

## **ARDEX GUIDE SPECIFICATION for ARDEX PU 50**

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### **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 moisture management system formulated to suppress excessive moisture vapor emissions up to 98% RH in concrete prior to installing an ARDEX Underlayment or flooring.
  - 1. ARDEX ARDIFIX™ Two-Part, Low Viscosity Rigid Polyurethane Crack & Joint Repair
  - 2. ARDEX PU 50™ One-Component, Polyurethane Vapor Retarder
  - 3. Selected ARDEX Primer
  - 4. ARDEX K 13™ Self-Leveling Underlayment
  - 5. ARDEX FEATHER FINISH® Self-Drying, Cement-Based Finish Underlayment
- 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 D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
- E. ASTM E1745 – Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs

- F. 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 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 PU 50 Warranty. Upon receipt and approval of the pre-installation checklist, a 15-year ARDEX PU 50 Warranty is available for ARDEX LevelMaster Elite® Installers and a 10-year ARDEX PU 50 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.

## PART 2 - PRODUCTS

### 2.1 MOISTURE VAPOR EMISSION CONTROL

#### A. Acceptable Products:

1. ARDEX PU 50™; Manufactured by ARDEX Americas: 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+/-3°C) and 50% +/-5% relative humidity:
  - a. Application: Manual
  - b. Material requirements (Will vary with concrete surface profile, porosity and texture):
    - i. Approx. 500 sq. ft. (46.5 sq. m) per unit at 2 coats of 4 mils (100 microns) each
    - ii. Approx. 200 sq. ft. (18.5 sq. m) per gallon at 2 coats of 4 mils (100 microns) each
    - iii. Approx. 4.9 sq. m per liter at 2 coats of 4 mils (100 microns) each
    - iv. 14 pH solution (ASTM D1308): No effect
    - v. Walkable: When completely dry (approx. 60 minutes); no max. provided surface is protected
    - vi. VOC: 0 g/L
    - vii. Install ARDEX Underlayment: 1 – 24 hours (after the application of the second coat)
    - viii. Install Floating / Non-Adhered Floor Covering: 1 – 24 hours (after the application of the second coat)

### 2.2 HYDRAULIC CEMENT UNDERLAYMENT

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

##### 1. Acceptable Products:

- a. ARDEX K 13; Manufactured by ARDEX Americas: 400 Ardex Park Drive, Aliquippa, PA 15001 USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
  - i. Primer: Selected ARDEX Primer

### 2.3 MAINTENANCE OF CAST-IN-PLACE CONCRETE

#### A. Self-Drying, Cement-Based Finish Underlayment

##### 1. Acceptable Products:

- a. ARDEX FEATHER FINISH®; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA, 15001, USA 724-203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
  - i. Primer: Selected ARDEX Primer

2.4 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. Mechanical preparation methods and dust and debris removal must comply with OSHA Silica Standard for Construction.
2. Where ARDEX PU 50 will be installed, the concrete must be prepared to the point of absorbency in accordance with ASTM F3191.
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 must be measured (ASTM F2170). ARDEX PU 50 is suitable for moisture levels up to 98% RH over porous concrete and up to 85% RH over radiant-heated concrete slabs. For moisture levels greater than 95% RH, the installation space must be enclosed and acclimated with the HVAC system running, and the ambient humidity must not exceed 60%
5. For all installation of ARDEX PU 50, if the slab is on or below grade, an effective and intact vapor retarder must be placed directly below the concrete in conformance with ASTM E1745.
6. The surface of the concrete must be completely dry at the time the ARDEX PU 50 is installed. Verify concrete surface dryness by mat testing in conformance with ASTM D4263. See the technical data sheet for further information on required length of dryness and surface temperature.

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 PU 50 installation.

