

**SECTION 03726**  
**EMACO® R300**  
*ONE COMPONENT POLYMER-MODIFIED PROFILING MORTAR*

**NOTE TO SPECIFIERS**

The purpose of this suggested specification is to assist the specifier while developing a specification for the use of Master Builders *EMACO® R300*. This specification has been prepared to be part of a complete project specification. It has not been prepared to be a "stand alone" item. This document is not intended to be copied directly into project specifications.

**PART 1 - GENERAL**

**1.01 Related Documents**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

**1.02 Summary**

- A. This Section specifies a one component, polymer modified, cement based, chloride-resistant, thixotropic and flowable surface renovation mortar.
- B. This product is designed for repairing horizontal, vertical and overhead concrete structures at a repair thickness of 1/8 in. (3 mm) up to an 1/4 in. (6 mm) horizontally and from featheredging up to 1 in. (25 mm) vertically.

**1.03 References**

ASTM C 109-91	Test Method for Compressive Strength of Hydraulic Cement Mortars - Modified.
ASTM C 348-92	Test Method for Flexural Strength of Hydraulic Cement Mortars.
ASTM C 469-87	Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression.
ASTM C 496-90	Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
ASTM C 596-89	Test Method for Drying Shrinkage of Mortar Containing Portland Cement.
ASTM C 666-90	Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
ASTM C 1042-91	Test Method for Bond Strength of Latex Systems used with Concrete.
ASTM C 1202-91	Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration.

**1.04 System Performance Requirements**

- A. Provide polymer modified chloride-resistant repair mortar which when cured produces the following properties:
1. Compressive Strength (ASTM C 109): Minimum, 6-hour 350 psi (2.4 MPa); 1-day 2000 psi (13.8 MPa); 7-day 5000 psi (34.5 MPa); 28-day 7,000 psi (48.3 MPa).
  2. Flexural Strength (ASTM C 348): Minimum, 1-day 550 psi (3.8 MPa); 7 day 650 psi (4.5 MPa); 28-day 1200 psi (8.3 MPa).

**1.04 System Performance Requirements, continued**

3. Split Tensile Strength (ASTM C 496): Minimum, 1-day 350 psi (2.4 MPa); 7-day 500 psi (3.4 MPa); 28-day 800 psi (5.5 MPa).
4. Slant Shear Bond Strength: Minimum, 1-day 750 psi (5.2 MPa); 7-day  
(ASTM C 1042-modified) 1500 psi (10.3 MPa); 28-day 2000 psi (13.8 MPa).
5. Permeability (ASTM C 1202): Maximum 800 Coulombs.
6. Modulus of Elasticity (ASTM C 469-87): Maximum  $2.3 \text{ psi} \times 10^6$  (15.9 MPa).
7. Drying shrinkage (ASTM C 596): Maximum 0.1% at 28 days.
8. Freeze Thaw Resistance : Minimum RDF 95%.  
(ASTM C 666 300 cycles)

**1.05 Project Conditions**

- A. Weather Conditions: Apply repair mortar only when ambient and surface temperatures are 45 °F (7 °C) and rising. Do not make the repair if the ambient temperature is expected to fall below 45 °F (7 °C) within 24 hours after placement. Do not apply repair mortar when ambient and surface temperatures are 90 °F (32 °C) and above.
- B. Follow manufacturer's recommendations regarding additional installation information (hot weather-drying conditions, or cold weather installation.)

**PART 2 - PRODUCTS**

**2.01 Materials**

- A. One Component Polymer Modified Chloride-Resistant Surface Renovation Mortar: "EMACO® R300" by Master Builders, Inc. a blend of portland cement, redispersible polymer additive, specially graded aggregates and set-control admixtures.
- B. Water: Drinkable.
- C. Curing Compounds: "MASTERKURE® 200W" by Master Builders, Inc.
- D. Evaporation Reducer and Finishing Aid: "CONFILM®" by Master Builders, Inc.

**PART 3 - EXECUTION**

**3.01 Surface Preparation**

- A. Mechanically remove unsound concrete to the limits indicated on the drawings.
- B. Remove existing concrete facing as required to expose sound aggregate. For horizontal applications, substrate should have a minimum amplitude of 1/8 in. (3 mm). Limit the size of chipping hammers to 15 lb. to reduce micro fractures.
- C. For horizontal applications, square cut or under cut perimeter of the area to be repaired to a minimum depth of 1/8 in. (3 mm). Do not cut existing steel reinforcement.

- D. Where reinforcing steel with active corrosion is encountered, comply with the following:
1. Abrasive blast reinforcing steel to remove rust and contaminants.
  2. When one-half of the diameter of the reinforcing steel is exposed, chip out behind the reinforcing to a 3/4 in. (15 mm) minimum depth.
  3. Splice new reinforcing steel to existing steel where corrosion has depleted the cross-section area by 25%, as directed by the Architect/Engineer.
- E. Thoroughly clean the roughened surface and exposed reinforcement of rust, dirt, loose chips, and dust using high pressure water. Maintain substrate in a saturated, surface-dry condition.

### **3.01 Surface Preparation, continued**

- F. Coat exposed reinforcing steel with EMACO® P22 rebar protection coating prior to patching.

### **3.02 Mixing**

- A. Comply with mortar manufacturer's recommendations for water quantity and mixing procedures.

### **3.03 Application**

- A. Apply a bond scrub coat prior to the placing of the EMACO® R300 according to manufacturer's recommendations.
- B. Apply polymer modified, chloride-resistant, one component surface renovation mortar to:
- a) horizontal surfaces by pouring in thicknesses from min. 1/8 in. (3 mm) up to 1/4 in. (6 mm).
  - b) vertical surfaces by trowel applying in thicknesses up to 1 in. (25 mm).

### **3.04 Finishing**

- A. Level surface of repair mortar using a float or screed.
- B. Under desiccating conditions, spray apply undiluted "CONFILM®" evaporation retarder lightly just after placing.
- C. Apply final finish when mortar has begun to stiffen.

### **3.05 Curing**

- A. Protect fresh mortar from premature evaporation. Cure finished repair mortar by one of the following methods:
1. Method: Keep area continuously moist with water as soon as mortar surface has hardened (thumb print hard), for a minimum of two days.
  2. Method: Apply two coats of curing compound, Master Builders "MASTERKURE® 200". Apply the first coat immediately after completing finishing operations. Apply the second coat 24 hours later.

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