

## **ARDEX GUIDE SPECIFICATION**

### **ARDEX K 22 F™**

High Flow, Fiber Reinforced, Self-Leveling Underlayment

---

---

## **SECTION 03 54 13 GYPSUM CEMENT UNDERLAYMENT**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes ARDEX K 22 F™ High Flow, Fiber Reinforced, Self-Leveling Underlayment is a blend of high-strength, fiber-reinforced gypsum and Portland cements as well as powdered polymers used to repair existing above-grade floors prior to the installation of new floor coverings. Pourable or pumpable when mixed with water, it seeks its own level and produces a smooth, flat, hard surface.

- 1. ARDEX K 22 F™ High Flow, Fiber Reinforced, Self-Leveling Underlayment
- 2. ARDEX P 51™ Primer
- 3. ARDEX P 82™ Primer

- B. Related Sections include the following:

- 1. Section 03 30 00, Cast-In-Place Concrete
- 2. Section 09 05 61.13, Moisture Vapor Emission Control
- 3. Division 09 Flooring Sections

#### **1.3 REFERENCES**

- A. ASTM C109M, Compressive Strength Air-Cure Only
- B. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars
- C. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes
- D. ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

#### 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, Choice Contractor or INSTALL Substrate Prep Certified Installer, using mixing equipment and tools approved by the manufacturer. Please contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers. [www.ardexamericas.com](http://www.ardexamericas.com)
- 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 10 years. Contact Manufacturer Representative prior to installation.

#### 1.6 WARRANTY ARDEX K 22 F™ installed as part of a floor system, shall be installed in conjunction with the recommended WW HENRY® Flooring Adhesive, as appropriate, to provide the ARDEX SystemOne 10-year Limited 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. ARDEX K 22 F™ contains gypsum-based materials. Do not install in applications on or below grade or in any areas subject to high moisture conditions. Never mix with cement or additives other than ARDEX-approved products.
- B. 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 GYPSUM CEMENT UNDERLAYMENT**

#### **A. Gypsum Cement Self-Leveling Underlayment**

1. Acceptable Products:
  - a. ARDEX K 22 F™; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA 15001 USA, [www.ardexamericas.com](http://www.ardexamericas.com)
    - i. Primer Standard Porous Concrete: ARDEX P 51™ Primer
    - ii. Primer Non-porous substrates including, ceramic, porcelain & quarry tile, epoxy coating systems and concrete treated with silicate compounds, terrazzo and burnished concrete: ARDEX P 82™ Ultra Prime
2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F (21° C) and 50 percent relative humidity:
  - a. Application: Barrel Mix or Pump
  - b. Compressive Strength: 6,000 psi (420 kg/cm<sup>2</sup>) at 28 days, ASTM C109M.
  - c. Flexural Strength: 1,600 psi (112 kg/cm<sup>2</sup>) at 28 days, ASTM C78.
  - d. VOC: 0

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

## **PART 3 – EXECUTION**

### **3.1 PREPARATION**

#### **A. General: Prepare substrate in accordance with manufacturer's instructions.**

1. Concrete: 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 priming. Mechanically clean if necessary using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.
3. Wooden subfloors: The wood subfloor either must be solid hardwood flooring; a minimum of 3/4" (19 mm) tongue-and-groove, APA-rated Type 1, exterior exposure plywood; or an approved OSB equivalent. The wood subfloor must be constructed according to prevailing building codes and must be solid and securely fixed to provide a rigid base free of undue flex. Any boards exhibiting movement must be properly fastened to create a sound, solid subfloor. The surface of the wood must be clean and free of oil, grease, wax, dirt, varnish, shellac and any contaminant that might act as bond breaker. If necessary, sand to bare

wood. A commercial drum sander can be used to sand large areas. Do not use solvents, strippers or cleaners. Vacuum all dust and debris.

4. Cutback and other non-water soluble adhesive residues must be wet scraped to a thin, well-bonded layer.
  5. Non-porous subfloors such as ceramic and quarry tile as well as terrazzo should be clean and free of all waxes and sealers. If necessary, clean by mechanical methods such as shot blasting or other.
- B. Joint Preparation
1. Moving Joints – honor all moving joints including, expansion and isolation joints up through the underlayment. A flexible sealing compound such as ARDEX ARDISEAL™ may be installed.
  2. Saw Cuts and Dormant Control Joints – fill all dormant control joints or dormant cracks with ARDEX ARDIFIX™ Joint Filler or ARDEX SD-F™ FEATHER FINISH® as recommended by the manufacturer.

