

An ACI Standard

Construction with Glass Fiber-Reinforced Polymer Reinforcing Bars— Specification

Reported by ACI Committee 440

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Construction with Glass Fiber-Reinforced Polymer Reinforcing Bars—Specification

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This Specification covers construction of concrete members internally reinforced with glass fiber-reinforced polymer reinforcing bars.

Keywords: concrete construction; fiber-reinforced polymer reinforcement; placing; tolerance.

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FOREWORD TO CHECKLISTS, p. 5**MANDATORY REQUIREMENTS CHECKLIST, p. 6****PART 1—GENERAL****1.1—Scope**

1.1.1 This Specification covers cast-in-place structural concrete reinforced with glass fiber-reinforced polymer (GFRP) bars that conform to the requirements of **ASTM D7957**.

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 other 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 for the GFRP bars.

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

1.1.6 This Specification is to be used in conjunction with **ACI 301**; if there is a conflict with ACI 301, this Specification governs.

1.1.7 Do not use this Specification in conjunction with **ACI 350.5** or **ACI 530/530.1** unless Contract Documents state that this Specification governs for Work covered by 1.1.1.

1.1.8 Ignore provisions of this Specification that are not applicable to the Work.

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

1.1.10 The Notes to Specifiers 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.

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 Wherever 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 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 of the text governs.

1.2.1.5 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.

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

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

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

1.2.1.9 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.

1.3—Definitions

The following definitions shall govern in this Specification.

acceptance—acknowledgment by the Architect/Engineer that submittal or completed Work conforms to Contract Documents.

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

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

Contract Documents—set of documents that provide the basis for a construction project; these documents may include Owner-Contractor Contract, Project Specifications, Project Drawings, and Addenda.

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

dielectric—a substance, such as porcelain, glass, and most plastics, that is a poor conductor of electricity.

grating—planar fiber-reinforced polymer form; gratings may be manufactured using molding methods or by mechanically assembling pultruded fiber-reinforced polymer elements (bars, I-shapes, or rods) together in two orthogonal directions to produce sheets.

grid—two-dimensional (planar) or three-dimensional (spatial) rigid array of interconnected fiber-reinforced polymer bars that forms a contiguous lattice that can be used to reinforce concrete.

mechanical splice—complete assembly of a coupling sleeve device and any additional components configured to accomplish positive splicing of overlapping or butt-ended reinforcing bars.