

**ARDEX GUIDE SPECIFICATION**  
**ARDEX ERM™ Exterior Ramp Mortar**  
Trowel-Grade Horizontal Concrete Repair Mortar

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**SECTION 03 92 50**  
**REPAIR MORTARS**

**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 Portland cement-based, polymer modified structural repair mortar with integral corrosion inhibitor.

- 1. ARDEX ERM™ Exterior Ramp Mortar
- 2. ARDEX P 71™ PRIMER
- 3. ARDEX BONDING & ANTI-CORROSION AGENT

- B. Related Sections include the following:

- 1. Section 03 30 00, Cast-In-Place Concrete

1.3 REFERENCES

- A. ASTM C 109, Compressive Strength of Hydraulic Cement Mortars
- B. ASTM C 293, Flexural Strength of Concrete
- C. ASTM C 469, Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression
- D. ASTM C 157, Length Change of Hardened Hydraulic-Cement Mortar and Concrete
- E. ASTM C 1202, Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration
- F. ICRI Technical Guideline No. 03732 Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays

- G. ICRI Technical Guideline No. 03730 Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion

### 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. Manufacturer's Qualifications: The manufacturer shall be a company with at least five years experience and regularly engaged in the manufacture and marketing of products specified herein.
- B. Installer Qualifications: Installation of the ARDEX product must be completed by a factory-trained applicator using mixing equipment and tools approved by the manufacturer. Please contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers.

### 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 REPAIR MORTAR

- A. Single-component, polymer-modified, Portland cement-based structural repair mortar, with integral corrosion inhibitors suitable for exterior and interior horizontal applications above, on or below grade.

1. Acceptable Products:
  - a. ARDEX ERM™; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA 724-203-5000
2. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F (23° C) and 50 percent relative humidity:
  - a. Application: Trowel.
  - b. Working Time: 25 – 45 minutes.
  - c. Compressive Strength: 7,000 psi (48.3MPa) at 7 days, 8200 psi (56.58 MPa) at 28 days, ASTM C109.
  - d. Flexural Strength: 1,200 psi (8.3 MPa) at 7 days, 1,500 psi (10.3 MPa) at 28 days, ASTM C293.
  - e. Modulus of Elasticity in Compression:  $3.67 \times 10^6$  psi at 28 days, ASTM C469, modified.
  - f. Shrinkage: less than 0.06% at 7 days, less than 0.08% at 28 days, ASTM C157, air cured.
  - g. Rapid Chloride Permeability: 820 Coulombs, at 28 days, ASTM C1202.
  - h. Low -slump, non-sagging.
  - i. Color: Concrete gray.
  - j. Combustibility: Non-combustible, both before and after use.

## **PART 3 – EXECUTION**

### **3.1 PREPARATION**

- A. General: Prepare substrate in accordance with manufacturer's instructions. Prior to proceeding with any repair, please refer to the International Concrete Repair Institute's ICRI 03730 Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion; ICRI 03732 Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays; and the American Concrete Institute's ACI 546R-04 Concrete Repair Guide for general guidelines for concrete repair.
  1. All concrete and masonry substrates must be sound, solid, dry, and completely free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker. Overwatered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods such as scarifying, scabbling or similar in accordance with ICRI 03732 before priming. Acid etching and the use of sweeping compounds and solvents are not acceptable.
  2. The repair area must be saw cut in a basic rectangular shape at least ¼" (6 mm) in depth. The cuts should be made at 90° angle, and should be slightly keyed. Chip out the concrete inside the cuts to a minimum depth of ¼" (6 mm) until the area is squared or box shape.
  3. Mechanically prepare surface to obtain an exposed aggregate surface with a minimum surface profile of approximately 1/16" (1.5 mm).

4. For cases with exposed reinforcing steel, mechanically clean the steel to remove all rust and any other contaminants in accordance with ICRI 03730. Prime the steel with ARDEX Bonding & Anti-Corrosion Agent™ prior to proceeding with repair. For further details, please refer to the ARDEX Technical brochure.

B. Joint Preparation

1. Moving Joints and Cracks – honor all expansion and isolation joints up through the ARDEX ERM™. A flexible sealing compound suitable for the application may be installed. ARDEX ARDISEAL™ RAPID PLUS may be installed for interior applications only.
2. Control Joints and dormant cracks greater than 1/16" – fill all non-moving joints and cracks with ARDEX ARDIFIX™ Joint Filler.

3.2 APPLICATION OF ARDEX ERM™:

- 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 and landscaping from contact due to mixing and handling of materials.
- C. Mixing: Comply with manufacturer's printed instructions and the following.
  1. Precondition components to temperature of 70° plus or minus 5° F (21° plus or minus 2.5° C) prior to mixing.
  2. Add 6.5 pints (3.0 L) of clean potable water per 55-pound (25 kg) bag.
  3. Mix using a 1/2" to 3/4" (12 to 19 mm) low speed heavy-duty mixing drill with a heavy gauge square box (butterfly) mixing paddle. Forced action mortar mixers are also suitable. Mix to a uniform, lump-free consistency. Avoid over-mixing.
  4. For application depths greater than 2 inches, and up to 8", add up to 40 pounds (18.1 kg) clean, uniformly graded saturated-surface-dry 3/8-inch aggregate per bag, as directed by manufacturer.
  5. Do not add water beyond manufacturer's instructions. Do not add additional powder.
- D. Application: Comply with manufacturer's printed instructions and the following.
  1. Do not apply in freezing conditions or during precipitation.
  2. Comply with manufacturer's guides for hot and cold weather application.
  3. Dampen substrate to fill concrete pores with water. Remove ponding, glistening, or surface water (saturated surface dry). Alternatively, ARDEX P 71™ Primer can be used

in accordance with the ARDEX Technical brochure. Do not allow the concrete or ARDEX P 71™ to dry before installing ARDEX ERM™. If ARDEX Bonding & Anti-Corrosion Agent is specified as a primer, follow the application instructions in the ARDEX Technical Brochure.

4. Apply scrub coat of repair mortar into substrate to ensure intimate contact and establish bond.
5. Apply ARDEX ERM™ while scrub coat is wet. Consolidate and trowel to the desired finish.
6. ARDEX ERM™ can be installed to a minimum thickness of 1/4 inch up to 2" (6 mm to 5 cm) neat or up to 8" thick with the proper addition of aggregate. Alternatively, ARDEX ERM™ can be applied in 2" (5 cm) lifts up to 8" (20 cm) without the addition of aggregate when each lift is allowed to take initial set and then scored on top prior to the application of the subsequent lift.

E. Curing

1. Keep surface damp for 48 hours with continuous light water-fogging or curing blanket.
2. If no coating or sealer is to be applied, a water-based curing compound meeting ASTM standard C309 may be used. Do not use solvent-based curing compounds.
3. Allow ARDEX ERM™ to cure a minimum of 72 hours prior to the installation of final coatings or sealers.

F. Cleaning: Remove excess material before material cures. If material has cured, remove using mechanical methods which will not damage substrate.

**END OF SECTION**