GUIDE SPECIFICATION FOR MEADOW-CRETE® FNP: ONE COMPONENT, FLOWABLE, FORM & POUR STRUCTURAL REPAIR MORTAR

SECTION 03 01 30

MAINTENANCE OF CAST-IN-PLACE CONCRETE

Specifier Notes: This guide specification is written according to the Construction Specifications Institute (CSI) format. The section must be carefully reviewed and edited by the architect or engineer to meet the requirements of the project. Coordinate this section with other specification sections and the drawings.

Specifier Notes: W. R. MEADOWS® MEADOW-CRETE FNP is a one-component, flowable, shrinkage-compensated, corrosion inhibitor enhanced, repair mortar for structural applications. MEADOW-CRETE FNP can be formed and poured or formed and pumped, utilizing a suitable grout pump. It has a low permeability, protects embedded reinforcing steel and provides a lower in-cast placement.

MEADOW-CRETE FNP is ideal for the reinstatement or repair of beams, columns, balcony edges, or for partial depth or full depth placement. This product is suitable for industrial, residential, and civil engineering applications.

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Application of one-component, flowable, structural repair mortar.

1.02 RELATED SECTIONS

Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

A. Section 03 30 00 - Cast-in-Place Concrete.

B. Section 03 40 00 - Precast Concrete.

1.03 REFERENCES

A. ASTM C191 - C191-04b Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle.

B. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2” or [50 mm] Cube Specimens).

C. ASTM C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear.

D. ASTM C469 – Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression.

E. ASTM C157 – Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.

F. ASTM C348 – Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.

G. ASTM C666 – Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.

H. ACI 347-88 – Guide to Formwork for Concrete.

I. ACI 304-R85 – Guide for Measuring, Mixing, Transporting, and Placing Concrete.

J. ACI 305-R89 – Standard on Hot Weather Concreting.

K. ACI 306-R88 – Standard on Cold Weather Concreting.

L. ICRI Technical Guide No. 03730.

1.04 SUBMITTALS

A. Comply with Section 01 33 00 - Submittal Procedures.

B. Submit manufacturer's product data and application instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a clean, dry area in accordance with manufacturer's instructions.

C. Protect materials during handling and application to prevent damage or contamination.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Do not apply below 40° F (4° C) or above 90° F (32° C) or when rain is imminent.

B. Protect from conditions that may cause early water loss: high winds, low humidity, high temperature, and direct sunlight.

C. Protect from freezing for a minimum of 24 hours.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. W. R. MEADOWS, INC., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Web Site www.wrmeadows.com.

2.02 MATERIALS

A. Performance Based Specification
   1. Cementitious Repair Mortar: Flowable, structural repair mortar shall be a one-component, shrinkage compensating, corrosion inhibitor enhanced, cementitious mortar having the following characteristics:
      a. Initial Set, ASTM C191: 4 hours
         Final Set, ASTM C191: 6 hours
      b. Compressive Strength, ASTM C109:

1 day	2250 psi (15.5 MPa)
7 days	7500 psi (52 MPa)
28 days	8000 psi (55 MPa)

c. Bond Strength, ASTM C882: 1 day 650 psi (4.5 MPa)
28 days 3400 psi (27 MPa)
d. Modulus of Elasticity, ASTM C469: 4.13 x 10^6 psi (28.5 GPa)
e. Flexural Strength, ASTM C348: 1 day 650 psi (4.5 MPa)
28 days 1850 psi (13 MPa)
f. Freeze-Thaw Resistance, ASTM C666, at 300 cycles: 97% Relative Dynamic Modulus
g. Length Change, ASTM C157: Drying Shrinkage (28 days), -0.040% (400 µ strain)

B. Proprietary Based Specification:
.1 MEADOW-CRETE FNP flowable structural repair mortar by W. R. MEADOWS.

2.03 ACCESSORIES

A. Concrete Curing Compound: 1100-CLEAR CURING COMPOUND, 1220-WHITE PIGMENTED CURING COMPOUND or VOCOMP®-20 CURING AND SEALING COMPOUND by W. R. MEADOWS.

B. Acrylic Latex Bonding Agent: ACRY-LOK™ by W. R. MEADOWS.

C. Epoxy Bonding Agent: REZI-WELD™ 1000 medium viscosity epoxy bonding agent by W. R. MEADOWS.

D. Evaporation Retarder: EVAPRE™ by W. R. MEADOWS.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive repair mortar. Notify engineer if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

A. Prepare surface in accordance with ICRI Technical Guide No. 03730.

B. Mechanically abrade existing substrate to remove all unsound concrete, but do not use excessive force, which may cause micro-fracturing.

C. Ensure substrate is structurally sound and free of any contaminants that will adversely affect bond.

D. Ensure prepared surface is dust-free and has a sufficient profile to ensure adequate mechanical lock.

E. Saw cut perimeter of repair zone to a depth of 1/2" (12 mm) to avoid featheredging.

F. Completely expose all reinforcing steel, ensuring a minimum clearance of ¾" behind reinforcing steel.

G. Perform reinforcing steel preparation in accordance with ICRI Technical Guidelines No. 03730.

H. Pre-soak repair zone prior to application of repair mortar to a saturated, surface dry (SSD) condition and free of standing water.

3.03 APPLICATION

A. Mixing
- .1 Mix repair mortar in accordance with manufacturer's instructions using a mortar-type mixer, ensuring water requirements are adhered to.
- .2 For each bag, slowly add powder to three quarts (2.84 L) of water and mix to desired consistency.
- .3 Adjust mix consistency using up to an additional 0.5 quarts (0.47L) of clean water as needed.
- .4 Mix for 3-5 minutes or until lump-free consistency is obtained.
- .5 Mix only complete bags.

B. Forming
- .1 Support formwork as to ensure a tight seal with repair zone.
- .2 Ensure formwork is rigid, structurally stable, sealed and coated with a suitable form release agent.
- .3 Accomplish forming in accordance with ACI 347-88.
- .4 Install proper vent & drainage ports as required to ensure no entrapment of air voids.
- .5 Pre-soak repair zone for 24 hrs. prior to placement to a saturated, surface dry (SSD) condition.

C. Placement
- .1 Pour or pump properly mixed product immediately following proper mixing to ensure adequate flow.
- .2 Accomplish pumping in accordance with ACI 304-R85.
- .3 Do not re-temper or over-work product.
- .4 When conditions exist for rapid early water loss, apply evaporation retarder according to manufacturer's instructions.

D. Curing
- .1 Cure repair mortar immediately following application using a suitable water-based curing compound in accordance with ACI 308.
- .2 Do not use solvent-based curing compounds.
- .3 When conditions exist for rapid early water loss, apply evaporation retarder according to manufacturer's instructions.

END OF SECTION