

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 in. (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 x106 (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 ³ . |

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 in. (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 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.

3.01 Surface Preparation (continued)

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 in. (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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