2. All moving joints and moving cracks must be honored up through the ARDEX PU 50, 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 PU 50:

- 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 and Application: Comply with manufacturer's printed instructions and the following.
  1. Shake ARDEX PU 50 well and roll the material at a thickness of 4 mils in strict accordance with the technical data sheet. Once an area has been completely coated, allow this course to dry to a tack-free film (min. 60 minutes, max. 24 hours; 70°F / 21°C).
  1. Once the first coat is dry, install a second coat of ARDEX PU 50 at a thickness of 4 mils in accordance with the technical data sheet. Allow the final coat to completely dry to a tack-free film (approx. 60 minutes, max. 24 hours; 70°F / 21°C) prior to proceeding.
  2. Prime the surface with ARDEX P 4 in accordance with the technical data sheet.
  4. Allow the ARDEX P 4 to dry to a thin, opaque white film (min. 30 minutes). There is no time limit before installing the ARDEX underlayment, but the installation should proceed as soon as possible to avoid surface contamination or damage.

### 3.3 APPLICATION OF ARDEX K 13™ (If required):

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- C. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.
- D. Mixing: Comply with manufacturer's printed instructions and the following.
  1. Mix two bags at a time.
  2. For High-Flow, Thin Applications (Average depth less than ¼"): Add 6 quarts (5.68 L) of clean potable water per 50-pound (22.7 kg) bag.
  3. For All Other Applications (up to 1 ½"): Add 5.75 quarts (5.44 L) of clean potable water per 50-pound (22.7 kg) bag.
  4. Mix using a ½" (12 mm) low speed heavy-duty mixing drill (min. 650 rpm) with an ARDEX T-1 mixing paddle. Do not overwater.

5. For pump installations, ARDEX K 13™ shall be mixed using the ARDEX ARDIFLO™ Automatic Mixing Pumps. Contact the ARDEX Technical Service Department (888) 512-7339 for complete pump operation instructions.
6. 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.

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

1. ARDEX K 13™ must be installed at a minimum thickness of 1/8” (3 mm) over the highest point in the floor, which typically results in an average thickness of 1/4” (6 mm) over the entire floor. ARDEX K 13™ can be installed up to 1 1/2" (4 cm) thick for standard applications and up to 1/4" (6 mm) for high-flow applications, and can also be tapered to as thin an application as the sand will allow to match existing elevations. If a true featheredge is needed, ARDEX recommends using ARDEX FEATHER FINISH® for transitions. Installations over non-porous substrates should be limited to a maximum thickness of 1/2”.
2. Pour the liquid ARDEX K 13™ and spread into place with the ARDEX T-4 Spreader. Immediately use the ARDEX T-5 Smoother to smooth the surface. Wear non-metallic cleats to avoid leaving marks in the liquid ARDEX K 13™.

F. Curing

1. ARDEX K 13™ can be walked on in 2-3 hours after installation. Contact the ARDEX Technical Services Department (888) 512-7339 or refer to the technical data sheet for recommended cure times prior to installing finish flooring.

### 3.4 APPLICATION OF ARDEX FEATHER FINISH®:

- 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. Add 2 1/2 quarts (2.4 L) of clean potable water per 10-pound (4.5 kg) bag.
  2. Mix using a 1/2” (12 mm, 650 rpm) low speed heavy-duty mixing drill with an ARDEX T-2 ring mixing paddle. Do not overwater.
- D. Application: Comply with manufacturer's printed instructions and the following.

1. ARDEX FEATHER FINISH can be installed from a true featheredge up to ½” (12.7 mm) over large areas. It can also be installed up to any thickness in small, well-defined areas.
2. Apply the ARDEX FEATHER FINISH to the substrate with the flat side of a trowel to obtain a solid mechanical bond before applying the desired thickness.

E. Curing

1. As soon as the ARDEX FEATHER FINISH can be worked on without damaging the surface (15-20 minutes), standard floor coverings such as VCT, sheet vinyl and carpeting can be installed. If installing wood flooring, or, if high-performance adhesives will be used, such as epoxies or urethanes, ARDEX FEATHER FINISH must first cure for 16 hours (70°F).

3.5 APPLICATION OF FLOATING OR NON-ADHERED DIRECT FLOORING:

- A. Floating or non-adhered flooring systems may be installed directly over ARDEX PU 50 without the use of an underlayment. Please see the technical data sheet for more information related to this topic.

3.6 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.

3.7 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**