

## **ARDEX GUIDE SPECIFICATION**

### **ARDEX SD-T® Self-Drying, Self-Leveling Concrete Topping**

Portland Cement-based Self-Drying, Self-Leveling Concrete Topping for indoor fast track resurfacing

---

## **SECTION 03 53 00 CONCRETE TOPPING**

### **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 cement-based self-drying, self-leveling topping for fast track resurfacing, smoothing or leveling of indoor concrete and certain nonporous surfaces.

- 1. ARDEX SD-T® Self-Drying, Self-Leveling Concrete Topping
- 2. ARDEX EP 2000™ Substrate Preparation Epoxy Primer
- 3. ARDEX MC Rapid™ for Use as a Fast Track Primer
- 4. ARDEX CG™ CONCRETE GUARD™

- B. Related Sections include the following:

- 1. Section 03 30 00, Cast-In-Place Concrete
- 2. Section 07 62 00, Topical Moisture Vapor Mitigation
- 3. Division 09 Flooring Sections

#### **1.3 REFERENCES**

- A. ASTM C 109M, 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 F1869, Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

- E. ASTM 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

### 1.3 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

### 1.4 QUALITY ASSURANCE

- A. Installation of the ARDEX product must be completed by a factory-trained 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.
- B. Product must have a hydraulic cement-based inorganic binder as the primary cement binder to include 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.

### 1.5 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.

### 1.6 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 CEMENT TOPPING

A. Cement-based Self-Leveling, Self-Drying Topping

1. Acceptable Products:

- a. ARDEX SD-T®; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, [www.ardex.com](http://www.ardex.com)
  - i. Primer: ARDEX EP 2000™ SUBSTRATE PREPARATION EPOXY.
  - ii. Alternate Primer: For fast track applications ARDEX MC Rapid with a sand broadcast can be used. Please contact ARDEX Technical Services for full installation details.

2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-3°C) and 50% +/-5% relative humidity:

- a. Application: Barrel Mix or Pump
- b. Flow Time: 10 minutes
- c. Initial Set: Approx. 10 minutes
- d. Final Set: Approx. 45 minutes
- e. Compressive Strength: 6100 psi at 28 days, ASTM C109M.
- f. Flexural Strength: 1200 psi at 28 days, ASTM C348.
- g. Colors: White & Grey

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

2.3 SEALER: As specified by Architect

## **PART 3 – EXECUTION**

### **3.1 PREPARATION**

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

- 1. 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.
- 2. All cracks in the subfloor shall be repaired with ARDEX ARDIFIX™ Low Viscosity Rigid Polyurethane Crack & Joint Repair to minimize telegraphing through the topping.
- 3. Substrates shall be inspected in accordance with ASTM F1869 or ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the topping or sealer. For areas where moisture vapor emissions exceed the limits required by the sealer manufacturer refer to Section 07 62 00, Topical Moisture Vapor Mitigation Systems and install the appropriate ARDEX Moisture Control System or call ARDEX Technical Services for product recommendations. ARDEX SD-T® is intended for use over dry substrates only. Do not use in areas of constant water exposure, or in areas

exposed to permanent or intermittent substrate moisture, as this may jeopardize the performance of the topping and coating. This product is not a vapor barrier and will allow free passage of moisture.

B. Joint Preparation:

1. Moving Joints –under no circumstances should ARDEX SD-T® be installed over any moving joints or cracks. Joints may be filled with ARDEX ARDISEAL™ Rapid Plus Semi-Rigid Joint Sealant.
2. Saw Cuts and Control Joints – must be honored up through the topping. Failure to do so may result in cracking and/or disbonding of the topping. Joints may be filled with ARDEX ARDISEAL™ Rapid Plus Semi-Rigid Joint Sealant.

C. Non-porous subfloors such as ceramic and quarry tile as well as terrazzo should be clean and free of all waxes and sealers. If necessary, clean by mechanical methods such as shot blasting or other.

3.2 APPLICATION OF ARDEX SD-T®:

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. Apply the freshly mixed epoxy to the prepared surface using a short-nap paint roller for smoother surfaces and a longer nap for more uneven substrates. ARDEX EP 2000™ can also be applied with a paintbrush for hard-to-get-to areas and in corners.
  - a. While in a fresh state, broadcast an excess of fine sand (“play sand” that is less than 1/32 of an inch in grain size) consistently over the entire area. Figure about 2/3lb. of sand per square foot of the area. Avoid all traffic over the surface for a minimum of 6 hours.
  - b. After 16 hours, broom sweep and vacuum the surface to remove all loose sand.
2. Alternate Primer: Install ARDEX MC Rapid in a one coat application with a sand broadcast. Contact ARDEX Technical Services for complete installation details. Note: this application is not intended to be used as a moisture vapor reduction system. ARDEX SD-T can be applied 4 hours after the installation of ARDEX MC Rapid in a primer application.

