

ARDEX GUIDE SPECIFICATION
ARDEX K301™ Exterior Self-Leveling Concrete Topping
Exterior-Grade Concrete Topping

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 concrete topping that contains a blend of Portland cements and other hydraulic cements.
 - 1. ARDEX K 301™ Exterior Self-Leveling Concrete Topping
 - 2. ARDEX EP 2000™ Substrate Preparation Epoxy Primer
 - 3. ARDEX CG Concrete Guard™ 2.0

1.3 REFERENCES

- A. ASTM C 109M, Compressive Strength Air-Cure Only
- B. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars

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. **Manufacturer's Qualifications:** The manufacturer shall be a company with at least five years' experience and regularly engaged in the manufacture and marketing of products specified herein. Contact Manufacturer Representative prior to installation. Installation of the ARDEX product must be completed by a factory-trained installer, certified applicator, such as an ARDEX LevelMaster® Elite or Choice Contractor, using mixing equipment and tools approved by the manufacturer. Contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers.

1.6 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.

1.7 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. Self-Leveling Concrete Topping

1. Acceptable Products:

- a. ARDEX K301™; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, www.ardexamericas.com
 - i. Primer: ARDEX EP 2000™ Substrate Preparation Epoxy Primer

2. Performance and Physical Properties: Meet or exceed the following values:

- a. Application: Barrel Mix or Pump
- b. Walkable: 2 – 3 hours
- c. Flow Time: 10 minutes
- d. Compressive Strength: 4300 psi at 28 days, ASTM C109M.
- e. Flexural Strength: 1000 psi at 28 days, ASTM C348.
- f. Colors: Light Gray

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

2.3 SEALER: ARDEX CG Concrete Guard™ 2.0

PART 3 – EXECUTION

3.1 PREPARATION

- A. Concrete Subfloors: Prepare substrate in accordance with manufacturer's instructions.
 - 1. 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 to a minimum ICRI surface profile of CSP 3. Acid etching and the use of sweeping compounds and solvents are not acceptable.
- B. Joint and Crack Preparation:
 - 1. All Joints and Moving Cracks – Under no circumstances should ARDEX K 301 be installed over any joints or moving cracks. All joints and moving cracks may be filled with ARDEX ARDISEAL Rapid Plus Semi-Rigid Joint Sealant.
 - 2. Dormant Cracks – Fill dormant cracks greater than 1/32” with ARDEX ARDIFIX Low Viscosity Rigid Polyurethane Crack & Joint Repair.

3.2 APPLICATION OF ARDEX K 301

- 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. Install ARDEX EP 2000 Substrate Preparation Epoxy Primer. Apply the freshly mixed epoxy to the prepared surface using a short-nap paint roller or notched squeegee with back rolling for smoother surfaces and a longer nap for more uneven substrates. ARDEX EP 2000 can also be worked into the surface with a paintbrush for hard to reach areas and corners.

- a. While in a fresh state, broadcast in excess of fine sand (less than 1/50" in grain size or 98.5% passing sieve size #30 or #35) consistently over the entire area. After 16 hours, broom sweep and vacuum the surface to remove all loose sand. ARDEX recommends wearing an N-95 dust mask when broadcasting sand

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

1. 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.
2. ARDEX K 301 is mixed two bags at a time. Mix each 50 lb. (22.7 kg) bag with 5 quarts (4.73 L) of clean water.
3. Mix using a 1/2" (12 mm) heavy-duty mixing drill (650 rpm) with an ARDEX T-1 mixing paddle. Do not overwater.
4. Aggregate mix: For areas with thicknesses greater than 3/4" (19 mm), aggregate may be added to reduce material costs. Mix ARDEX K301™ with water first, then add 1-part aggregate by volume of washed, well-graded pea gravel aggregate (1/8" to 3/8"; 3 to 9.5 mm). Do not use sand. If the aggregate is wet, reduce the amount of water to avoid overwatering. Note: The addition of aggregate will diminish the workability of the product and may make it necessary to install a finish coat to obtain a smooth surface. ARDEX recommends a finish coat to obtain a smooth surface. Allow the initial application to dry for 24 hours, and then prime this layer with ARDEX EP 2000 and sand broadcast. All the primer to dry 16 hours before removing all excess sand and installing the neat coat of ARDEX K 301.
5. For pump installations, ARDEX K301 shall be mixed using the ARDEX ARDIFLO Automatic Mixing Pumps. Contact ARDEX Technical Service Department (724) 2035000 for complete pump operation instructions.

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

1. ARDEX K301 may be installed at a minimum thickness of 1/4" (6 mm) up to 3/4" (19 mm) over large areas neat and up to 2" (5 cm) with the addition of proper aggregate. ARDEX K 301
2. Pour or pump the liquid ARDEX K301 onto the substrate and spread in place with the ARDEX T-4 Spreader. Immediately smooth the material with the ARDEX T-5 Smoother. Wear non-metallic cleats to avoid leaving marks in the liquid ARDEX K301.

F. Curing

1. Although ARDEX K301 requires no special curing procedures, avoid applying this product if rain is expected within 6 to 8 hours, or if freezing temperatures could occur within 48 hours of application. As with any cementitious material, the above conditions can alter the appearance and performance of the topping.

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SECTION HYDRAULIC CEMENT UNDERLAYMENT

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ARDEX ENGINEERED CEMENTS

G. Sealing

1. The surface of ARDEX K301 must always be protected from oil, salt, water and surface wear by applying a suitable protection system. ARDEX recommends the use of ARDEX CG Concrete Guard 2.0 to seal ARDEX K301 that will be exposed to normal foot traffic.
2. For areas to receive heavier traffic, sealing should be done using an appropriate wear protection coating. As the performance of the coating systems varies greatly, the installer is responsible for assessing the suitability of these coatings.
 - a. If ARDEX CG Concrete Guard 2.0 or a waterborne sealer is to be applied at a thickness not-to-exceed a total of 20 mil (500 microns), the coating can be applied to the surface of the ARDEX K 301 after 24 hours at 70°F (21°C).
 - b. When using a solvent-borne or 100% solids coating applied at a total thickness of 20 mils (500 microns) or less, the ARDEX K 301 must cure for a minimum of 48 – 72 hours at 70°F (21°C).
 - c. When the total application thickness will exceed 20 mils (500 microns), the ARDEX K 301 must cure 7 days at 70°F (21°C) prior to installing the protection layer.

3.3 FIELD QUALITY CONTROL

- A. Where specified, field sampling of the Ardex topping 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.

END OF SECTION