

SECTION 03 01 30
MAINTENANCE OF CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract, and other related construction documents such as Division 01, 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 Primer
 - 3. ARDEX P 51™ Primer
 - 4. ARDEX CG Concrete Guard™ High-Performance, high solids, water-borne acrylic concrete sealer
- 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.
 - 4. Division 09 Flooring Sections

1.3 REFERENCES

- A. ASTM C109M, 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

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product data 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 or Choice Contractor, using mixing equipment and tools approved by the manufacturer. Please contact ARDEX Americas (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°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 MAINTENANCE OF CAST-IN-PLACE CONCRETE

- A. Self-drying, trowelable topping for fast-track finishing or resurfacing of interior concrete, terrazzo and ceramic, quarry and porcelain tile.
 - 1. Acceptable Products:

- a. ARDEX SD-M™; Manufactured by ARDEX Americas: 400 Ardex Park Drive, Aliquippa, PA, 15001, USA, 724-203-5000, www.ardexamericas.com
 - i. Primer, Standard Porous Concrete where aesthetics are NOT critical: Primer not required
 - ii. Primer, Highly Porous or Absorbent Concrete where aesthetics are NOT critical: ARDEX P 51™
 - iii. Primer, Non-absorbent Substrates and areas where aesthetics are critical: ARDEX EP 2000™
 - 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): 5,000 psi (352 kg/cm²) at 28 days
 - e. Flexural Strength (ASTM C348): 1,200 psi (84 kg/cm²) at 28 days
 - f. Colors Available: 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. Non-Absorbent substrates, such as ceramic and stone tiles, must be mechanically abraded to create a bonding surface.
 - 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 09 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-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. Crack and Joint Preparation

1. All Joints and Moving Cracks – All joints, including saw cuts (dormant control joints), expansion joints, isolation joints as well as all moving cracks must be honored up through the above-referenced ARDEX products by installing a fully flexible compound specifically designed for this.
2. Dormant Cracks – All dormant cracks greater than 1/32" wide must be prefilled with ARDEX ARDIFIX in accordance with the technical data sheet. Please note that the repair material must be sand broadcasted to refusal while still fresh and allowed to cure fully prior to removing all excess sand.

3.2 APPLICATION OF ARDEX SD-M™:

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: No primer is required. Note: For highly porous or absorbent surfaces prime with ARDEX P 51™ Primer diluted with 3 parts water and apply evenly in accordance with the technical data sheet.
2. For non-absorbent substrates such as terrazzo, ceramic and stone tiles and other areas where aesthetics are critical: Prime with ARDEX EP 2000™ that has been sand broadcasted to refusal in accordance with the technical data sheet

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

1. Mix one 10 lb. (4.5 kg) bag of ARDEX SD-M, use 2 quarts (1.9 L) of water.
2. For filling pop-outs and spalls up to 2" (5 cm) in diameter and 1/2" (12 mm) 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 (500 microns, 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" (1.5mm).

F. Sealing

Dry time prior to burnish-polishing or sealer application varies by sealer type and thickness of application. Follow ARDEX recommendation for dry time prior to the installation of the sealer.

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 finished 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