Specifications for Structural Concrete

An ACI Standard

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This specification is a Reference Specification that the Engineer or Architect can make applicable to any construction project by citing it in the Project Specifications. The Architect/Engineer supplements the provisions of this Reference Specification as needed by designating or specifying individual project requirements.

The document covers materials and proportioning of concrete; reinforcing and prestressing steels; production, placing, finishing, and curing of concrete; and formwork design and construction. Methods of treatment of joints and embedded items, repair of surface defects, and finishing of formed and unformed surfaces are specified. Separate sections are devoted to architectural concrete, lightweight concrete, mass concrete, prestressed concrete, and shrinkage-compensating concrete. Provisions governing testing, evaluation, and acceptance of concrete as well as acceptance of the structures are included.

Keywords: admixture; aggregate; air entrainment; architectural concrete; cement; cementitious materials; cold weather; compressive strength; concrete; concrete construction; concrete durability; concrete slab; consolidation; conveyor; curing; density; exposed-aggregate finish; finish; floors; formwork; grout; grouting; hot-weather; inspection; joint (construction, contraction, and isolation); lightweight concrete; mix; mixture proportion; placing; prestressed concrete; prestressing steel; reinforced concrete; reinforcement; repair; reshoring; shoring; shrinkage-compensating concrete; specification; subgrade; temperature; test; tolerance; water-cementitious material ratio; welded wire reinforcement.

NOTES TO SPECIFIER

This specification is incorporated by reference in the project specifications using the wording in P3 of the preface and including the information from the mandatory, optional, and submittal checklists following the specification.

PREFACE

P1. ACI Specification 301 is intended to be used by reference or incorporation in its entirety in the Project Specification. Do not copy individual Parts, Sections, Articles, or Paragraphs into the Project Specification, because taking them out of context may change their meaning.

P2. If Sections or Parts of ACI Specification 301 are copied into the Project Specification or any other document,

ACI 301-05 supersedes ACI 301-99 and became effective April 20, 2005.

do not refer to them as an ACI Specification, because the specification has been altered.

P3. A statement such as the following will serve to make ACI Specification 301 a part of the Project Specification:

"Work on (Project Title) shall conform to all requirements of ACI 301-05 published by the American Concrete Institute, Farmington Hills, Michigan, except as modified by these Contract Documents."

P4. Each technical Section of ACI Specification 301 is written in the three-part Section format of the Construction Specifications Institute, as adapted for ACI requirements. The language is imperative and terse.

P5. The Specification is written to the Contractor. When a provision of this specification requires action on the Contractor's part, the verb "shall" is used. If the Contractor is allowed to exercise an option, the verb "may" or, when limited alternatives are available, the conjunctive phrase "shall either... or..." is used. Statements provided in the specification as information to the contractor use the verbs "may" or "will." Informational statements typically identify activities or options that "will" be taken or "may" be taken by the Owner or the Architect/Engineer.

CONTENTS

PART 1—GENERAL REQUIREMENTS

1.1—Scope

1.1.1 *Work specified*—This Specification covers cast-in-place structural concrete.

Provisions of this Specification shall govern except where other provisions are specified in the Contract Documents.

1.1.2 *Work not specified*—The following subjects are not in the scope of this specification:

- Precast concrete products;
- Heavyweight shielding concrete;
- Slipformed paving concrete;
- Terrazzo;
- Insulating concrete;
- Refractory concrete;
- Shotcrete;
- Slipformed concrete walls; and
- Tilt-up concrete construction.

1.2—Definitions

acceptable or **accepted**—acceptable to or accepted by the Architect/Engineer.

ACI Concrete Field Testing Technician Grade 1—a person who has demonstrated knowledge and ability to perform and record the results of ASTM standard tests on freshly mixed concrete and to make and cure test specimens. Such knowledge and ability shall be demonstrated by passing prescribed written and performance examinations and having credentials that are current with the American Concrete Institute.

Architect/Engineer or **Engineer/Architect**—the Architect, Engineer, architectural firm, engineering firm, or architectural and engineering firm issuing project drawings and