

SECTION 072619 - TOPICAL MOISTURE VAPOR MITIGATION SYSTEM

PART 1- GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract, and other related construction documents such as Division 01, Division 03, and Division 09 specifications that apply to this Section.

1.2 SUMMARY

- A. This Section includes a single-coat, fast-curing, 100% solids epoxy moisture management system formulated to suppress excessive moisture vapor emissions in new or existing concrete prior to installing an ARDEX Underlayment.
 - 1. ARDEX MC™ RAPID One-Coat Moisture Control System is included herein as “basis-of-design.” Subject to compliance with requirements, provide basis-of-design products and systems or equivalent products and systems indicated.
 - 2. Work of this Section includes concrete substrate preparation and testing of substrates prior to system installation.
- B. Related Sections include the following:
 - 1. Section 033000, Cast-In-Place Concrete
 - 2. Division 09 Flooring Sections

1.3 REFERENCES

- A. ASTM F2170- Relative Humidity in Concrete Floor Slabs Using in situ Probes
- B. ASTM F1869 - Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- C. ASTM 710- Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- D. ASTM C1583 - Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension.
- E. ASTM E96- Standard Test Methods for Water Vapor Transmission of Materials
- F. ASTM D1308- Chemical Resistance of Finishes
- G. ASTM F3010- 13- Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Material Safety Data Sheets.
- B. Qualification Data: For Installer

1.5 QUALITY ASSURANCE

- A. Installation of the ARDEX product must be completed by a factory trained applicator, such as an ARDEX LevelMaster Elite® or ARDEX Choice Contractor, using mixing equipment and tools approved by the manufacturer. Please contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers.
- B. Manufacturer Experience: Provide products of this section by companies which have successfully specialized in production of this type of work for not less than 5 years. Contact Manufacturer Representative prior to installation.

1.6 WARRANTY

- A. Certified applicator must file a pre-installation checklist with the manufacturer and receive written confirmation of the approval to proceed in order to obtain the extended 10-year ARDEX MC™ RAPID Warranty.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50° and 85° F (10° and 29° C) and Protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

1.8 PROJECT CONDITIONS

- A. Do not install material below 50° F (10° C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section. Install quickly if substrate is warm and follow warm weather instructions available from the ARDEX Technical Service Department.

PART 2 - PRODUCTS

2.1 TOPICAL MOISTURE VAPOR EMISION SYSTEM

- A. One-Coat Moisture Control System for Concrete to Receive ARDEX Underlayments and Toppings.

Acceptable Products:

ARDEX MC™ RAPID; Manufactured by ARDEX Engineered Cements,
(724) 302-6141:

1. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F +/-3°F (21° C +/-3°C) and 50% +/-5% relative humidity:
 - a. Application: Manual
 - b. Material Requirements on CSP 3 Prepared Concrete: Max 270 sq. ft. per mixed unit for 10 mils
 - c. Permeability (ASTM E96):;0.06 perms
 - d. 14 pH solution (ASTM DI308): No effect
 - e. Working Time: 20 minutes
 - f. Pot Life: 20 minutes
 - g. VOC: Og/L, calculated SCAQMD 1113
 - h. Walkable: Minimum of 4 hours
 - i. Prime and Install Underlayment: Minimum 4 hours, maximum 24 hours

2.2 HYDRAULIC CEMENT UNDERLAYMENT

- A. Hydraulic Cement-based Self-Leveling Underlayment.

1. Acceptable Products:

- a. ARDEX K 60™ ARDITEX
- b. ARDEX K 55™ MICROTEC®; Manufactured by ARDEX Engineered Cements:
400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, www.ardexamericas.com
 - i. Primer: ARDEX P 82® Ultra Prime
- c. NXT Level Plus Underlayment with leveling compound and primer; Laticrete.
- d. Specialty Construction Brands, Inc., an H.B. Fuller company.
- e. KOSTER SL, SL Premium, or SC; Koster Shield Systems.
 - i. Primer: VAP I 06, unless KB-Pox IN recommended in writing by underlayment manufacturer; Koster Shield Systems.
 - ii. Thickening Agent: KOSTER TA.
 - iii. Movement Joint Sealant: KOSTER FS-H.

