

## **ARDEX GUIDE SPECIFICATION**

### **ARDEX MC™ RAPID WITH ARDEX K 22 F™ HIGH FLOW FIBER REINFORCED SELF-LEVELING UNDERLAYMENT**

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 and flooring.
  - 1. ARDEX MC™ RAPID One-Coat Moisture Control System
  - 2. ARDEX P 82™ Ultra Prime
  - 3. ARDEX ARDIFIX™ Two-Part, Low Viscosity Rigid Polyurethane Crack & Joint Repair
  - 4. ARDEX ARDISEAL™ RAPID PLUS Semi-Rigid Joint Sealant
  - 5. ARDEX K 22 F™ High Flow Fiber Reinforced Self-Leveling Underlayment
- B. Related Sections include the following:
  - 1. Section 03 54 16, Hydraulic Cement Underlayment
  - 2. 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 F3010 – Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings.
- G. ASTM D2369 – Standard Test Method for Volatile Content of Coatings
- H. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

#### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, a Revit file with applicable materials meeting the Revit Content Style Guide, 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 Americas (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 Underlayments and Toppings

- 1. Acceptable Products:

- a. ARDEX MC™ RAPID; Manufactured by ARDEX Americas, 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+/-3°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 – 190 sq. ft. (16 – 18 m<sup>2</sup>) per 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. Prime and Install Underlayment: Minimum 4 hours, maximum 24 hour

### 2.2 HYDRAULIC CEMENT UNDERLAYMENT

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

- 1. Acceptable Products:

- a. ARDEX K 22 F™ High Flow Fiber Reinforced; Manufactured by ARDEX Americas, USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)

- i. Primer: ARDEX P 82™ Ultra Prime

- 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:

- i. Application: Barrel Mix or Pump
- ii. Drying Time: 24 hours typically
- iii. Final Set: See Technical Data Sheet
- iv. Compressive Strength: 6000psi (420 kg/cm<sup>2</sup>) at 28 days, ASTM C109M.
- v. Flexural Strength: 1600psi (112kg/cm<sup>2</sup>) at 28 days, ASTM C348.
- vi. VOC: 0

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

## 2.3 CRACK AND JOINT REPAIR

- A. Low Viscosity Rigid Polyurethane Crack and Joint Repair; ARDEX ARDIFIX™; Manufactured by ARDEX Americas; USA; 724-203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
- B. Semi-Rigid Joint Sealant; ARDEX ARDISEAL™ Rapid Plus Semi-Rigid Joint Sealant; Manufactured by ARDEX Americas; USA; 724-203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)

## 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 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™ RAPID (typically CSP 6 or higher), the substrate can be pre-smoothed. Please contact ARDEX Technical for guidance.
- B. Crack and Joint Treatment
  1. Dormant control joints and dormant cracks greater than a hairline (1/32" / 0.79 mm) must be pre-filled with ARDEX ARDIFIX™. 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. ARDEX recommends wearing an N-95 dust mask when broadcasting sand. Remove all excess sand prior to proceeding with the ARDEX MC RAPID installation.

2. 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™ 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). ARDEX recommends wearing an N-95 dust mask when broadcasting sand.
  4. Following the application of MC RAPID and primer (if needed) or sand broadcast, install the selected ARDEX Underlayment as outlined in the technical data sheet.

5. It is not necessary to re-test the substrate for moisture emissions prior to installing the coating or floor covering.

### 3.3 APPLICATION OF ARDEX K 22 F™ SELF LEVELING UNDERLAYMENT:

- 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.
- D. For pump installations, ARDEX K 22 F™ shall be mixed using the ARDEX ARDIFLO™ Automatic Mixing Pumps. Contact the ARDEX Technical Service Department (888) 512-7339 for complete pump operation instructions.
- E. When mixing sanded materials, ARDEX recommends using the ARDEX DUSTFREE™ or a standard “gutter hook” vacuum attachment in combination with a wet/dry (Shop-Vac® style) vacuum and HEPA dust extraction vacuum system. Additionally, each bag should be handled with care and emptied slowly to avoid creating a plume of dust. Contact the ARDEX Technical Service Department for more details on ARDEX products and air quality management.
- F. Application: Comply with manufacturer's printed instructions.
- G. Curing
  1. The cure time required prior to installing finish flooring will vary with the thickness of the ARDEX K 22 F™ installation and the type of flooring being installed. See Technical Data Sheet or contact ARDEX Technical Services Department (888) 512-7339 for information regarding recommended cure times.

### 3.4 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.

### 3.5 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**