

## **ARDEX GUIDE SPECIFICATION**

### **ARDEX MC™ RAPID**

One-Coat Moisture Control System For Concrete to Receive ARDEX Products

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#### **SECTION 09 05 61.13 MOISTURE VAPOR EMISSION CONTROL**

### **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 with flooring or an ARDEX Topping with sealer.
  - 1. ARDEX MC™ RAPID One-Coat Moisture Control System for Concrete to Receive ARDEX Products
  - 2. ARDEX P 82™ Ultra Prime
  - 3. ARDEX K 15® Premium Self-Leveling Underlayment
  - 4. ARDEX SD-T® Self-Drying, Self-Leveling Concrete Topping
  - 5. ARDEX ARDIFIX™ Two-Part, Low Viscosity Rigid Polyurethane Crack & Joint Repair
  - 6. ARDEX ARDISEAL™ RAPID PLUS Semi-Rigid Joint Sealant
  - 7. ARDEX K 301™ Exterior Self-Leveling Concrete Topping
  - 8. ARDEX MRPT™ Moisture Resistant Patch for Concrete to receive ARDEX Moisture Control Systems
  - 9. ARDEX K 60™ ARDITEX Rapid Setting Latex Smoothing Leveling Compound
- B. Related Sections include the following:
  - 1. Section 03 30 00, Cast-In-Place Concrete
  - 2. Section 03 54 16, Hydraulic Cement Underlayment for Existing Concrete Floors
  - 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 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
- F. ASTM D2369 – Standard Test Method for Volatile Content of Coatings
- G. ASTM F3010 - 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 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 ARDEX MC™ RAPID Warranty. Upon receipt and approval of the pre-installation checklist, a 25-year ARDEX MC™ RAPID Warranty is available for ARDEX LevelMaster Elite® Installers and a 20-year ARDEX MC™ RAPID Warranty is available for factory-trained installers.

## 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 MOISTURE VAPOR EMISSION CONTROL

#### A. One-Coat Moisture Control System for Concrete to Receive ARDEX Products

##### 1. Acceptable Products:

- a. ARDEX MC™ RAPID; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA, 15001, USA 724-203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)

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

- a. Application: Manual
- b. Material Requirements on CSP 3 Prepared Concrete: Approx. 250 - 270 sq. ft. (25 m<sup>2</sup>) per mixed unit for 10 mils, and approx. 170 – 109 sq. ft. (16 – 18 m<sup>2</sup>) per mixed unit for 14 mils
- c. Permeability (ASTM E96): 0.06 perms
- d. 14 pH solution (ASTM D1308): No effect
- e. Working Time: 20 minutes
- f. Pot Life: 20 minutes
- g. VOC: 19.9 g/L, A+B, ASTM D2369
- h. Walkable: Minimum of 4 hours
- i. Install underlayment or topping: Minimum 4 hours,

### 2.2 HYDRAULIC CEMENT UNDERLAYMENT

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

1. Acceptable Products:
  - a. ARDEX K 15<sup>®</sup>; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA, 15001, USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-2°C) and 50% +/-5% relative humidity:
  - a. Application: Barrel Mix or Pump
  - b. Flow Time: 10 minutes
  - c. Walkable: 2 to 3 hours
  - d. Compressive Strength: Minimum 5,500 psi (385 kg/cm<sup>2</sup>) at 28 days, ASTM C109M.
  - e. Flexural Strength: 1,200 psi (84 kg/cm<sup>2</sup>) at 28 days, ASTM C348.
  - f. VOC: 0

## 2.3 CONCRETE TOPPING

### A. Portland Cement-based Self-Leveling, Self-Drying Topping

1. Acceptable Products:
  - a. ARDEX SD-T<sup>®</sup>; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-2°C) and 50% +/-5% relative humidity:
  - a. Application: Barrel Mix or Pump
  - b. Flow Time: 10 minutes
  - c. Initial Set: Approx. 10 minutes
  - d. Final Set: Approx. 45 minutes
  - e. Compressive Strength: 6100 psi (428 kg/cm<sup>2</sup>) at 28 days, ASTM C109M.
  - f. Flexural Strength: 1200 psi (84 kg/cm<sup>2</sup>) at 28 days, ASTM C348.
  - g. Colors: White & Gray

### B. COLOR: Integral pigment or stain as specified by Architect

### C. SEALER: As specified by Architect

## 2.4 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 150 psi (10.5 kg/cm<sup>2</sup>) for areas to receive normal foot traffic and 200 psi (14 kg/cm<sup>2</sup>) for areas of heavy commercial traffic when tested in accordance with ASTM C1583.
4. Prior to beginning the installation, the relative humidity within the concrete can be measured (ASTM F2170). No standing water shall be present.
5. If the concrete substrate is too uneven to provide a uniform film thickness of the ARDEX MC<sup>TM</sup> RAPID (typically CSP 6 or higher), the substrate can be pre-smoothed using ARDEX K 301<sup>TM</sup> Self-Leveling Exterior Concrete Topping, ARDEX MRP<sup>TM</sup> Moisture Resistant Patch or ARDEX K 60<sup>TM</sup> ARDITEX in certain situations.
6. For ARDEX Toppings
  - a. All dormant cracks must be pre-filled with ARDEX ARDIFIX in strict accordance with the installation instructions provided by the ARDEX Technical Department. Once the dormant cracks have been properly filled, broadcast sand to refusal, and allow these areas to cure thoroughly. Remove all excess sand prior to proceeding with the ARDEX MC RAPID installation.
  - b. All joints, including control joints, expansion joints and isolation joints, and moving cracks must be honored up through the ARDEX MC RAPID, the ARDEX Topping and the sealer by installing a fully flexible sealing compound designed specifically for this use, such as ARDEX ARDISEAL RAPID PLUS.
7. For ARDEX Underlayments:
  - a. Dormant control joints and dormant cracks greater than a hairline (1/32" / 0.79 mm) must be pre-filled with ARDEX ARDIFIX<sup>TM</sup>. Dormant cracks and dormant control joints must be filled in strict accordance with the installation instructions provided by the ARDEX Technical Service Department. Once the dormant cracks and dormant control joints have been filled properly, broadcast sand to refusal, and allow these areas to cure thoroughly. Remove all excess sand prior to proceeding with the ARDEX MC RAPID installation.
  - b. All moving joints and moving cracks must be honored up through the ARDEX MC RAPID, the ARDEX underlayment and the floor covering by installing a fully flexible sealing compound designed specifically for use in moving joints, such as ARDEX ARDISEAL<sup>TM</sup> RAPID PLUS.

### 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 22 lb. (10 kg) 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. The required thickness for the ARDEX MC RAPID is dependent on application. Please refer to the technical data sheet for more information.
  - 2. Apply the freshly mixed ARDEX MC™ RAPID at the minimum thickness specified in the technical data sheet to the prepared concrete surface in a uniform direction with a short-nap paint roller or notched squeegee with back-rolling 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.
  - 3. A sand broadcast is required for certain applications; see the technical data sheet. Where required, sand broadcast must proceed while the ARDEX MC RAPID is still in a fresh state (maximum 20 minutes).
  - 4. Following the application of MC RAPID and primer or sand broadcast, install the ARDEX Underlayment, such as ARDEX K 15® Premium Self-Leveling Underlayment or ARDEX Topping, such as ARDEX SD-T in accordance with printed instructions found in the corresponding technical brochure.
  - 5. It is not necessary to re-test the substrate for moisture emissions prior to installing the 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**