

An ACI Standard

Specification for Repairing Concrete with Epoxy Mortar

Reported by ACI Committee 548

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Specification for Repairing Concrete with Epoxy Mortar

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This specification describes the work of repairing defects in hardened portland-cement concrete with an epoxy mortar. Included are controls for epoxy resin system labeling, storage, handling, strength evaluation and preparation, mixing and application, inspection, quality control, and testing.

Keywords: adhesion to concrete; aggregate; concrete construction; epoxy; hardened concrete; epoxy mortar; quality control, inspection; resurfacing.

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PART 1—GENERAL

1.1—Scope

1.1.1 This specification covers the repairing of defects in hardened concrete with an epoxy mortar as specified in Contract Documents.

1.1.2 This specification governs for construction within its scope, except the Contract Documents govern if there is a conflict.

1.1.3 Values in this specification are stated in inch-pound units. A companion specification in SI units is also available.

1.1.4 The Notes to Specifier are not part of this specification.

1.2—Interpretation

Unless otherwise explicitly stated, this specification shall be interpreted using the following principles:

(a) Interpret this specification consistent with the plain meaning of the words and terms used.

(b) Definitions provided in this specification govern over the definitions of the same or similar words or terms found elsewhere.

(c) Whenever possible, interpret this specification so that its provisions are in harmony and do not conflict.

(d) Headings are part of this specification and are intended to identify the scope of the provisions or sections that follow. If there is a difference in meaning or implication between the text of a provision and a heading, the meaning in the text governs.

(e) Where a provision of this specification involves two or more items, conditions, requirements, or events connected by the conjunctions “and” or “or,” interpret the conjunction as follows:

“and” indicates that all of the connected items, conditions, requirements, or events apply.

“or” indicates that the connected items, conditions, requirements, or events apply singularly.

(f) The use of the verbs “may” or “will” indicates that the specification provision is for informational use by Contractor.

1.3—Definitions

The following definitions govern this specification. For definitions not given below, refer to “ACI Concrete Terminology,” <http://www.concrete.org/Tools/ConcreteTerminology.aspx>.

accepted—determined to be satisfactory by Architect/Engineer.

Architect/Engineer—architect, engineer, architectural firm, or engineering firm developing Contract Documents or administering the Work under Contract Documents, or both.

Contract Documents—a set of documents supplied by the Owner to bidders during bidding phase of a construction project. These documents include general requirements, contract forms, contract conditions, specification, drawings, and addenda.

Contractor—the person, firm, or entity under contract for construction of Work.

defect—an imperfection of sufficient size or magni-

tude to causes nonconformance from the intended state or performance.

epoxy—a thermosetting polymer that is the reaction product of epoxy resin and hardener.

epoxy mortar—a mixture of epoxy resin, hardener, and fine aggregate.

Owner—the corporation, association, partnership, individual, public body, or authority for whom Work is constructed.

submit—provide to Architect/Engineer for review.

submittal—document or material provided to the Architect/Engineer for review and acceptance.

Work—the entire construction or separately identifiable parts thereof required to be furnished under Contract Documents.

1.4—Referenced standards

Standards of ASTM referred to in this standard are listed with serial designations, including year of adoption or revision, and are part of this standard.

1.4.1 ASTM International

ASTM C579-01(2011)—Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes

ASTM C891/C891M-13—Standard Specification for Epoxy-Resin Base Bonding Systems for Concrete

ASTM C1583/C1583-13—Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)

1.5—Submittals

1.5.1 Certifications—Submit manufacturer’s certification verifying conformance to material specifications.

1.5.2 Application control—Submit mixing and application procedures for acceptance prior to use.

1.5.3 Data—Submit manufacturer’s technical data sheets and material safety data sheets (MSDS).

1.5.4 Preparation procedures—Submit surface preparation procedures and equipment.

1.6—Product delivery, storage, and handling

1.6.1 Delivery of materials—Deliver all materials in sealed containers with labels legible and intact.

1.6.2 Labeling—Only use materials that are marked with the following information:

- Name of manufacturer
- Manufacturer’s product identification
- Manufacturer’s instructions for mixing
- Warning for handling and toxicity
- Expiration date and lot number

1.6.3 Storage of materials—Store all materials at temperatures between 40 to 100°F, unless otherwise recommended by manufacturer.

1.6.4 Handling of materials—Handle all materials to avoid breaking container seals and in accordance with the MSDS and manufacturer’s recommendations.