

Standard Specification for Cast-In-Place Architectural Concrete (ACI 303.1-97)

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This Standard Specification states requirements for cast-in-place architectural concrete. It includes requirements for the materials, forming, concrete placement, curing, additional treatment, and inspection. The requirements are for vertical (walls) and horizontal (flatwork) architectural concrete separate from the requirements for structural concrete.

Keywords: abrasive blasting; architectural concrete; as-cast finish, bush-hammering; cements; colored concrete; colors (materials); concrete construction; concrete finishes; consolidation; curing; exposed aggregate; placing; repairs; rustications; sealants; sealers; specifications; surface retarders; texture.

FOREWORD

F1. This foreword is included for explanatory purposes only; it does not form a part of the Standard Specification ACI 303.1.

F2. Standard Specification ACI 303.1 is a Reference Standard that the Architect/Engineer may cite in the Project Specifications for project, together with supplementary requirements for the specific project.

F3. Each technical section of Standard Specification ACI 303.1 is written in the three-part Section Format of the Construction Specifications Institute, as adapted by ACI, modified to ACI requirements, and organized by types of architectural concrete. The language is generally imperative and terse.

F4. Checklists do not form a part of Standard Specification ACI 303.1. Checklists are to assist the Architect/Engineer in properly choosing and specifying Project Specifications.

PREFACE TO SPECIFICATION CHECKLIST

P1. Standard Specification ACI 303.1 is intended to be used by reference or incorporation in its entirety in the Project Specifications. Individual sections, articles, or paragraphs shall not be copied into the Project Specifications, since taking them out of context may change their meaning. SI equivalents are provided for information only and are not part of this specification.

P2. If sections or parts of Standard Specification ACI 303.1 are edited into project specifications or any other document, they shall not be referred to as ACI standards, since the Standard Specification has been altered.

P3. Building codes set minimum requirements necessary to protect the public. This Standard Specification may stipulate requirements more restrictive than the minimum. Adjustments to the needs of a particular project shall be made by the Architect/Engineer by reviewing each of the items in the Specification Checklist and then including the Architect/Engineer's decision on each item as a mandatory requirement in the Project Specifications.

P4. These mandatory requirements designate the specific qualities, procedures, materials, and performance criteria for which the alternates are permitted or for which provisions

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were not made in the Standard Specification. Exceptions to the Standard Specification shall be made in the Project Specification, if required.

P5. The following statement will serve to make Standard Specification ACI 303.1 a part of Project Specifications:

Work on _____(Project Title)_____ shall conform to requirements of ACI Standard Specification for Cast-In-Place Architectural Concrete, ACI 303.1, published

by the American Concrete Institute, Farmington Hills, Michigan, except as modified by the requirements of these Contract Documents.

P6. The Standard Specification Checklist identifies Architect/Engineer choices and alternatives. The checklist identifies the sections, parts, and articles of the Standard Specification and the action required by the Architect/Engineer.

SPECIFICATION CHECKLISTS

Section/Part/Article	Notes to the Architect/Engineer
M. MANDATORY REQUIREMENTS	
Section 1—General	Designate whether U.S. Customary or SI units in preface.
1.6—Quality assurance	
1.6.1—Quality control plan	Specify content and when to submit.
Section 2—Concrete for cast-in-place architectural concrete	
2.2.1—Cementitious materials	Specify type of cement required for the environment.
O. OPTIONAL REQUIREMENTS	
Section 1—General	
1.4—Reference standards	Revise standards if project outside of U.S.
1.5—Submittals	Specify size, quantity and scheduling of product submittals.
1.6—Quality assurance	
1.6.2—Field mockup	Specify details for field mockup. Allow structure wall as option, if desired.
1.6.3—Qualifications and responsibility	
1.6.3.1—Responsibility of contractor	Modify responsibility requirements for contract.
1.6.3.2—QC inspector	Specify extent of authority of inspector and experience.
1.6.5—Periodic acceptance	Delete, if not required.
Section 2—Concrete for cast-in-place architectural concrete	
2.1—General	
2.1.2—Tolerances	Specify tolerances different from ACI 117.
2.2—Products	Specify any additional requirements to ACI 301.
2.2.1—Cementitious materials	Specify source of cement, if required for color.
2.2.4.6—Admixtures for flowing concrete	Specify conditions for use.
2.2.4.7—Mineral admixtures	Prohibit if necessary to ensure uniformity of color.
2.2.4.8—Coloring agents	Designate coloring agent which matches Design Reference Standard.

SPECIFICATION CHECKLISTS

Section/Part/Article	Notes to the Architect/Engineer
2.2.5—Concrete	Specify slump, strength and durability requirements beyond ACI 301.
2.2.6—Concrete curing compounds	Specify additional requirements beyond ASTM C 309.
2.3—Execution	
2.3.4—Repairs	Specify whether tie holes are to be filled flush, partially filled or left as cast.
Section 3—Reinforcement, tie wire and bar supports	
3.2—Products	Specify choice of reinforcement, tie wire and class of bar supports. Include pertinent portions from current CRSI, MSP-1, Manual of Standard Practice.
Section 4 — Formwork for architectural concrete	
4.2—Products	
4.2.1—Formwork	As there are many types of forms, designate type used on Design Reference Standard and allow equivalent if matching. Include applicable sections from APA Y510, Plywood Design Specification.
4.2.3—Form ties	Specify cone diameter or type of form tie material, if required.
4.2.4—Rustication form strips	Specify type and size.
4.3.3—Form surface preparation	Specify required tape for sealing form joints and around ties using applicable portions of AAMA, 810.185 Specification.
4.3.4—Form stripping	Modify minimum time, if required.
Section 5—Architectural treatments	
5.2—Products	
5.2.1—Aggregate	Specify source of aggregate to be exposed, if required.
5.2.5—Acid	Designate type of acid, if required.
5.3—Execution	Specify method of aggregate exposure.
5.3.1—Aggregate exposed by abrasive blast	Specify amount of reveal.
5.3.2—Aggregate exposed by removing retarded paste on vertical surfaces	Specify amount of reveal.
5.3.3—Aggregate exposed by removing retarded paste on horizontal surfaces	Specify amount of reveal.
5.3.6—Water blast	Specify amount of reveal.

S. SUBMITTALS CHECKLIST

Section 1—General	
1.5—Submittals	Delete submittals which are not required. Specify schedule, size and method of submitting samples.
1.6.5—Periodic review	Specify different interval for periodic review of architectural concrete, if desired.