

**ARDEX GUIDE SPECIFICATION****ARDEX K 15® Premium Self-Leveling Underlayment**

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

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**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 self-leveling underlayment that consists of a blend of Portland cement and other hydraulic cements and polymers that is used to level and smooth interior concrete, terrazzo, well-bonded ceramic & quarry tile, epoxy coating systems, wood, metal and properly prepared, non-water-soluble adhesive residue on concrete prior to the installation of finish flooring on all grade levels.

1. ARDEX K 15® Premium Self-Leveling Underlayment
2. ARDEX P 51™ Primer
3. ARDEX P 82™ Ultra Prime
4. ARDEX EP 2000™ Substrate Preparation Epoxy Primer
5. ARDEX E 25™ Resilient Emulsion

- 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

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- 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, 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, Choice Contractor or INSTALL Substrate Prep Certified Installer, using mixing equipment and tools approved by the manufacturer. Contact ARDEX AMERICAS (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 15® 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, depending 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 the 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 15<sup>®</sup>; Manufactured by ARDEX AMERICAS, USA, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
- i. Primer:
1. Standard Absorbent Concrete: ARDEX P 51<sup>™</sup> Primer
  2. Extremely Absorbent Concrete: May require two applications of ARDEX P 51<sup>™</sup> to minimize the potential for pinholes forming in the ARDEX K 15.
  3. Wood: ARDEX P 82<sup>™</sup> Ultra Prime
  4. Metal: ARDEX EP 2000<sup>™</sup> Substrate Preparation Epoxy Primer
  5. Other Non-Porous Substrates (burnished concrete, terrazzo, well-bonded ceramic, quarry and porcelain tiles, epoxy coating systems and non-water soluble adhesive residue on concrete and concrete treated with silicate compounds): ARDEX P 82<sup>™</sup> Ultra Prime
- ii. 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:
1. Application: Barrel Mix or Pump
  2. Flow Time: 10 minutes
  3. Walkable: 2 to 3 hours
  4. Compressive Strength: 5,500 psi (385 kg/cm<sup>2</sup>) at 28 days, ASTM C109M
  5. Flexural Strength: 1,200 psi (84 kg/cm<sup>2</sup>) at 28 days, ASTM C348
  6. 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 expansion, isolation 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 & Joint Repair or ARDEX FEATHER FINISH® Self-Drying, Cement-Based Finish Underlayment as recommended by the manufacturer.
- C. 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 refastened to create a sound, solid subfloor. The wood must be clean and free of all foreign matter. If necessary, sand down to bare wood. Vacuum to remove all dust. Do not use solvent, strippers or cleaners. Open joints should be filled with ARDEX FEATHER FINISH®. It is the responsibility of the installation contractor to ensure that the wood subfloor is thoroughly clean and properly anchored prior to the installation of any ARDEX material.
- D. Metal subfloors: Metal subfloors must be rigid, well supported, properly anchored and free of undue flex and vibration. They must also be clean and free of all rust, corrosion and foreign matter.
1. Non-lead metal substrates must be mechanically cleaned and profiled to create a bonding surface. Please note that care must be taken when mechanically preparing thin metal foils so

that the metal foil is not compromised. Use an #80 or #100 grit sanding screen to mechanically profile the metal surface. A hand or floor sander may be used. After sanding, thoroughly deep vacuum to remove all loose material, and then wipe the metal using a clean, white cloth dampened with 91% isopropyl alcohol. Repeat wiping using a new cloth on each pass until the degree of discoloration on the cloth remains consistent on subsequent passes (typically, approx. 5 – 7 passes). Lightly shot blasting also is suitable. From this point until the metal has been primed, disposable shoe covers should be worn by anyone traversing the surface of the prepared metal. Allow 15 – 20 minutes for residual alcohol to evaporate before proceeding. Contact the Technical Service Department for guidelines on preparing lead substrates.

- E. 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](http://www.rfci.com)). The prepared residue should appear as nothing more than a transparent stain on the concrete after scraping.
- F. Non-porous subfloors such as ceramic, porcelain and quarry tile, burnished concrete, epoxy coating systems as well as terrazzo should 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 15®

- 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: Comply with manufacturer's printed instructions
- D. Mixing: Comply with manufacturer's printed instructions and the following.
  - 1. For pump installations, ARDEX K 15® 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. Application: Comply with manufacturer's printed instructions and the following:
  - 1. Installations over metal and other non-porous substrates should be limited to a thickness of 1/2" (12.7 mm) unless otherwise approved by the ARDEX Technical Services Department. For all other substrates, ARDEX K 15® 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) or more over the entire floor. ARDEX K 15® can be installed up to 1 1/2" (4 cm) over large areas neat, and up to 5" (12.7 cm) with the addition of proper aggregate. ARDEX K 15® can also be featheredged to match existing elevations. If a true featheredge is needed, ARDEX recommends using ARDEX FEATHER FINISH® for transitions.

2. Pour or pump the liquid ARDEX K 15<sup>®</sup> 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 15<sup>®</sup>.
3. Wood subfloors require the use of the mesh-reinforced ARDEX K 15<sup>®</sup> + E 25<sup>™</sup> Resilient Emulsion Underlayment System. After priming, install 3.4 galvanized diamond metal lath by stapling to the wooden subfloor approximately every 6 inches to center.
4. Metal subfloors require the use ARDEX K 15<sup>®</sup> + E 25<sup>™</sup> Resilient Emulsion Underlayment System.

#### F. Curing

1. ARDEX K 15<sup>®</sup> can be walked on in 2-3 hours. Moisture-insensitive tiles such as ceramic, quarry and porcelain can be installed after 6 hours. All other finish floor coverings can be installed after 16 hours at 70°F (21°C). For resinous systems such as epoxy and polyurethane floors please contact the ARDEX Technical Services Department.

#### 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**