

An ACI Standard

Epoxy and Aggregate High Friction Surface on Concrete—Specification

Reported by ACI Committee 548

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Epoxy and Aggregate High Friction Surface on Concrete—Specification

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This Specification describes the work of producing a high-friction surface treatment (HFST) on asphalt or concrete pavements by the application of an epoxy or methyl methacrylate binder and aggregate broadcast. The HFST incorporates a low-modulus polymer binder and selected aggregate to produce a flexible, high-friction (skid-resistant) pavement surface. The HFST may be used for both new and existing pavements. The HFST is produced by applying the neat epoxy or methyl methacrylate binder to the surface and broadcasting aggregate onto it.

This Specification includes requirements for components of the polymer binders, aggregates, storage and handling, surface preparation, surface profile, mixing, and placement.

Keywords: aggregates; asphalt pavements; concrete pavements; epoxy binder; methyl methacrylate binder; polymer application; quality control; skid resistance.

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PART 1—GENERAL

1.1—Scope

1.1.1 This Specification covers the production and installation of a high-friction surface treatment (HFST) on asphalt and concrete pavements by the application of epoxy or methyl methacrylate resin binder and broadcast aggregate as indicated in the Contract Documents.

1.1.2 This Specification is incorporated by Contract Documents and provides requirements for the Contractor.

1.1.3 This Specification governs for construction within its scope, except project-specific Contract Documents govern if there is a conflict.

1.1.4 This Specification governs if there is a conflict with referenced material and testing standards.

1.1.5 Contractor is permitted to submit written alternatives to any provision in this Specification for consideration.

1.1.6 Do not use this Specification in conjunction with ACI 301, ACI 350.5, or ACI 530.11 unless Contract Documents state that this Specification governs for Work covered by 1.1.1.

1.1.7 Ignore provisions of this specification that are not applicable to the Work.

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

1.1.9 The Notes to Specifier are not part of this Specification.

1.2—Interpretation

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

1.2.1.1 Interpret this Specification consistent with the plain meaning of the words and terms used.

1.2.1.2 Definitions provided in this Specification govern over the definitions of the same or similar words or terms found elsewhere.

1.2.1.3 Whenever possible, interpret this Specification so that its provisions are in harmony and do not conflict.

1.2.1.4 Headings are part of this Specification and are intended to identify the scope and 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 of the text governs.

1.2.1.5 Footnotes are part of this Specification. The meaning of the provision text governs in the event of a difference in meaning or implication between the provision text and a footnote to that provision.

1.2.1.6 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 the connected items, conditions, requirements, or events apply

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

1.2.1.7 The use of the verbs “may” or “will” indicates that the Specification provision is for information to the Contractor.

1.2.1.8 The phrase “as indicated in Contract Documents” means the specifier included the provision requirements in Contract Documents.

1.2.1.9 The phrase “unless otherwise specified” means the specifier may have included an alternate to the default requirement in Contract Documents.

1.2.1.10 The phrase “if specified” means the specifier may have included a requirement in contract Documents for which there is no default requirement in this Specification.

1.2.1.11 If an ACI Specification refers to combined ASTM standards, include the following provision in the interpretation article: “Unless otherwise stated, the inch-pound system [or metric, whichever is applicable] of units is applicable to combined standards referenced in this Specification.” Provisions should include the complete designation of a combined standard.

1.3—Definitions

accepted—determined by Architect/Engineer to be in compliance with Contract Documents.

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

broadcast aggregate—fine aggregate that is tossed uniformly over a layer of uncured binder.

Contract Documents—set of documents that form the basis of a contractual relationship between an Owner and Contractor or design-builder; documents are defined by the contractual agreement, and can contain contract forms, contract conditions, specifications, drawings, addenda, and contract changes.

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

epoxy—a 100% solid, moisture-insensitive, flexible, thermosetting polymer that is the reaction product of an epoxy resin and a co-reactant (compatible hardener) such as an amine that provides the specified properties.

high-friction surface treatment—a layer of resin and embedded fine aggregate applied to prepared pavement surface to increase friction.

methyl methacrylate—a solvent-free, cold-curing, two-component reactive methacrylate resin, cured through radical polymerization, which is initiated by Dibenzoyl