exposed finish required.
- C. Samples for Verification: For each waterproof flooring system required, 6 inches (150 mm) square, applied to a rigid backing by Installer for this Project.
- D. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- E. Material Test Reports: For each waterproof flooring component.
- F. Material Certificates: For each waterproof flooring component, signed by manufacturer.
- G. Maintenance Data: For waterproof flooring to include in maintenance manuals.

#### 1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** Engage an experienced installer (applicator) who is experienced in applying waterproof flooring systems 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, and who is acceptable to waterproof flooring manufacturer.
  - 1. Engage an installer who employs only persons trained and approved by waterproof flooring manufacturer for applying flooring systems indicated.
  - 2. Engage an installer who is certified in writing by waterproof flooring manufacturer as qualified to apply flooring systems indicated.
- B. **Source Limitations:** Obtain primary waterproof flooring materials, through one source from a single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- C. **Mockups:** Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Apply full-thickness mockups on 48-inch- (1200-mm-) square floor area selected by Architect.
    - a. Include 48-inch (1200-mm) length of integral cove base.
  - 2. Simulate finished lighting conditions for Architect's review of mockups.
  - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

#### 1.6 PROJECT CONDITIONS

- A. **Environmental Limitations:** Comply with waterproof flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting flooring application.
- B. **Lighting:** Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during waterproof flooring application.

- C. Close spaces to traffic during waterproof flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

## PART 2 - PRODUCTS

### 2.1 WATERPROOF FLOORING

- A. Products: Subject to compliance with requirements, provide the following or products by other manufacturers which meet the requirements and are approved by the Architect.
  - 1. Crossfield Products Corp., Dex-O-Tex; M-E Flooring II (waterproofing mechanical equipment room floor system)
- B. System Characteristics:
  - 1. Color and Pattern: As selected by Architect from manufacturer's full range.
  - 2. Wearing Surface: Textured for slip resistance.
  - 3. Integral Cove Base: 4 inches high.
  - 4. Overall System Thickness: approximately 1/8 inch.
- C. System Components: Multi-layered trowel applied waterproof flooring surfacing system shall be composed of a primer bond coat, waterproof membrane, traffic surfacing and finish coats, and shall conform to the following standards:
  - 1. Traffic surface binder and all rubber emulsions shall be compounded with an aqueous synthetic rubber liquid containing no hydrocarbon solvents.
  - 2. Aggregate for traffic surface coating shall be suitably graded mineral aggregate passing a #20 mesh sieve and retained on a #80 mesh sieve.
  - 3. Fabric used as reinforcement for waterproof base and floor shall be 7 ½ oz. woven polypropylene fabric.
  - 4. Final Finish dressing shall be a single component, water-phase acrylic latex emulsion material, pigmented and of a consistence suitable for roller application.
- D. System Physical Properties: Provide waterproof flooring system with the following minimum physical property requirements when tested according to test methods indicated:
  - 1. Weight 1.65 bls. Per sq. ft.
  - 2. Freeze-Thaw (ASTM C-67) No breakage or weight loss.
  - 3. Tensile Strength (ASTM D-1117):
    - a. Elongation Dry 29.0%
    - b. Breakload Dry 79 lbs. per inch
    - c. Elongation Wet 31.0%
    - d. Breakload Wet 67 lbs. per inch
  - 4. Waterproofness (Ceramic Tile Institute test method) 50 lbs. per inch water pressure with no transmission

- 5. Strip Adhesion 19.2 lbs. per inch
- 6. Indentation Characteristics (MIL-D-3134)
  - a. Steady Load <5%
  - b. Impacted Load No Cracking or Delamination
- 7. Flammability (ASTM E-84) Flame Spread 50
- 8. Volatile Organic Content None

E. System Chemical Resistance: Test specimens of cured flooring system are unaffected when tested according to ASTM D-2299 in the following reagents for not less than 7 days:

- 1. Industrial Detergent No change in texture or color
- 2. Salt (20%) No change in texture or color
- 3. Ammonia Solution (5%) No change in texture or color
- 4. Muriatic Acid (10%) No change in texture or color
- 5. Chlorine (10%) No change in texture or color
- 6. Kerosene No change in texture or color
- 7. Turpentine Slight temporary softening of surface
- 8. Paint Thinner Slight temporary softening of surface

## 2.2 ACCESSORY MATERIALS

- A. Patching and Fill Material: as recommended by manufacturer for application indicated.
- B. Joint Sealant: Type recommended or produced by waterproof flooring manufacturer for type of service and joint condition indicated.
  - 1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. General: Prepare and clean substrates according to waterproof flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for waterproof flooring application.
- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with flooring.
  - 1. Roughen concrete substrates as follows:

- a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and re-circulates the shot by vacuum pickup.
  - b. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.
2. Repair damaged and deteriorated concrete according to flooring manufacturer's written recommendations.
  3. Verify that concrete substrates are dry.
    - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. of slab in 24 hours.
    - b. Perform plastic sheet test, ASTM D 4263. Proceed with application only after testing indicates absence of moisture in substrates.
    - c. Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.
  4. Verify that concrete substrates have neutral Ph and that flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Materials: Mix components and prepare materials according to waterproof flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through waterproof flooring according to manufacturer's written recommendations.

### 3.2 APPLICATION

- A. General: Apply components of waterproof flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
1. Coordinate application of components to provide optimum adhesion of waterproof flooring system to substrate, and optimum intercoat adhesion.
  2. Cure flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
  3. At substrate expansion and isolation joints, provide joint in flooring to comply with waterproof flooring manufacturer's written recommendations.
    - a. Apply joint sealant to comply with manufacturer's written recommendations.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

- C. Apply synthetic rubber waterproof membrane solution at all vertical junctures. Embed polypropylene fabric into membrane liquid.
  - 1. Integral Cove Base: Apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and topcoating of cove base. Round internal and external corners.
- D. Apply synthetic rubber waterproof membrane solution with polypropylene fabric reinforcement to entire area to be coated. Overlap all seams a minimum of 2 inches.
- E. Trowel apply elasticized resin emulsion and aggregate composition traffic surfacing over all surfaces previously covered with waterproof membrane. Sand surface to remove trowel marks or small surface imperfections.
- F. Roller apply two coats of final finish dressing to a uniform finish.
- G. Finished waterproof mechanical equipment room floor surfacing shall be a nominal 1/8 inch thick, uniform in color and texture.
- H. Apply troweled body coat(s) in thickness indicated for waterproof flooring system. Hand or power trowel and grout to fill voids. When cured, sand to remove trowel marks and roughness.

### 3.3 FIELD QUALITY CONTROL

- A. Core Sampling: At the direction of Owner and at locations designated by Owner, take 1 core sample per 1000 sq. ft. (92.9 sq. m) of flooring, or portion of, to verify thickness. For each sample that fails to comply with requirements, take two additional samples. Repair damage caused by coring and correct deficiencies.
- B. Material Sampling: Owner may at any time and any number of times during waterproof flooring application require material samples for testing for compliance with requirements.
  - 1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.
  - 2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
  - 3. If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

3.4 CLEANING AND PROTECTING

- A. Protect waterproof flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by waterproof flooring manufacturer.

END OF SECTION 09671