### 3.2 APPLICATION OF ARDEX K 22 F™

- 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. Priming
  1. Gypsum subfloors:
    - a. Mix ARDEX P 51 3:1 with water and apply evenly with a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, thin film (1-3 hours).
    - b. Mix ARDEX P 51 1:1 with water and apply evenly with a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, thin film (min. 3 hours, max. 24 hours). ARDEX K 22 F Underlayment shall not be installed until second primer application is completely dry.
  2. Wood and Non-Water-Soluble Adhesive Residue on Concrete: Prime with ARDEX P 51 at full strength (do not dilute). Apply directly to prepared substrate with a short-nap or sponge paint roller, leaving a thin coat of primer. Do not leave any bare spots. Brush off puddles and excess primer. Allow to dry to a clear, thin film (min. 3 hours, max. 24 hours).
  3. Non-porous subfloors, burnished concrete, terrazzo, VCT, ceramic, quarry and porcelain tiles, epoxy coating systems and concrete treated with silicate compounds: Prime with ARDEX P 82. Follow the mixing instructions in the P 82 technical data sheet and apply

with a short-nap or sponge paint roller, leaving a thin coat of primer no heavier than a thin coat of paint. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, slightly tack film (min. 3 hours, max. 24 hours).

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

1. Add 4.5 quarts (4.25 L) of clean potable water per 50-pound (22.7 kg) bag. ARDEX K 22 F<sup>TM</sup> is mixed two bags at a time.
2. Mix using a ½" (12 mm) heavy-duty mixing drill (min. 650 rpm) with an ARDEX T-1 mixing paddle. Do not overwater.
3. If applicable, aggregate mix: For areas to be installed over 1 ¼" (3 cm) and up to 2" (5 cm) thick, aggregate may be added. Mix ARDEX K 22 F<sup>TM</sup> with water first, then add 1 part by volume of washed, dry, well graded pea gravel aggregate, 1/8" to 3/8" (3 – 9.5 mm). The aggregate size must not exceed 1/3 the depth of the pour. Do not use sand. Note: The addition of aggregate will diminish the workability of the product and may make it necessary to install a neat coat to obtain a smooth surface. Allow the initial application to dry for 12 – 16 hours, and then prime this layer with ARDEX P 51 mixed 1:1 with water as stated above. Allow to dry to a clear, thin film (min. 3 hours, max. 24 hours).
4. For pump installations, ARDEX K 22 F<sup>TM</sup> shall be mixed using the ARDIFLO<sup>TM</sup> Automatic Mixing Pump. Pumps may be rented from an authorized ARDEX Distributor. Contact the ARDEX Technical Service Department for complete pump operation instructions.

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

1. ARDEX K 22 F<sup>TM</sup> must be installed at a minimum thickness of 1/16" (1.5 mm) over the highest point in the floor, which typically results in an average thickness of 1/8" (3 mm) over the entire floor. ARDEX K 22 F<sup>TM</sup> can be installed up to 1 ¼" (3 cm) over large areas neat, and up to 2" (5 cm) with the addition of proper aggregate.
2. Pour or pump the liquid ARDEX K 22 F<sup>TM</sup> and spread in place with the ARDEX T-4 Spreader. Use the ARDEX T-5 Smoother and featheredge and touch-up. Wear non-metallic cleats to avoid leaving marks in the liquid ARDEX K 22 F<sup>TM</sup>.

F. Curing

1. ARDEX K 22 F<sup>TM</sup> can be walked on in 2-3 hours. For installations up to 1/8" (3 mm), allow the installation to dry a minimum of 24 hours. Installations greater than 1/8" (3 mm), flooring installation may continue when confirmed dry via mat testing (estimated 2-3 days).
2. Once the installation is deemed dry, prime the entire area with ARDEX P 51 mixed with 3 parts water by volume. Allow drying to a clear, thin film (min. 3 hours, max. 24 hours) prior to installing finish flooring.

3. Drying time is a function of jobsite temperature and humidity conditions, as well as the installation thickness. Low substrate temperatures and/or high ambient humidity will extend the drying time. Adequate ventilation and heat will aid drying. Forced drying can dry the surface of the underlayment prematurely and is not recommended.

#### 3.4 FIELD QUALITY CONTROL

- A. Where specified, field sampling of the Ardex underlayment is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only. There are no in situ test procedures for the evaluation of compressive strength.

#### 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**