

ARDEX GUIDE SPECIFICATION

ARDEX MC™ PLUS

Two-Coat Moisture Control System for Concrete to Receive ARDEX Toppings and Underlayments

SECTION 07 26 19 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 two-coat, 100% solids epoxy moisture management system formulated to suppress excessive moisture vapor in new or existing concrete prior to the installation of an ARDEX Topping with sealer, or Underlayment with flooring.
 - 1. ARDEX MC™ PLUS Two-Coat Moisture Control System – consisting of two components: (1.) ARDEX MC PLUS PRIMER and (2.) ARDEX MC PLUS SEALER
 - 2. ARDEX P 82™ Ultra Prime
 - 3. ARDEX K 15® Premium Self-Leveling Underlayment
 - 4. ARDEX K 55™ MICROTEC® Premium High Flow Self-Leveling Underlayment
 - 5. ARDEX ARDIFIX™ Two-Part, Low Viscosity Rigid Polyurethane
 - 6. ARDEX ARDISEAL™ RAPID PLUS Fast Setting Semi-Rigid Joint Sealant
 - 7. ARDEX K 301™ Self-Leveling Exterior Concrete Topping
 - 8. ARDEX MRP™ Moisture Resistant Patch
- B. Related Sections include the following:
 - 1. Section 03 30 00, Cast-In-Place Concrete
 - 2. Section 03 54 16, Hydraulic Cement Underlayment
 - 3. Division 09 Flooring Sections

1.3 REFERENCES

- A. ASTM F2170 - Relative Humidity in Concrete Floor Slabs Using In Situ Probes
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- C. 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
- D. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials
- E. ASTM D1308 - Chemical Resistance of Finishes

1.4 SUBMITTALS

- A. Test Results: Moisture Vapor Emission Test Data
- B. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Material Safety Data Sheets.
- C. Qualification Data: For Installer
- D. Manufacturer Pre-Installation Checklist

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. 12-Year ARDEX MC™ PLUS Moisture Control Warranty
 - 1. 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 12-year ARDEX MC™ PLUS Moisture Control 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 MITIGATION SYSTEM

- A. Two-Coat Moisture Control System for Concrete to Receive ARDEX Toppings and Underlayments.
 - 1. Acceptable Products:
 - a. ARDEX MC™ PLUS; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA 724-203-5000
 - 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: Roller
 - b. Material Requirements on CSP 3 Prepared Concrete:
 - i. Max 250 sq. ft. per mixed unit of ARDEX MC PLUS PRIMER (red).
 - ii. Max 250 sq. ft. per mixed unit of ARDEX MC PLUS SEALER (green).
 - c. Permeability: ≤0.10 perms with sand in 2nd Coat, ASTM E96
 - d. 14 pH solution: No effect, ASTM D1308
 - e. Working Time: 30 minutes
 - f. Pot Life: 30 minutes
 - g. VOC: 0 g/l, calculated SCAQMD 1113

2.2 HYDRAULIC CEMENT UNDERLAYMENT

A. Hydraulic Cement-based Self-Leveling Underlayment

1. Acceptable Products:

- a. ARDEX K 15[®]; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, www.ardexamericas.com

- i. Primer: No additional primer required

- b. ARDEX K 55[™]; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, www.ardexamericas.com

- i. Primer: No additional primer required

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 C78.
- 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

A. 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 200 psi 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). Alternatively, you can also measure the surface relative humidity in accordance with ASTM F2420. For these relative humidity methods, the RH shall not exceed 100%.
5. If the concrete substrate is too uneven to provide a uniform film thickness of the ARDEX MC™ PLUS (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.

B. Joint Preparation

1. Moving Joints – honor all expansion and isolation joints up through the moisture mitigation system and underlayment. A flexible sealing compound such as ARDEX ARIDSEAL™ RAPID PLUS may be installed.
2. Saw Cuts and Control Joints – fill all non-moving joints with ARDEX ARIDFIX™ Joint Filler as recommended by the manufacturer.

3.2 APPLICATION OF ARDEX MC™ PLUS:

- 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 13.2 lb unit (6 kg) contains separate, pre-measured quantities of hardener (Part B) and resin (Part A). After opening each container, stir the individual components thoroughly before blending.
 2. After opening each container, stir the individual components thoroughly before blending. The hardening agent (Part B) is added to the resin (Part A). 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. The ARDEX MC PLUS PRIMER (red) is applied first. Apply the freshly mixed primer to the prepared concrete surface in a uniform direction at an application rate of 250 sq. ft. (23.2 m²) per unit (approx. 8 mils/200 microns). Use a short-

nap paint roller or notched squeegee with back-rolling for smoother surfaces, and a longer nap roller for more uneven substrates.

2. To minimize the potential for pinhole formation, work the ARDEX MC PLUS PRIMER into the surface with the roller to ensure maximum penetration. ARDEX MC PLUS PRIMER can also be worked into the surface with a paintbrush for hard to reach areas and corners. Once an area has been completely coated, allow this to dry for a minimum of 8 hours (max. 24 hours) prior to applying the ARDEX MC PLUS SEALER top coat.
3. Apply the ARDEX MC PLUS SEALER top coat at a 90° angle to the ARDEX MC PLUS PRIMER.
4. Apply the freshly mixed ARDEX MC PLUS SEALER (dark green) to the ARDEX MC PLUS PRIMER surface in a uniform direction at an application rate of 250 sq. ft. (23.2 m²) per unit (8 mils/200 microns). Use a short-nap paint roller or notched squeegee with back-rolling for smoother surfaces, and a longer nap roller for more uneven substrates.
5. ARDEX MC PLUS SEALER can also be applied with a paintbrush for hard to reach areas and corners. Once an area has been completely coated, allow this to dry for a minimum of 8 hours (max. 24 hours). It is not necessary to re-test the substrate for moisture emissions.
6. For ARDEX underlayment applications of 1/4" (6 mm) or less, prime the surface of the ARDEX MC PLUS SEALER with ARDEX P 82 Ultra Prime. Allow the ARDEX P 82 to dry thoroughly (min 3 hours; max 24 hours) before installing the underlayment.
7. Alternative application and for underlayment installations greater than 1/4" (6 mm), apply a sand broadcast into the fresh MC PLUS SEALER. No ARDEX P 82 is required.
 - a. Working at a 90° angle to the direction the first coat was applied, apply the ARDEX MC PLUS SEALER (green) as above at a coverage rate of 200 sq. ft. (18.6 m²) per unit (~10 mils/250 microns). While this second 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.
 - b. When broadcasting the 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.
 - c. 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 8 hours.

- d. After 8 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.
- 8. Following the application of MC PLUS 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.
- 9. 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