

## SECTION 03 53 00

### FORMATTED SPECIFICATION FOR ARDEX K 301 EXTERIOR SELF-LEVELING CONCRETE TOPPING

#### PART I – GENERAL

##### 1.01 SUMMARY

- A. This is the recommended specification for ARDEX K 301 Self-leveling, Portland cement-based topping and underlayment for fast track resurfacing and smoothing for exterior and interior applications over concrete, porous tile and certain non-porous surfaces when properly prepared – on, above or below grade.

##### 1.02 SECTION INCLUDES

- A. ARDEX K 301™ Exterior Self-Leveling Concrete Topping and Underlayment.
- B. ARDEX EP 2000™ Substrate Preparation Epoxy Primer.
- C. ARDEX P 71™ Primer.
- D. Wear surface protection finish as approved by architect and/or specified in contract documents, to include ARDEX CD™ Concrete Dressing, ARDEX CD FINE™ Concrete Dressing and ARDEX CG™ *Concrete Guard*™.

##### 1.03 QUALITY ASSURANCE

- A. Installation of the cement-based, self-leveling topping must be by a qualified, factory-trained applicator, such as an Ardex LevelMaster Elite® Installer, who has specific experience with the installation of ARDEX K 301. Please contact Mary Gilson at ARDEX L.P. (888) 512-7339 or visit [www.levelmasterelite.com](http://www.levelmasterelite.com) for a complete list of Installers.
- B. Topping material shall achieve compressive strength of 4300 psi after 28 days per ASTM C109/modified (air-cure only).
- C. Topping shall be able to be installed from 1/4" to 3/4" in one pour for ARDEX K 301, and up to 2" with the addition of an appropriate aggregate.
- D. The surface shall be suitable to receive all types of wear surfaces or sealers when allowed to properly dry in accordance with the manufacturer's recommendations
- E. Topping shall be walkable after 2 to 3 hours, and able to be coated with a traditional wear protection coating after 24 hours.

##### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in their unopened packages and protect from extreme temperatures and moisture. Protect liquids from freezing.

## 1.05 SITE CONDITIONS

- A. ARDEX K 301 is a cementitious material. Observe the basic rules of concrete work. Do not install below 50°F surface and air temperature. Install quickly if floor is warm, and follow hot weather precautions available from the ARDEX Technical Service Department. Never mix with cement or additives other than ARDEX-approved products.
- B. The topping must be coated with a wear protection coating suitable for the intended use.
- C. ARDEX K 301 is a Portland cement-based product, and as with any cementitious material, variations in color can occur as a function of job-site conditions. If a monolithic appearance is required, it is recommended that an opaque sealer such as ARDEX CG GRAY, SANDSTONE, TERRACOTTA or similar product be used.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

- A. The Portland cement-based topping shall be ARDEX K 301.
- B. Primer for standard absorbent concrete to receive ARDEX K 301 shall be ARDEX EP 2000.
- C. Alternatively, concrete may be primed with ARDEX P 71 in strict accordance with the requirements provided in the ARDEX P 71 printed product literature. Note: It is recommended that the use of ARDEX P 71 be limited to areas that are going to be subsequently coated with an opaque sealer, such as ARDEX CG GRAY, SANDSTONE or TERRACOTTA - or ARDEX CD or ARDEX CD FINE - since pinholes and minor discoloration of the surface can occur when using this priming system.
- D. To fill dormant cracks, the epoxy material shall be Metzger & McGuire MM-80 or approved equal.
- E. The sand broadcast into the fresh ARDEX EP 2000 shall be fine sand that is less than 1/50 of an inch in grain size, or 98.5% passing sieve size #35.
- F. Aggregate shall be well-graded, washed gravel (1/8" to 1/4" or larger) for use in pre-leveling or when the material is installed over 3/4" thick.
- G. Water shall be clean, potable and sufficiently cool (not warmer than 70°F).
- H. Wear surface: the finished topping surface shall be coated with a resin-based wear protection system such as ARDEX CG or as specified.
- I. Alternatively, the surface can be coated with ARDEX CD or ARDEX CD FINE, followed by sealing with ARDEX CG.
- J. Floor covering can be used as the wear protection layer as specified.

### 2.02 MIX DESIGNS

- A. Mixing Ratio: The cementitious topping shall be mixed two bags at a time. Mix each bag of the powder with the specified amount of water in an ARDEX T-10 Mixing Drum using an ARDEX T-1 Mixing Paddle and a 1/2" heavy-duty drill (min. 650 rpm). Mix thoroughly for 2-3 minutes to obtain a lump-free mixture. Follow written instructions on the ARDEX product bag label.

