

ARDEX GUIDE SPECIFICATION
ARDEX K 40™ RAPID
Rapid, High Flow Self-Leveling Underlayment

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 an underlayment that consists of a blend of Portland cement and other hydraulic cements that is used to level and smooth interior concrete, terrazzo, ceramic and quarry tile, epoxy coating systems and non-water-soluble adhesive residue on concrete.

- 1. [ARDEX K 40™ RAPID Rapid, High Flow Self-Leveling Underlayment](#)
- 2. [Selected ARDEX Primer](#)

- B. Related Sections include the following:

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

1.3 REFERENCES

- A. ASTM C109M, Compressive Strength Air-Cure Only
- B. ASTM E10M, Standard Test Method for Brinell Hardness
- 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. Contact ARDEX Americas (724) 203-5000 for a list of recommended installers.
- B. Product must have 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 products for not less than 10 years. Contact Manufacturer Representative prior to installation.

1.6 WARRANTY: ARDEX K 40™ RAPID 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 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

Acceptable Products:

1. ARDEX K 40™ RAPID; manufactured by ARDEX Americas: 400 Ardex Park Drive, Aliquippa, PA, 15001, USA, (724) 203-5000, www.ardexamericas.com
 - a. Selected ARDEX Primer dependent on substrate, and absorbency of substrate and moisture control requirements. See ARDEX K 40 RAPID Technical Data sheet for further information.
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. Mixing: Barrel Mix or Pump
 - b. Flow Time: 10 minutes
 - c. Walkable: 60 – 90 minutes
 - d. Compressive Strength: 8,000 psi (562 kg/cm²) at 28 days, ASTM C109M
 - e. Flexural Strength: 2,000 psi (140.6 kg/cm²) at 28 days, ASTM C348
 - h. VOC: 0

PART 3 – EXECUTION

3.1 PREPARATION

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

1. Shot blasting or other mechanical means must be used for Prop Pre. Sanding is not a sufficient means of cleaning or preparing concrete. Do not use acid etching, adhesive removers, solvents or sweeping compounds, as these are bond breakers.
2. Handle and dispose of asbestos and other hazardous materials in accordance with prevailing regulations, which supersede the recommendations in this document.
3. All substrates must be sound, solid and thoroughly clean of all bond-breaking contaminants, including but not limited to overwatered or otherwise loose or weak material, unapproved sealers, unsuitable adhesive residues, and patching and leveling materials.
4. Depending on the selected moisture control system or primer, additional prep may be needed. Please see the technical data sheet.

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 & Joint Repair or ARDEX FEATHER FINISH® Self-Drying, Cement-Based Finish Underlayment as recommended by the manufacturer.
3. If a moisture control system will be installed, the crack and joint preparation recommendations will differ. Please see the technical data sheet.

3.2 APPLICATION OF ARDEX K 40™ 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. Priming: Comply with manufacturer's printed instructions.
- D. Mixing: Comply with manufacturer's printed instructions and the following.
 1. Manual: Mix two bags at a time. Pour the water in the mixing drum first, and then add product while mixing with an ARDEX T-1 Mixing paddle and a 1/2" (12 mm) heavy-duty drill (min. 650 rpm). Mix thoroughly for approximately 2 to 3 minutes to obtain a lump-free mix. Do not overwater!
 2. Pumping: Product can be pumped. Please contact the ARDEX Technical Service Department.
- E. Application: Comply with manufacturer's printed instructions and the following.
 1. Pour the mix onto the floor and spread with the ARDEX T-4 Spreader. Immediately smooth the material with the ARDEX T-5 Smoother, or spike roll the material with the ARDEX T-6 Spiked Roller. Work in a continuous manner during the entire self-leveling installation. Wear cleated athletic shoes with non-metallic spikes to avoid leaving marks in the liquid.
 2. This product can be installed up 1" (24 mm) thick. Install 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) or more over the entire floor.
 3. Where thicker applications are needed, ARDEX recommends using ARDEX K 13™ Premium Self-Leveling Underlayment.

4. To match existing elevations, product can be tapered to as thin an application as the sand in the material will allow. If a featheredge is needed, ARDEX recommends using ARDEX FEATHER FINISH.
5. Please note that for thin applications, the profile of the substrate can affect the flatness and smoothness of the product. The thickness of the application should be calculated based on the surface profile of the substrate and the specified tolerances of the floor covering.

F. Curing

1. The cure time is dependent on the installed thickness and the selected finish flooring. See the Technical Data sheet for further information.

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

Disclaimer: The recommendation selected is based upon questions answered on the ARDEX Americas website. This recommendation is designed as a general application for your described situation and should not be considered site specific documentation for general distribution. Always consult the latest relevant Ardex Technical Updates and information on the product packaging and/or product data sheets (available on the Ardex Website). All building standards should be followed during installation. If you have any further questions or would like further clarification please contact the Ardex Technical Services Hotline on 1-888-512-7339 (8am to 5pm Monday to Friday).