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

1. Add 5 quarts (4.75 L) of clean potable water per two 50-pound bag.

2. Mix using a ½" (650 rpm) low speed heavy-duty mixing drill with an ARDEX T-1 mixing paddle. Do not overwater.
3. Aggregate mix: For areas to be installed over 2" thick, aggregate may be added to reduce material costs. Mix ARDEX SD-T® with water first, then add 1 part aggregate by volume of washed, well graded pea gravel aggregate (1/8" to 1/4" or larger). Do not use sand. Note: The addition of aggregate will diminish the workability of the 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 12 to 16 hours. For ARDEX DESIGNER FLOOR applications, the aggregate course must be primed with ARDEX EP 2000. Note: For ARDEX DESINGER FLOOR installations requiring an aggregate course over standard absorbent concrete, only the finish layer requires the use of ARDEX EP 2000.
4. For pump installations, ARDEX SD-T® 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.

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

1. ARDEX SD-T® may be installed at a minimum thickness of 1/4". ARDEX SD-T® can be installed up to 2" over large areas neat, and up to 5" with the addition of proper aggregate. ARDEX SD-T® can also be tapered to match existing elevations.
2. Pour or pump the liquid ARDEX SD-T® and spread in place with the ARDEX T-4 Spreader. Use the ARDEX T-5 Smoother and featheredge and touch-up. Wear non-metallic cleats to avoid leaving marks in the liquid ARDEX SD-T®.

F. Curing

1. ARDEX SD-T® can be walked on in 2-3 hours. Dry time prior to sealer application varies by sealer type and thickness of application. Follow ARDEX recommendation for dry time prior to the installation of the sealer.

G. Sealing

1. The surface of ARDEX SD-T® 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™ to seal ARDEX SD-T® that will be exposed to normal foot traffic. Sealing with ARDEX CG can proceed as soon as the surface of the ARDEX SD-T® hardens sufficiently to work on it without damaging the surface (approx.. 2 to 3 hours under standard conditions of 70°F/21°C and 50% RH).
2. For areas to receive heavier traffic, as well as areas such as restaurants and food courts, sealing should be done using an appropriate wear protection coating. As the performance of coating systems varies greatly, the installer is responsible for assessing the suitability of these coatings.

- a. If a waterborne sealer is to be applied at a thickness not-to-exceed a total of 20 mil (0.5mm), the coating can be applied as soon as the surface of the ARDEX SD-T® is hard (2 to 3 hours At 70°F/21°C).
- b. When using a solvent-borne or 100% solids coating applied at a total thickness of 20 mils (0.5 mm) or less, the ARDEX SD-T® must cure for a minimum of 24 hours at 70°F (21°C). When the total application thickness will exceed 20 mils (0.5 mm), the ARDEX SD-T® must cure 3 to 5 days at 70°F (21°C) prior to installing the protection layer.

### 3.4 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.

### 3.5 PROTECTION

- A. ARDEX SD-T® wear surfaces should be adequately protected from damage resulting from construction traffic or other use that can affect the finish floor.
- B. ARDEX SD-T® wear surfaces are intended for foot traffic, moderate, rubber-wheeled forklift traffic and similar uses. Excessive service conditions, such as steel or hard plastic-wheeled traffic, or dragging heavy metal equipment or loaded pallets with protruding nails over the floor, will cause gouging and indentations. ARDEX SD-T® is not a resurfacing topping for heavy-duty manufacturing or industrial floors, or for chemical environments requiring customized industrial toppings.

### 3.6 MAINTENANCE

- A. Once installed, any finished floor surface requires routine cleaning and maintenance. After installing the initial coats of the sealer, the best way to ensure the long-term appearance of a newly installed floor is by the use of a sacrificial floor finish (“wax” or “polish”) applied over the surface of the newly installed and sealed floor. All floor coatings will wear as a function of traffic and maintenance, and the use of a sacrificial coating avoids wear on the original sealer while providing a simple maintenance solution.

## END OF SECTION