

**SECTION 03728**  
**EMACO® R350**  
*ONE COMPONENT, POLYMER-MODIFIED LIGHTWEIGHT VERTICAL/OVERHEAD  
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® R350*. 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, high build, light-weight, thixotropic, non structural surface renovation mortar.
- B. This product is designed for repairing vertical and overhead concrete structures at a maximum repair depth of up to 2-3/4" (70 mm) without aggregate extension.

**1.03 References**

ASTM C 109-91	Test Method for Compressive Strength of Hydraulic Cement Mortars - Modified.
ASTM C 138-81	Test Method for Unit Weight, Yield, and Air Content of Concrete.
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 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.

**1.04 System Performance Requirements**

- A. Provide polymer modified light-weight repair mortar which when cured produces the following properties:
1. Compressive Strength (ASTM C 109): Minimum, 1-day 1500 psi (10.3 MPa); 7-day 3000 psi (20.7 MPa); 28-day 5000 psi (34.5 MPa).
  2. Flexural Strength (ASTM C 348): Minimum, 1-day 200 psi (1.4 MPa); 7-day 425 psi (2.9 MPa); 28-day 950 psi (6.6 MPa).
  3. Split Tensile Strength (ASTM C 496): Minimum, 1-day 190 psi (1.3 MPa); 7-day 300 psi (2.1 MPa); 28-day 590 psi (4.1 MPa).



**1.04 System Performance Requirements, continued**

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| 4. Slant Shear Bond Strength (ASTM C 1042-modified): | Minimum, 1-day 200 psi (1.4 MPa); 7-day 425 psi (2.9 MPa); 28-day 950 psi (6.6 MPa). |
| 5. Modulus of Elasticity (ASTM C 469-87):            | Maximum 1.1 psi x10 <sup>6</sup> (7.4 MPa).  |
| 6. Freeze Thaw Resistance (ASTM C 666 300 cycles):   | Minimum RDF 95%.   |
| 7. Unit Weight (ASTM C 138-81):                      | Maximum 110 lbs/ft <sup>3</sup> .  |

**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 High Build Light-Weight Surface Renovation Mortar: "EMACO® R350" 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. Substrate should have a minimum amplitude of 1/8" (3 mm). Limit the size of chipping hammers to 15 lbs. to reduce micro fractures.
- C. Square cut or under cut perimeter of the area to be repaired to a minimum depth of 1/8" (3 mm). Do not cut existing steel reinforcement.

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

- 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" (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.
- 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® R350 according to manufacturer's recommendations.
- B. Apply thixotropic polymer modified, one component, high build, light-weight surface renovation mortar to vertical or overhead areas in thicknesses up to 2-3/4" (70 mm) per lift.

### **3.04 Finishing**

- A. Level surface of repair mortar using a float or screed.
- B. Under descating 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® 200W". Apply the first coat immediately after completing finishing operations. Apply the second coat 24 hours later.

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