- B. Aggregate mix: For pre-leveling and areas to be installed from 3/4" - 2" thick, aggregate may be added to reduce material costs. Mix the powder with water first, and then add from 1/3 up to 1 part by volume of aggregate (1/8" to 1/4" or larger). Do not use sand. The addition of aggregate will diminish the workability of the product, and may make it necessary to install a finish layer. Allow the first layer to dry for 24 hours before priming with ARDEX P 71 or ARDEX EP 2000 and installing a neat coat of ARDEX K 301 after, or use ARDEX CD or ARDEX CD FINE.
- C. For pump installations, the topping shall be mixed using the ARDEX Levelcraft™ Automatic Mixing Pump. Start the pump at 150 gallons of water per hour, and then adjust to the minimum water reading that still allows self-leveling properties. DO NOT OVERWATER! Check the consistency of the product on the floor to ensure a uniform distribution of the sand aggregate at both the top surface and bottom of the pour. If settling is occurring, reduce the water amount and recheck. Conditions during the installation, such as variations in water, powder, substrate and ambient temperature, require that the water setting be monitored and adjusted carefully to avoid over watering.

## **PART 3 – EXECUTION**

### **3.01 PREPARATION**

- A. All subfloors must be sound, solid, cleaned and primed:
  - 1. All concrete substrates must be of adequate strength, clean and free of all oil, grease, dirt, curing compounds and any substance that might act as a bondbreaker before priming. Over watered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods. All substrates must be mechanically roughened to a minimum ICRI surface profile of 3 (CSP #3). Acid etching, sweeping compounds and solvents are not acceptable.
  - 2. For the treatment of cracks, Ardex recommends the use of a two-part epoxy and joint filler such as MM-80, manufactured by Metzger/McGuire. Use the epoxy to fill non-moving (dormant) cracks in existing concrete surfaces. Cracks greater than a hairline in width (1/32") must be filled with MM-80 or similar in strict accordance with the installation instructions provided by the epoxy manufacturer.
- B. JOINT PREPARATION**
  - 1. Moving Joints – honor all expansion, isolation and construction joints up through the topping.
  - 2. Saw Cuts and Control Joints – fill all non-moving joints with MM-80 as stated above.
- C. PRIMING**
  - 1. For areas to receive ARDEX K 301, apply freshly mixed ARDEX EP 2000 epoxy to the prepared surface using a short-nap paint roller. For particularly rough substrates, use a longer nap roller. ARDEX EP 2000 can also be applied with a paintbrush in hard-to-reach areas and corners.
  - 2. While in a fresh state, broadcast an excess of fine sand ("play sand" that is less than 1/50 of an inch in grain size) consistently over the entire area. Figure about 2/3 lb. of sand per square foot of area. Avoid all traffic over the surface for a minimum of 6 hours.

3. After 16 hours, broom sweep and vacuum the surface to remove all loose sand. (Otherwise uncontaminated sand can be re-used on the next project.) Install the ARDEX K 301 in accordance with written instructions.
4. Primer coverage: Approximately 150-200 sq. ft./unit.
5. Alternatively, use ARDEX P 71 to prime the concrete substrate. Please be advised that the primer must not dry prior to installing the ARDEX K 301. If the primer dries, pinholes will develop, necessitating patching work and the use of an opaque sealer such as ARDEX CG GRAY, SANDSTONE, TERRACOTTA or similar product.

### **3.02 APPLICATION OF CEMENTITIOUS TOPPING**

- A. Pour or pump the liquid topping and spread in place with the ARDEX T-4 Spreader. Immediately smooth with the ARDEX T-5 Smoother. Wear baseball shoes with non-metallic cleats to avoid leaving marks in the liquid topping. The topping can be walked on in 2-3 hours.

### **3.03 SEALING**

- A. If a waterborne sealer such as ARDEX CG is to be applied at a thickness not-to-exceed a total of 20 mils, the coating can be applied after the ARDEX K 301 has cured for 24 hours.
- B. When using a solvent borne or 100% solids epoxy coating applied at a total thickness of 20 mils or less, the ARDEX K 301 must first cure for a minimum of 2-3 days.
- C. When the total application thickness of the protection layer will exceed 20 mils, the ARDEX K 301 must cure 7 days prior to sealing.
- D. If ARDEX CD or ARDEX CD FINE is to be used, allow the ARDEX K 301 to dry a minimum of 24 hours. While priming is not required before installing ARDEX CD, the surface of the ARDEX K 301 maybe primed with ARDEX CG diluted 1:1 with water to extend working time and minimize the formation of pinholes in the ARDEX CD or ARDEX CD FINE.

### **3.04 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**