2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F +/-3°F (21° C +/-3°C) and 50% +/-5% relative humidity:

- a. Application: Barrel Mix or Pump
- b. Flow Time: 10 minutes
- c. Initial Set: Approx. 30 minutes
- d. Final Set: Approx. 90 minutes
- e. Compressive Strength: Minimum 4100 psi at 28 days, ASTM C109M.
- f. Flexural Strength: 1000 psi at 28 days, ASTM 78.
- g. VOC: 0 g/l, calculated SCAQMD 1113

2.3 WATER: Water shall be clean, potable, and sufficiently cool (not warmer than 70°F).

PART 3- EXECUTION

3.1 PREPARATION

- B. Concrete Subfloors: Prepare substrate in accordance with manufacturer's instructions.
 - 1. Prior to proceeding please refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before application.
 - 2. Mechanical preparation of the surface is required to obtain a minimum ICRI concrete surface profile of 3 (CSP 3). This substrate preparation must be by mechanical means, such as shot blasting.
 - 3. The concrete must have a minimum tensile strength of at least 150 psi for areas to receive normal foot traffic, and 200 psi for area of heavy commercial traffic when tested in accordance with ASTM C1583. The concrete surface can be damp, but must be free of standing water.
 - 4. Prior to beginning the installation, measure the relative humidity within the concrete (ASTM F2170). For these relative humidity methods, the RH shall not exceed 100%. No standing water shall be present.
 - 5. If the concrete substrate is too uneven to provide a uniform film thickness of the ARDEX MC™ RAPID (typically CSP 6 or higher), the substrate can be pre-smoothed using ARDEX K 301™ Self-Leveling Exterior Concrete Topping or ARDEX MRP™ Moisture Resistant Patch.

3.2 APPLICATION OF ARDEX MC™ RAPID:

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.

C. Mixing: Comply with manufacturer's printed instructions and the following.

1. Each individual 22lb. unit contains separate, pre-measured quantities of hardener (Part B) and the resin (Part A). After opening each container, stir the individual components thoroughly before blending. The hardening agent (Part B) is added to the resin (Part A).
2. Pour all of the hardener into the resin portion and stir thoroughly for a minimum of 3 minutes using a low speed drill and an epoxy mixing paddle. Once mixed, pour some of the epoxy back into the hardener container, stir for 10 seconds, and then pour all of the contents back into the resin container. Mix for an additional 30 seconds before applying.

D. Application: Comply with manufacturer's printed instructions and the following.

1. Apply the first coat of freshly mixed ARDEX MC™ RAPID to the prepared concrete surface in a uniform direction at an application rate of up to 270 sq. ft. per unit to achieve a coating thickness of 10 mils. Use a short-nap paint roller or notched squeegee for smoother surfaces, and a longer nap roller for more uneven substrates. To minimize the potential for pinhole formation, work the ARDEX MC™ RAPID into the surface with the roller to ensure maximum penetration. ARDEX MC™ RAPID can also be worked into the surface with a paintbrush for hard to reach areas and corners. Once the area is completely coated, allow to dry for a minimum of 4 hours (max. 24 hours). It is not necessary to re-test the substrate for moisture emissions prior to installing the floor covering.
2. The ARDEX MC RAPID must cure a minimum of 4 hours before ARDEX K 60 can be installed. When installing ARDEX K 60 over ARDEX MC RAPID that has not been primed or sand broadcasted, the ARDEX K 60 must be installed within 8 hours of application of the final coat of the ARDEX MC RAPID.
3. For ARDEX Underlayment applications greater than 1/4", or if the ARDEX MC™ RAPID was not worked into the surface sufficiently enough to prevent pinholes, a third coat with sand broadcast is needed. No ARDEX P82™ Ultra Prime is required.
 - a. Working at a 90° angle to the direction the first coat was applied; apply the ARDEX MC™ RAPID at a coverage rate of 10 mils. While this coat is still in a fresh state (maximum 20 minutes), broadcast an excess of fine sand (less than 1/50 of an inch in grain size or 98.5% passing sieve size #35 or #30) consistently over the entire area.

Note: When broadcasting sand, use a NIOSH approved dust mask in conformance with OSHA requirements regarding the handling of sand. Do not stand or walk on the freshly applied epoxy when broadcasting the sand.

- b. Once an area has been completely covered with sand, the surface of the sand can be walked on, being careful not to expose the epoxy at any time. Use approximately 1 lb. of sand per square foot of area. Once the sand broadcast is complete, avoid all traffic over the surface for a minimum of 4 hours.

- c. After 4 hours, broom sweep and vacuum the surface to remove all loose sand. The clean, prepared surface of the sand is the priming system for the ARDEX Underlayment. No additional priming is required.
- d. Following the application of MC RAPID and primer or sand broadcast, install the ARDEX Underlayment, such as ARDEX K 15® Premium Self-Leveling Concrete Underlayment, or Topping in accordance with printed instructions found in the corresponding technical brochure.
- e. It is not necessary to re-test the substrate for moisture emissions prior to installing the coating or floor covering.

3.3 FIELD QUALITY CONTROL

- A. Where specified, field sampling of the ARDEX products is to be done by taking an entire unopened bag/unit of the product being installed to an independent testing facility to perform testing. There is no in-situ test method applicable for this system.

3.4 PROTECTION

- A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

END OF SECTION 072619