

ISR V/O

Division 3: Concrete

Trowel applied, single component, cementitious repair mortar with ECB-Tech corrosion protection.

SECTION 030130 – MAINTENANCE OF CAST IN PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

Provide labor, materials, equipment and supervision necessary to complete the application of repair mortar to vertical and overhead surfaces.

1.2 SYSTEM DESCRIPTION

The products shall meet or exceed the following performance requirements:

Physical state and appearance		Dry powder with aggregate	
Base		Portland cement	
pH	Wet mix	Greater than 12	
Length change	ASTM C157	Less than 500 μ strains at 28 days	
Restrained shrinkage cracking	ASTM C1581	No cracking after 256 days	
Chloride ion penetration	ASTM C1202	1,218 coulombs at 28 days	
Short term bond strength	ICRI 03739*	400 psi	
Scaling resistance (Rating 0 – 1)	ASTM C672	Weight loss after 50 cycles (kg/m ²) .04	
Freeze/thaw resistance – procedure A	ASTM C666	Weight gain (%) 0. Expansion (%) 0.	
Modulus of elasticity	ASTM C469	Durability Factor DF (%) 99.	
		3.07 at 28 days	
		7 days	28 days
Compressive strength - psi	ASTM C39	4390	4400
Splitting tensile strength – psi	ASTM C496/C496M		463

1.3 SUBMITTALS

- A. Manufacturer's current product data bulletin.
- B. The trained applicator shall prepare a test area on the structure as a submittal for approval of proper application and adhesion.
- C. The trained applicator shall submit to the specifier a list of five projects that he has completed within the last five years, exhibiting the applicator's skills. The list shall include project name, location, and description of work and completion date.

1.4 QUALITY ASSURANCE

Products shall be installed by a trained applicator with a minimum of five years' experience and meet the requirements of the specifier.

1.5 DELIVERY, STORAGE & HANDLING

- A. Deliver all products and all accessories in original labeled, sealed, and undamaged containers or bundles.
- B. Store all products in accordance with manufacturer's printed instructions.
- C. Handle products in accordance with manufacturer's printed instructions.

1.6 PROJECT/SITE CONDITIONS

All products shall be applied at substrate and ambient temperatures of 40 degrees F or above. A minimum temperature of 40 degrees F shall be maintained 24 hours after completion of work. Protect products from weather and other damage for a period of 24 hours after installation. Do not apply products to frozen surfaces.

1.7 SCHEDULING

The work requires close coordination with related sections and trades.

PART 2 PRODUCTS

2.1 MANUFACTURERS

The following manufacturers are approved for the project.
Conproco

2.2 MATERIALS

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PART 3 EXECUTION

3.1 EXAMINATION

- A. Installation shall be performed strictly in accordance with manufacturer's current product data bulletin.
- B. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- C. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing, handling, and application of materials.

3.2 SURFACE PREPARATION

- A. Remove loose and deteriorated material, laitance, dirt, dust, oil and any surface that will inhibit proper bond.
- B. Saw cut edges with a diamond blade at a 90 degree angle to eliminate feather edging. Avoid polishing the edges as this will inhibit bond.
- C. Avoid bruising or micro cracking during surface preparation. Refer to ICRI Surface Preparation Guide 03732.

- D. Repair zone must be a minimum of 1/4 inch deep, of simple geometry, with no complex edge conditions.
- E. Avoid long narrow repairs, these have a greater tendency to crack.
- F. Apply Conpro Start where a consolidant is of benefit (soft, powdery surfaces).
- G. Saturate substrate with clean water, (saturated surface dry/SSD), with no standing water during Priming or Application.
- H. Remove concrete from corroded steel and several inches beyond to expose non-corroded steel.
- I. Provide a 3/4 inch clearance between the concrete and steel.
- J. Damaged reinforcing steel should be inspected by a qualified engineer and appropriate action taken.

3.3 APPLICATION

A. Priming

1. Concrete:

- a. Prime the prepared substrate including all edges with a slurry coat of the repair mortar. Work the slurry into the substrate to ensure intimate contact and establish bond. The repair material must be applied while slurry is wet. If the slurry dries, remove and recoat.
- b. Alternatively, use Conpro Primer or ECB as a bonding primer. Refer to the individual product technical data bulletin for information.

2. Reinforcing Steel:

- a. Remove all scaling rust from reinforcing steel.
- b. Apply ECB anti-corrosion coating.

B. Mixing

- 1. Mechanically mix using a low speed drill (400 to 600 rpm) and mixing paddle or mortar mixer.
- 2. Pour 1 gallon of potable water into a clean mixing vessel and slowly add all 50 pounds of material.
- 3. Maintain the same water to ISR V/O ratio when mixing less than full 50 pound units.
- 4. Mix continuously for 3 minutes to a uniform, lump-free, stiff mortar consistency.
- 5. Add up to 1 cup of additional water if needed.
- 6. Allow to "breathe" for 1 minute and remix for 1 minute. This will improve workability and open time.

C. Application

1. At the time of application, surfaces should be saturated surface dry (SSD) but hold no standing water.
2. Follow instructions for Priming.
3. Force the material against the edges of the repair, working toward the center.
4. Material may be applied in multiple lifts of not less than 3/8 inch and no greater than 2 inches.
5. Consolidate each lift and allow to stiffen to thumb-print hard before continuing.
6. Scratch (cross-hatch) each lift to prepare surface for subsequent lift.
7. Over-build final lift by 1/4 inch and allow to take initial set.
8. Shave to final form with trowel edge up to 2 hours after application.
9. Finish with a sponge float or trowel.
10. Do not overwork the finish.

D. Curing

1. Dampen the repair with a fine mist of water for 24 hours or moist cure with wet burlap and polyethylene. Alternatively, apply ProMasonry Cure & Seal.
2. Protect repair from direct sunlight, wind, rain and frost during curing period.

3.4 CLEANING

- A. Material left over at the job site by the approved applicator shall be removed.
- B. Cured material must be removed mechanically.
- C. Clean tools and equipment with water immediately after use.

END OF SECTION 030130