

ARDEX GUIDE SPECIFICATION
ARDEX SD-M™ DESIGNER FLOOR FINISH™
Self-drying, Portland Cement-based, Trowelable topping

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, Division 07, and Division 09 specifications apply to this Section

1.2 SUMMARY

- A. This Section includes a self-drying, Portland cement-based, trowelable topping for fast track finishing or resurfacing of interior concrete.

- 1. ARDEX SD-M™ DESIGNER FLOOR FINISH™
- 2. ARDEX EP 2000™ Substrate Preparation Epoxy
- 3. ARDEX CG CONCRETE GUARD™

- B. Related Sections include the following:

- 1. Section 03 30 00, Cast-In-Place Concrete
- 2. Section 07 26 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 F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- D. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes
- E. ASTM F1869, Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

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. 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. Please 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 5 years. Contact Manufacturer Representative prior to installation.

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° 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. Self-drying, Portland cement-based, trowelable topping for fast track finishing or resurfacing of interior concrete.
1. Acceptable Products:
 - a. ARDEX SD-M™ Designer Floor Finish™; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, 724-203-5000, www.ardex.com
 - i. Primer Standard Porous Concrete where aesthetics are NOT critical: Primer Not Required
 - ii. Primer Non-absorbent Substrates and areas where aesthetics are critical: ARDEX EP 2000™ SUBSTRATE PREPARTION EPOXY
 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: Trowel
 - b. Initial Set (ASTM C191): Approx. 45 minutes
 - c. Final Set (ASTM C191): Approx. 90 minutes
 - d. Compressive Strength (ASTM C109M): 5000 psi at 28 days
 - e. Flexural Strength (ASTM C348): 1200 psi at 28 days
 - f. Colors: Gray and White

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 dormant cracks in the subfloor shall be repaired with ARDEX Feather Finish® Self-Drying, Cement-Based Finishing Underlayment or ARDEX ARDIFIX™ Low Viscosity

Rigid Polyurethane Crack & Joint Repair as appropriate 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-M™ 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-M™ 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.

3.2 APPLICATION OF ARDEX SD-M™ Designer Floor Finish™:

- 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. For standard absorbent concrete and Ardex Underlayments or Toppings: No primer is required. Note: for highly porous or absorbent surfaces prime with ARDEX P51™ Primer diluted with 3 parts water and apply evenly.
2. Primer for non-absorbent substrates such as terrazzo, ceramic and stone tiles and other areas where aesthetics are critical require priming with ARDEX EP 2000™ SUBSTRATE PREPARTION 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.
- D. Mixing: Comply with manufacturer's printed instructions and the following.
 - 1. Mix ARDEX SD-M™ powder with water to the desired trowelable consistency. The recommended mixing ratio is 2.5 parts powder to 1 part water by volume. When mixing a full bag, use 2 quarts of water to one 10 lb. bag of powder.
 - 2. For filling pop-outs and spalls up to 2" in diameter and 2" deep, use 3.5 parts by volume of powder to 1 part of water.
- E. Application: Comply with manufacturer's printed instructions and the following.
 - 1. Apply a scratch coat of the mix to the substrate with the flat side of a steel trowel to obtain a solid mechanical bond. Apply sufficient pressure to fill all defects and to feather the product into the subfloor surface. The scratch coat or base coat should be applied to pre-smooth and achieve a uniformly absorbent surface.
 - 2. It is necessary to have a minimum of two coats of ARDEX SD-M™ with the total finished thickness of 20 mils (about the thickness of a standard business card). Use the least amount possible to attain the desired smoothness. The finish coat may be applied as soon as the trowel will not damage the base coat. A third application of ARDEX SD-M™ is optional depending on the desired finish and texture. This application is used primarily to achieve a very smooth troweled finish. Total thickness should not exceed 1/16".
- F. Sealing
 - 1. The surface of ARDEX SD-M™ must always be protected from oil, salt, water, and surface wear by applying a suitable protection system such as concrete sealer or paint. Ardex recommends the use of ARDEX CG CONCRETE GUARD™ to seal ARDEX SD-M™ that will be exposed to normal foot traffic. The topping must be coated with a wear protection coating suitable for the intended use of the floor. The coating process can begin within 2-3 hours after installation if a water-borne coating is selected.
 - 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-M™ 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-M™ 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-M™ must cure 3 to 5 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 products 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-M™ wear surfaces should be adequately protected from damage resulting from construction traffic or other use that can affect the finish floor.
- B. ARDEX SD-M™ 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- M™ 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 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