

## **ARDEX GUIDE SPECIFICATION**

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

Portland Cement-based Self-Drying, Self-Leveling Concrete Topping

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## **SECTION 03 00 00 SELF-DRYING, SELF LEVELING 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 P 51™ Primer for standard “non-designer” installations
  - 4. ARDEX MCT™ RAPID One-Coat Moisture Control System for Concrete to Receive ARDEX Products
  - 5. ARDEX ARDIFIX™ Low Viscosity Rigid Polyurethane Crack and Joint Repair
  - 6. ARDEX ARDISEAL™ RAPID PLUS Semi-Rigid Joint Sealer
  - 7. Sealer suitable for concrete surfaces
  - 8. Integral pigments suitable for concrete toppings
- 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 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 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 Installer or Choice Contractor, using mixing equipment and tools approved by the manufacturer. Contact ARDEX Americas (724) 203-5000 or visit [www.ardexamericas.com](http://www.ardexamericas.com) 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.
- D. Mock-Up: Before performing the work in this section, an on-site mock-up of the ARDEX SD-T® representative of specified process, surface, finish, color and joint design/treatments must be installed for review and approval. These mock-ups should be installed using the same Installer personnel who will perform work. Approved mock-ups may become part of completed work, if undisturbed at time of substantial completion.

#### 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 CONCRETE TOPPING

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

##### 1. Acceptable Products:

- a. ARDEX SD-T®; Manufactured by ARDEX Americas, (724) 203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)
  - i. Primer: ARDEX EP 2000™ Substrate Preparation Epoxy Primer
  - ii. Primer: ARDEX P 51™ Primer for “non-designer” installations
  - iii. Crack repair & joint Sealer: ARDEX ARDISEAL™ & ARDISEAL™
  - iv. Alternate Primer: For fast-track applications ARDEX MC™ Rapid with a sand broadcast can be used.

##### 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 & Gray

2.2 Low Viscosity Rigid Polyurethane Crack and Joint Repair; ARDEX ARDIFIX™; Manufactured by ARDEX Americas; USA; 724-203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)

2.3 Semi-Rigid Joint Sealant; ARDEX ARDISEAL™ Rapid Plus Semi-Rigid Joint Sealant; Manufactured by ARDEX Americas; USA; 724-203-5000, [www.ardexamericas.com](http://www.ardexamericas.com)

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

2.5 COLOR: Integral pigment or stain as specified by Architect

2.6 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. Acid etching and the use of sweeping compounds and solvents are not acceptable.
  - 2. The substrate surface must have a minimum ICRI Concrete Surface Profile of 3 (CSP #3). Any additional preparation to achieve this must likewise be mechanical.
  - 3. Substrates shall be inspected in accordance with 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 00 05 61.13, Moisture Vapor Emission Control 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. Crack and Joint Preparation:
  - 1. All dormant cracks must be pre-filled with ARDEX ARDIFIX™ in strict accordance with the installation instructions provided by the ARDEX Technical Department. Once the dormant cracks have been properly filled, broadcast sand to refusal, and allow these areas to cure thoroughly. Remove all excess sand prior to proceeding with the ARDEX MC™ RAPID installation.
  - 2. All joints, including control joints, expansion joints and isolation joints, and moving cracks must be honored up through the ARDEX MC™ RAPID, the ARDEX Topping and the sealer by installing a fully flexible sealing compound designed specifically for this use, such as ARDEX ARDISEAL™ RAPID PLUS.
- C. For installation over non-porous subfloors such as ceramic and quarry tile as well as terrazzo contact ARDEX technical at (724) 203-5000.

### **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. ARDEX Designer Floors Over Concrete: Install ARDEX EP 2000 Substrate Preparation Epoxy Primer. Apply the freshly mixed epoxy to the prepared concrete in accordance with the technical data sheet. The ARDEX SD-T® installation can proceed once the ARDEX EP™ 2000 is allowed to cure for 16 hours (70°F) and all loose sand is removed as follows and proceeding with the next installation step:
  - a. Do not sweep. Using a rubber squeegee, consolidate excess sand into piles.
  - b. Shovel the piles of sand into barrels.
  - c. Use a NIOSH-approved dust mask in conformance with OSHA requirements regarding the handling of sand (crystalline silica). Vacuum remaining sand using a heavy-duty, bucket-style (Shop-Vac®-style) vacuum and HEPA dust extraction vacuum system.
2. Alternate Primer: Install ARDEX MC™ Rapid in a one coat 10 mil 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. ARDEX recommends wearing an N-95 dust mask when broadcasting sand. Remove all excess sand prior to proceeding with the ARDEX MC™ RAPID installation.

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

1. Mix ARDEX SD-T® 2 bags at a time. Mix each 50 lb. (22.7 kg) bag with 5 quarts (4.75 liters) of water.
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, mix ARDEX SD-T® with water first, then add 1-part aggregate by volume of washed, well-graded pea gravel (1/8" to 1/4"), mixing until the aggregate is completely coated. 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 make it necessary to install a finish coat to obtain a smooth surface. Allow the initial application to dry for 12 to 16 hours (70°F). For ARDEX Designer Floor applications, the aggregate course must be primed with ARDEX EP 2000™. Note: For ARDEX Designer Floor installations requiring an aggregate course over standard absorbent concrete, only the finish layer requires the use of ARDEX EP 2000™. For non-designer applications, the aggregate course must be primed using the double-prime method with ARDEX P 51.
4. For pump installations, ARDEX SD-T® shall be mixed using the ARDEX ARDIFLO™ Automatic Mixing Pumps. Contact the ARDEX Technical Service Department (724) 203-5000 for complete pump operation instructions.
5. 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. use a NIOSH-approved dust mask in conformance with OSHA

requirements regarding the handling of sand (crystalline silica).

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" (6 mm). ARDEX SD-T® can be installed up to 2" (5 cm) over large areas neat, and up to 5" with the addition of proper aggregate.
2. Pour or pump the liquid ARDEX SD-T® 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 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 recommendations in the technical data sheet 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. 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 such as the ARDEX GC CONCRETE GUARD™. As the performance of coating systems varies greatly, the installer is responsible for assessing the suitability of these coatings.

### 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.

### 3.4 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 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.

### 3.5 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 using 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**