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 trowel-grade repair mortar for horizontal patch and repair [horizontal overlay] of existing substrate.

1. ARDEX CD™ Concrete Dressing and ARDEX CD FINE™ Concrete Dressing

2. ARDEX CG™ Concrete Guard™ High Performance, High Solids concrete Sealer

B. Related Sections include the following:

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

1.3 REFERENCES

A. ASTM C 109, Compressive Strength

B. ASTM C 293, Flexural Strength

C. ASTM C 469, Modulus of Elasticity

D. ASTM C 157, Length Change

E. ASTM C 1202, Chloride Permeability

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

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. 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.

B. Concrete repair material shall be able to be installed at a thickness of 1/16” to 1/8” as a dressing and up to ½” thick in small areas to patch small holes.

C. Concrete repair material shall have a compressive strength of 4000 psi after 28 days per ASTM C 109/mod (air cure only).

D. Concrete repair material shall be walkable after 2 hours at 70°F, capable of being sealed as soon as it is hard, and receive normal traffic after the sealer dries for 24 hours.

E. Concrete repair material shall be capable of being applied by trowel, broom, squeegee, or by spraying through a hopper gun.

F. Manufacturer’s certification that the product is Portland cement-based having an inorganic binder contect which is a minimum 80% Portland cement when tested per ASTM C150. Standard Specification for Portland Cement.

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° 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 CONCRETE OVERLAY

A. The cement-based, polymer-modified concrete resurfacing material.

1. Acceptable Products:

a. ARDEX CD™ Concrete Dressing or ARDEX CD FINE™ Concrete Dressing

i. Primer: ARDEX CG™ Concrete Guard™ Clear (Diluted 1:1). Allow primer to dry thoroughly, a minimum of 3 hours. Required for overlay only.
ii. Sealer: ARDEX CG™ Concrete Guard™ High-performance, high solids, water-borne acrylic concrete sealer

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

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. All cracks and spalls must be repaired prior to installing the dressing.

B. Joint Preparation

1. Moving Joints – honor all expansion and isolation joints up through the underlayment. A flexible sealing compound such as ARDEX ~~ARDISEAL~~ ARDIFIX™ may be installed.

2. Saw Cuts and Control Joints – fill all non-moving joints with ARDEX ARDIFIX™ Joint Filler.

3.2 APPLICATION OF ARDEX CD™ CONCRETE DRESSING

A. Mixing:

5. Add 2.5 quarts (2.4 L) of clean potable water per 20-pound (9 kg) bag.

6. Mix using a ½" (12 mm, 650 rpm) low speed heavy-duty mixing drill with an ARDEX T-2 ring mixing paddle. Mix to a uniform, lump-free consistency. Do not overwater.

B. Application:

1. To avoid pinholes, dilute ARDEX CG™ Concrete Guard with water in a 1:1 ratio. Apply with a short nap pain roller.

2. ARDEX CD™ and ARDEX CD FINE™ shall be installed using traditional concrete repair techniques, to include the use of a steel trowel and/or broom to achieve the desired finish. ARDEX CD™ and ARDEX CD FINE™ may also be applied using a squeegee or hopper gun.

2. Use the least amount of material possible to obtain complete coverage over the concrete surface. For maximum coverage, use the flat trowel application technique and then broom-finish. Work in areas small enough so that you can reach the newly applied surface easily to apply the broom finish without walking on it. Broom finish as you go but certainly before the dressing takes a firm set (usually 10-15 minutes depending upon jobsite conditions). Maintaining a "wet edge" as you work will help to minimize natural color variations that can occur between sections.

3. On vertical surfaces such as walls or stair faces, trowel, brush or spray the dressing using a hopper gun directly onto the prepared area. Smooth or brush the material to the desired finish.

4. The surface of the dressing can be broom finished as work proceeds.

5. As is the case with all concrete surfaces in general, ARDEX CD™ and ARDEX CD FINE™ should be sealed with a waterborne, breathable concrete sealer such as ARDEX CG™ Concrete Guard™ to resist damage from standing water, salt, oil as well as staining and marking. Sealing of the ARDEX CD™ or ARDEX CD FINE™ can proceed as soon

as the surface of the dressing has hardened sufficiently to resist damage from the sealing installation.

3.4 SEALING WITH ARDEX CG™ CONCRETE GUARD™

A. Mixing: The contents of the ARDEX CG™ container must be thoroughly stirred just prior to use to ensure a uniform consistency. For best results, mix with a mechanical mixing paddle and low speed drill.

B. Installation:

1. ARDEX Concrete Guard should be applied in two thin coats, allowing 2-4 hours between coats, depending upon atmospheric conditions. (Back-rolling is recommended when spraying to prevent puddling.)

2. When outdoors, do not apply if rain, fog, or extremely high humidity is expected within 6-8 hours or if freezing temperatures could occur within 24 hours of application. Do not apply on surfaces under 50°F or over 90°F.

3. Allow ARDEX Concrete Guard to cure a minimum of 24 hours before normal traffic, and a minimum of 72 hours before heavy traffic.

C. Maintenance: In order to attain maximum life from the dressing, it is essential that the surface be properly sealed and protected. Reseal as required depending upon traffic volume and conditions.

END OF SECTION