

SECTION 03722
EMACO® T415
RAPID STRENGTH REPAIR 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® T415*. 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, cement-based, rapid strength repair mortar.
- B. This Product is designed for repairing horizontal and vertical formed concrete surfaces where minimal downtime is required.

1.03 References

ASTM C 33-90	Specification for Concrete Aggregates.
ASTM C 109-90	Test Method for Compressive Strength of Hydraulic Cement Mortars.
ASTM C 266-89	Test Method For Time of Setting of Hydraulic Cement Paste by Gilmore Needles.
ASTM C 348-91	Test Method for Flexural Strength of Hydraulic Cement Mortars.
ASTM C 496-90	Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
ASTM C 666-91	Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
ASTM C 779-89	Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
ASTM C 882-87	Test Method for Bond Strength of Epoxy-Resins Systems used with Concrete.
ASTM C 928	Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs.
ASTM C 1012 Solution - Modified.	Test Method for Length of Change of Hydraulic Cement Mortars Exposed to Sulfate

1.04 System Performance Requirements

- A. Provide rapid strength repair mortar that, when air cured, produces the following minimum properties:
1. Compressive Strength (ASTM C 109): 2-hour 2400 psi (16.5 MPa); 24-hour 6300 psi (43.4 MPa); 7-day 8500 psi (58.6 MPa); 28-day 10,000 psi (68.9 MPa).
 2. Flexural Strength (ASTM C 348): 1-day 850 psi (5.9 MPa); 7-day 1000 psi (6.9 MPa); 28-day 1100 psi (7.6 MPa).
 3. Split Tensile Strength (ASTM C496): 1-day 750 psi (5.2 MPa); 7-day 1100 psi (7.6 MPa); 28 day 1200 psi (8.3 MPa).
 4. Slant Shear Bond (ASTM C 882-modified): 28-day 2500 psi (17.2 MPa) min.
 5. Freeze-Thaw Resistance (ASTM C 666 - 300 cycles): Minimum RDF 85%.
 6. Abrasion Resistance (ASTM C 779 - 60 minutes): Maximum 0.030" (0.065 cm).
 7. ASTM C 928: Shall meet all current requirements for "Very Rapid Hardening" repair materials.
 8. Sulfate Resistance (ASTM C 1012): 0.15% maximum expansion after 14 weeks.

PART 2 - PRODUCTS

2.01 Materials

- A. Rapid Strength Repair Mortar: "EMACO® T415" by Master Builders, Inc., a fast-setting, single-component concrete repair and anchoring material.
- B. Aggregate (ASTM C 33): 1/4 in. to 1/2 in. (6 mm to 13 mm) rounded, non-reactive.
- C. Curing Compounds: "MASTERKURE[®]200W" by Master Builders, Inc.
- D. Water: Drinkable.

PART 3 - EXECUTION

3.01 Surface Preparation

- A. Mechanically remove unsound concrete to the limits indicated on the drawings.
- B. Remove at least 1/4 in. (6 mm) of existing concrete facing and continue removal as required to expose sound aggregate.
- C. Saw-cut perimeter of the area to be repaired to a minimum depth of 1/4 in. (6 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 to achieve a white metal finish.
 2. If half of the diameter of the reinforcing steel is exposed, chip out behind the reinforcing to a 1/2 in. (13 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.

3.01 Surface Preparation

- 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 prior to patching.

3.02 Aggregate Extension

- A. Use neat rapid strength repair mortar for patches less than 1" (25 mm) in depth or width.
- B. For patches deeper than 1 in. (25 mm), extend repair mortar by adding up to 30 lb (15 kg) of clean, sound, non-reactive, 1/2 in. (13 mm) ASTM C-33 No. 8 hard aggregate to each 55 lb (25 kg) of "EMACO® T415".

3.03 Mixing

- A. Comply with rapid strength repair mortar manufacturer's recommendations for water quantity and mixing procedures.
- B. Product shall not require more than 3 minutes of mixing to achieve a flowable mortar meeting the requirements of this specification.

3.04 Application

- A. Bond Scrub Coat: Apply a bond scrub coat of repair mortar on properly prepared substrate.
 - 1. Thoroughly scrub mixed EMACO T415 into the cleaned, saturated surface with a stiff-bristled brush.
 - 2. Apply scrub coat at a rate that will not dry before placement of repair mortar.
 - 3. Do not retemper slurry material if it begins to set.
- B. Apply rapid strength repair mortar in patches of 1/4 in. (6 mm) or greater in depth. Place repair mortar into prepared areas from one side to the other. Work material firmly into the bottom and sides of the patch to assure good bond.

3.05 Finishing

- A. Level surface of repair mortar using a wooden float, screed, or other suitable device.
- B. Apply final finish when mortar has begun to set.

3.06 Curing

- A. Air curing is permissible. Moist curing with burlap and plastic sheet for one day or with MASTERKURE® 200W curing compound will optimize ultimate physical properties.
- B. Use CONFILM® evaporation reducer as necessary to prevent premature surface drying under severe conditions.

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