

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 product to existing substrate.

1.2 SYSTEM DESCRIPTION

The products shall meet or exceed the following performance requirements:

Base		Portland cement and liquid		
Aggregate type		Sharp quartz silica		
Resistance to deicing chemicals under freeze/thaw	ASTM C672	50 cycles –no effect		
Length change	ASTM C157	<500 µstrains at 28 days		
Extended*		<300 µstrains at 28 days		
Modulus of elasticity	ASTM C469	4.1 x 10 ⁶		
Extended*		3.9 x 10 ⁶		
		1 Day	7 Days	28 Days
Compressive strength – psi	ASTM C109	1250	5700	6150
Extended*				5975
Splitting tensile strength –cylinders – psi	ASTM C496			710
Extended*				675

*Extended with 30 pounds of 3/8 inch aggregate per 50 pounds of material

1.3 SUBMITTALS

- A. Manufacturer’s current product data bulletin.
- B. The trained applicator shall prepare a test panel of the repair installed on the actual 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

Forment: A two component, shrinkage compensated, cement based, pourable and pumpable repair mortar with ECB-Tech corrosion protection.

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 all loose or unsound concrete, saw cutting with a diamond blade at a 90 degree angle to eliminate feather edging and squaring the perimeter to a minimum depth of 1 inch. Mechanically chip or hydro-prep the area to be repaired.
- B. Avoid bruising or micro cracking during surface preparation. Refer to ICRI Surface Preparation Guide 03732.

- C. The average depth of the repair should not be less than 1 inch, of square or rectangular shape.
- D. Formwork- Refer to ACI 347R-88 (Recommended Practice for Concrete Formwork) for details on erecting forms. All forms should be tight at all joints to prevent loss of material.
- E. Remove concrete from corroded steel and several inches beyond to expose non corroded steel. Provide a 3/4 inch clearance between concrete and steel.
- F. Damaged reinforcing steel should be inspected by a qualified engineer.
- G. Use a form release agent on all forms.
- H. Run a bead of polyurethane caulking around the perimeter of the form to prevent leakage.
- I. Include vent holes at the top or ends of the forms for the release of escaping air.
- J. Prior to application of products, inspect the substrate for proper cleaning and treatment of structural cracks, texture differences, damage, etc. Work shall not proceed until unsatisfactory conditions are corrected.

3.3 APPLICATION

A. Priming

1. Concrete: Several hours prior to placing Forment, fill the formwork with clean water. Immediately prior to placement, completely drain the water and seal the ports.
2. Reinforcing Steel: Remove all scaling rust from reinforcing steel. Apply ECB to exposed steel.

B. Mixing

1. Mixing Proportions- one 50 pound bag of Forment to one container of Forment Admix.
2. Do not add any additional water or chemicals.
3. Mix for 2 minutes until a smooth, lump free consistency is achieved.
4. Continuous mixing should be maintained until material is placed.

C. Application

1. Pour or pump Forment into the forms.
2. Refer to ACI 304R-85 (Placing Concrete by Pumping Methods) for details on pumping procedures.
3. Fill forms with a continuous feed. Do not allow Forment to sit unagitated in the mixer or lines for longer than 5 minutes, as the material could begin to set up. Recycle material if necessary.
4. Forment should be placed within 30 minutes of mixing when surrounding conditions are 70 degrees F, 50 percent humidity. Higher temperatures will reduce open time. Under continuous mixing conditions, Forment will be pumpable for approximately 30 minutes.

5. Care should be taken to completely fill the forms and properly consolidate the material by tapping forms lightly with a 3 pound hammer.
6. Cap the vents when a steady flow is evident.
7. Prevent loss of material when removing the line and placing the plugs, as this will result in lack of bond with the substrate.
8. Strip the forms after 48 hours. The outside edges of the repair and the anchor holes may need to be cleaned and/or repaired with Conpro Set.

D. Curing

1. Immediately after stripping forms apply ProMasonry Cure & Seal or moist cure with wet burlap and polyethylene for 48 hours.
2. Protect repair from direct sunlight, wind, precipitation and frost during curing period.

3.4 CLEANING

- A. Material left over at the job site by the approved applicator shall be removed.
- B. All adjacent surfaces and materials shall be cleaned.
- C. Clean tools and equipment with water.
- D. Cured material must be removed mechanically.

END OF SECTION 030130