| | |
|---|---|
| IN-LB | Inch-Pound Units |
| SI | International System of Units |

# Cast-in-Place Architectural Concrete Practice—Guide

Reported by ACI Committee 303

ACI PRC-303-25

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# Cast-in-Place Architectural Concrete Practice—Guide

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*This guide presents recommendations for producing cast-in-place architectural concrete. The importance of specified materials, forming, concrete placement, curing, additional treatment, inspection, and their effect on the appearance of the finished product are discussed. Architectural concrete requires special construction techniques, materials, and requirements that are unique to each project. The specific recommendations and information presented in this guide should be used accordingly.*



**Keywords:** admixture; aggregate; architectural concrete; bush-hammer; coating; column; consolidation; cracking; curing; deflection; exposed-aggregate finish; finish; form lining; formwork; joint; joint sealant; mixture proportion; pigment; placing; quality control; release agent; repair; retarder; sealant; texture; wall.




## CONTENTS




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## CHAPTER 1—INTRODUCTION

### 1.1—Introduction

This guide presents recommendations for cast-in-place architectural concrete that is permanently exposed to view. Architectural concrete requires special care in the design, detailing, selection of concrete materials, forming, placing, consolidation of, and surface finishing to achieve the desired architectural appearance. Refer to Appendix A for photo examples of cast-in-place architectural concrete.

### 1.2—Scope

The information presented in this guide is broad and includes the recommended responsibilities of the architect, contractor, concrete producer, and inspector for a successful project. Critical areas requiring special attention are highlighted, and means for prevention or correction of defects are discussed. Specific surface treatments and special forming techniques are presented, as well as applicable codes, specifications, and recommendations. General information about architectural concrete can be found in Dorfmueller (2014) and Hover (2013).

The guide also covers special conditions specifically related to architectural concrete. Information and techniques applicable for producing a specific result in one situation may not be applicable to another situation. The recommendations in this guide are subjective relative to the means and methods used for accomplishing a specific task or architectural effect and should be tested (through ACI SPEC-301-20 Section 6.1.3.2(a), mockup) before use in an actual project to ensure it will produce the required result with the materials available to complete the project (examples would be aggregates, white cement, and self-consolidating concrete mixture).

This guide does not address all the problems associated with architectural concrete. Further research is needed on surface air voids and other construction-related issues; refer to Malisch and Brown (2017).

## CHAPTER 2—DEFINITIONS

Please refer to the latest version of ACI Concrete Terminology for a comprehensive list of definitions. Definitions provided herein complement that resource.

**acceptable** or **accepted**—determined to be satisfactory by architect/engineer based on requirements of contract documents.

**acceptance**—acknowledgment by architect/engineer that submittal or completed work is acceptable.

**aggregate transparency**—discoloration of a concrete surface consisting of darkened areas over coarse aggregate particles immediately below the concrete surface.

**architectural concrete reference sample (ACRS)**—a sample provided by the design team to the contractor at minimum of 18 x 18 x 2 in. (460 x 460 x 50 mm) that shows