ARDEX GUIDE SPECIFICATION
ARDEX BONDING & ANTI-CORROSION AGENT™
Two-Component Portland Cement/Epoxy-based Coating for Use as a Corrosion Treatment

Note to Specifier: This product may be used as an anti-corrosion coating for reinforcing steel and/or as a bonding agent for fresh mortar or concrete to existing concrete surfaces that have been prepared for repair.

SECTION 03 20 13
CORROSION TREATMENT FOR EMBEDDED METAL

PART 1 - GENERAL

1.1 SUMMARY

A. Provide cementitious coating for corrosion treatment for reinforcing steel and embedded metal that is exposed during construction.

B. Related Sections: Other specification sections which relate directly to the work of this section include the following:
   1. Section 01739, Selective Demolition.
   2. Section 03300, Cast-In-Place Concrete

1.2 REFERENCES

A. ASTM C 882, Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear

B. ASTM C 78, Standard Test Method for Flexural Strength of Concrete

C. ASTM C 1202, Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration

D. ICRI Technical Guideline No. 03732, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays

E. 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). Protect from direct sunlight. Protect from freezing.

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 MATERIALS

A. Portland cement/epoxy-based bonding agent and anti-corrosion agent that provides exceptional bond strength for concrete repairs and protects reinforcing steel against rust and corrosion.

1. Acceptable Products

   a. ARDEX Bonding & Anti-Corrosion Agent 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 70° F (20° C) and 50% relative humidity:

   a. Application: Brush or Spray
   b. Pot Life/Working Time: Approx. 90 minutes.
   c. Open Time: Up to 24 hours.
   d. Bond Strength: 1,800 psi (12.4 Mpa) at 2 hours, 2,100 psi (14.5 Mpa) at 8 hours, ASTM C882.
   e. Flexural Strength: 2,000 psi (13.8 Mpa) at 28 days, ASTM C78.
f. Rapid Chloride Permeability: Less than 150 coulombs at 28 days, ASTM C1202.

g. VOC: <50 g/L, SCAQMD Rule 1113 (US EPA 40 CFR 59)

h. Combustibility: Non-combustible, both before and after use.

PART 3 – EXECUTION

3.1 PREPARATION

A. Bonding Agent: 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. Mechanically prepare surface to obtain an exposed aggregate surface with a minimum surface profile of approximately 1/16” (1.5 mm).

B. Anti-Corrosion Agent: When reinforcing steel is exposed for protection, prepare the concrete such that a minimum ¾” (19 mm) clearance is achieved under the reinforcement to ensure sufficient placement of the anti-corrosion agent when brushed under the steel.

1. Remove all rust or active corrosion agents using sandblasting or mechanical wire brushing to produce a white metal finish. Make sure surfaces are clean, dry and free of all contaminants.

2. In areas of advanced corrosion activity, have a qualified engineer determine if supplemental reinforcement installation is required.

3.2 APPLICATION OF ARDEX BONDING AND ANTI-CORROSION AGENT™

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° F plus or minus 5° F (21° plus or minus 2.5° C) prior to mixing.

2. Mix using a ½” to ¾” (12 to 19 mm) low speed heavy-duty mixing drill with a heavy gauge square box (butterfly) mixing paddle.

3. Thoroughly shake the 1 gallon (3.78 L) container of the liquid component “A” and pour into a clean mixing container. Slowly add one-third of the 28 lb. (12.7 kg) bag of component “B” powder while mixing at low speed with a drill and mixing paddle. Once blended in, add the next third and so on until all of the material is added. Mix to a uniform, lump-free consistency (approximately 3 minutes). Do not add water.

D. Bonding Agent Application: Comply with manufacturer's printed instructions and the following.

   1. Dampen concrete to be repaired so that the pores are filled with water. Remove excess water on the surface (SSD – Saturated Surface Dry)

   2. Brush or spray apply a single 20-mil (0.6mm) coat.

   3. Place the mortar or concrete while the bonding agent is still wet, or within 24 hours.

      a. If more than 24 hours elapse before mortar or concrete can be placed, re-apply a single 10 mil (0.3 mm) coat to all surfaces and allow to dry for one hour immediately before mortar or concrete placement.

E. Anti-Corrosion Agent Application: Comply with manufacturer’s printed instructions and the following.

   1. Brush or Spray apply two 10-mil (0.3 mm) coats, allowing 30 to 45 minutes between coats, to a total thickness of 20 mils (0.6 mm).

   2. Allow coating to dry to the touch before installing.

   3. Place fresh mortar or concrete after materials have dried to the touch or within 24 hours.

      a. If more than 24 hours elapse before mortar or concrete can be placed, re-apply a single 10 mil (0.3 mm) coat to all surfaces and allow to dry for one hour immediately before mortar or concrete placement.

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

END OF SECTION