ACI 548.4M-11

(metric)

Specification for Latex-Modified Concrete Overlays

An ACI Standard

Reported by ACI Committee 548

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Specification for Latex-Modified Concrete Overlays

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This Reference Specification covers styrene-butadiene latex-modified concrete (LMC) as an overlay on concrete bridge decks and other structures. It applies to both new construction and rehabilitation of existing structures. It includes certification requirements of the latex products, storage, handling, surface preparation, mixing, application, and limitations.

Keywords: bridge deck; latex-modified concrete; mixing; resurfacing.

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Reference to this document shall not be made in contract documents. If items found in this document are desired by the Architect/Engineer to be a part of the contract documents, they shall be restated in mandatory language for incorporation by the Architect/Engineer.

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PART 1—GENERAL

1.1—Scope

1.1.1 This Specification covers the materials and procedures for construction of styrene-butadiene latex-modified concrete (LMC) overlays for new construction as well as repair and rehabilitation of existing bridge decks and other structures.

1.1.2 The provisions of this Specification shall govern unless otherwise specified in the Contract Documents. In case of conflicting requirements, the Contract Documents shall govern.

1.2—Units

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

1.3—Definitions

ACI provides a comprehensive list of definitions through an online resource, "ACI Concrete Terminology" (http://terminology.concrete.org). Definitions provided herein complement that source.

accepted manufacturer—a manufacturer that produces latex in compliance with FHWA RD-78-35.

hydrodemolition equipment—equipment that removes concrete from a surface by impacting the surface with water.

latex-modified concrete (LMC)—hydraulic cement and aggregates combined at the time of mixing with organic polymers that are dispersed or redispersed in water.

milling machines—equipment that removes concrete from a surface by impacting the surface with rotating heads.

mobile mixer—equipment that batches concrete ingredients by volume and mixes ingredients and discharges mixed ingredients in a continuous fashion using a trough with a rotating auger.

scarifiers—equipment that removes concrete from a surface by impacting or grinding the surface with rotating blades.

very-early-strength latex-modified concrete (LMC-VE)—LMC that has a minimum compressive strength of 17 MPa at 3 hours of age when tested in accordance with ASTM C39/C39M.

1.4—Referenced standards

Standards referenced in this Specification are listed with their designation and title, including the year of adoption or revision, and are part of this Specification unless otherwise specified.

1.4.1 *American Concrete Institute*

305.1-06—Specification for Hot Weather Concreting

306.1-90—Standard Specification for Cold Weather Concreting

1.4.2 *ASTM Standards*

C31/C31M-10—Standard Practice for Making and Curing Concrete Test Specimens in the Field

C33/C33M-11a—Standard Specification for Concrete Aggregates

C39/C39M-11a—Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

C143/C143M-10a—Standard Test Method for Slump of Hydraulic-Cement Concrete

C150/C150M-11—Standard Specification for Portland Cement

C172-10—Standard Practice for Sampling Freshly Mixed Concrete

C685/C685M-11—Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing

C1064/C1064M-11—Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete

C1438-11a—Standard Specification for Latex and Powder Polymer Modifiers for Hydraulic Cement Concrete and Mortar

C1583/C1583M-04e1—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)

C1602/C1602M-06—Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

1.4.3 *Federal Highway Administration*

FHWA RD-78-35—Styrene-Butadiene Latex-Modifiers for Bridge Deck Overlays

1.4.4 *International Concrete Repair Institute (ICRI)*

ICRI-R310.2-1997—Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays (formerly No. 03732)

1.4.5 *Standards-producing organizations*

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