

ARDEX GUIDE SPECIFICATION

ARDEX K 13™ Premium Self-Leveling Underlayment

A Self-Leveling Underlayment that Consists of a Blend of Portland Cement and Other Hydraulic Cements for Interior Applications

SECTION 03 54 16 HYDRAULIC 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 a premium self-leveling that is used to level and smooth interior concrete, terrazzo, ceramic & quarry tile, epoxy coating systems, and non-soluble-adhesive residue on concrete prior to the installation of finish flooring on all grade levels.
 - 1. ARDEX K 13™ Self-Leveling Underlayment
 - 2. ARDEX P 51™ Primer
 - 3. ARDEX P 82™ Ultra Prime
- 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
- E. ASTM C1708, Standard Test Method for Self-Leveling Mortars Containing Hydraulic Cements

- 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 Material 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. Contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers.
- B. Product must have a hydraulic cement-based inorganic binder content as the primary binder which includes Portland cement per ASTM C150: Standard Specification for Portland cement and other specialty hydraulic cements. Gypsum-based products are not acceptable.
- C. 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 13™ installed as part of a floor system, shall be installed in conjunction with the recommended ARDEX Tile & Stone Installation Materials or WW HENRY Flooring Adhesive, as appropriate, to provide the ARDEX SystemOne comprehensive warranty. The length of the warranty depends on the system installed.

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 HYDRAULIC CEMENT UNDERLAYMENT

A. Hydraulic Cement-based Self-Leveling Underlayment

1. Acceptable Products:

- a. ARDEX K 13™; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA, 15001, USA, (724) 203-5000, www.ardexamericas.com

i. Primer

1. Standard Absorbent Concrete: ARDEX P 51™ Primer
 2. Extremely Absorbent Concrete: May require two applications of ARDEX P 51 to minimize the potential for pinholes forming in the ARDEX K 13.
 3. Non-porous substrates such as burnished concrete, terrazzo, well-bonded ceramic and quarry tile, epoxy coating systems, non-water soluble adhesive residue on concrete and concrete treated with silicate compounds: ARDEX P 82™ Ultra Prime
2. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F+/-3°F (23° C+/-3°C) and 50% +/-5% relative humidity:
 - a. Application: Barrel Mix or Pump
 - b. Compressive Strength: 5,300 psi (371 kg/cm²) at 28 days, ASTM C109M.
 - c. Flexural Strength: 1,000 psi (70 kg/cm²) at 28 days, ASTM C348
 - 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:

- a. 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.

- b. Substrates shall be inspected in accordance with ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the underlayment or the finished floor covering. For areas where moisture vapor emissions exceed the required limits refer to Section 09 05 61.13, Moisture Vapor Emission Control and install the appropriate ARDEX Moisture Control System.

B. Crack and Joint Preparation:

1. Moving Joints and Moving Cracks – honor all moving joints and moving cracks up through the underlayment. A flexible sealing compound such as ARDEX ARDISEAL™ RAPID PLUS Semi-Rigid Joint Sealant may be installed.
2. Saw Cuts, Dormant Control Joints and Dormant Cracks – fill all dormant control joints and dormant cracks with ARDEX ARDIFIX™ Low Viscosity Rigid Polyurethane Crack and Joint Repair or ARDEX FEATHER FINISH® Self-Drying, Cement-Based Finish Underlayment as recommended by the manufacturer.

C. Adhesive residues on concrete must first be tested to make certain they are not water-soluble. Water-soluble adhesives must be completely mechanically removed down to clean concrete. Non-water-soluble adhesives should be prepared to a thin, well-bonded residue using the wet-scraping technique as recommended by the Resilient Floor Covering Institute (www.rfci.com). The prepared residue should appear as nothing more than a transparent stain on the concrete after scraping.

D. Non-porous subfloors such as terrazzo, burnished concrete, epoxy coating systems, well-bonded ceramic and quarry tile must be clean and free of all waxes, sealers dust, dirt, debris and any other contaminant that may act as a bond breaker. If necessary, clean by mechanical methods such as shot blasting.

3.2 APPLICATION OF ARDEX K 13™

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. Primer for standard absorbent concrete subfloors: Dilute ARDEX P 51 1:1 with water and apply evenly with a soft bristled push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry to a clear, thin film (min. 30 minutes, max. 24 hours). Underlayment shall not be applied until the primer is dry. It is critical to ensure that the ARDEX P 51 is dry prior to proceeding with the next installation step. To determine if the ARDEX P 51 is dry after a minimum of 30 minutes (max. 24 hours), pour water onto the surface of the primer in several areas and rub it with your finger. If the water remains clear, the primer is dry. If the water turns cloudy or milky, additional drying time is needed.

2. Primer for extremely absorbent concrete subfloors: Make an initial application of ARDEX P-51 mixed with 3 parts water using a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow to dry thoroughly (1 to 3 hours) before proceeding with the standard application of primer as described above for standard absorbent concrete.
3. Primer for non-porous subfloors such as burnished concrete, terrazzo, well-bonded ceramic and quarry tile, epoxy coating systems, non-water soluble adhesive residues on concrete and concrete treated with silicate compounds: Prime with ARDEX P 82 Ultra Prime. Follow the mixing instructions on the container 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 (minimum 3 hours, maximum 24 hours). NOTE: If a suitable acrylic curing compound has been used on the concrete, test the surface for porosity. If the concrete is porous, prime with ARDEX P 51. If it is non-porous, prime with ARDEX P 82.

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 1/4"): 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 1/2"): Add 5.75 quarts (5.44 L) of clean potable water per 50-pound (22.7 kg) bag.
4. Mix using a 1/2" (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.

3.3 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.

3.4 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