An ACI Standard

Building Code Requirements for Concrete Thin Shells (ACI 318.2-19)

Commentary on Building Code Requirements for Concrete Thin Shells (ACI 318.2R-19)

Reported by ACI Committee 318
Building Code Requirements for Concrete Thin Shells and Commentary

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American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331
Phone: +1.248.848.3700
Fax: +1.248.848.3701

www.concrete.org
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PREFACE

This document governs the design of thin shell concrete structures. Where required for design of thin shell concrete structures, provisions of ACI 318 are to be used to complement the provisions of this Code.

KEYWORDS

folded plates; inelastic analysis; ribbed shells; thin shells

NOTES FROM THE PUBLISHER

ACI 318.2-19, Building Code Requirements for Concrete Thin Shells, and ACI 318.2R-19, Commentary, are presented in a side-by-side column format. These are two separate but coordinated documents, with Code text placed in the left column and the corresponding Commentary text aligned in the right column. Commentary section numbers are preceded by an “R” to further distinguish them from Code section numbers.

The two documents are bound together solely for the user’s convenience. Each document carries a separate enforceable and distinct copyright.

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CHAPTER 1—SCOPE

1.1—Scope

This Code provides minimum requirements for the design, analysis, and construction of concrete thin shells.

1.2

Provisions of this Code shall govern for nonprestressed and prestressed concrete thin shell structures, including ribs and edge members.

1.3

All provisions of ACI 318-19 not specifically excluded and not in conflict with provisions of this Code shall apply to thin shell structures.

CHAPTER 2—GENERAL

2.1—Terminology

analysis, elastic—An analysis of deformations and internal forces based on equilibrium, compatibility of strains, and assumed elastic behavior, and representing, to a suitable approximation, the three-dimensional action of the shell together with its auxiliary members.

analysis, experimental—An analysis procedure based on the measurement of deformations, strains, or both, of the structure or its model.

analysis, inelastic—An analysis of deformations and internal forces based on equilibrium, nonlinear stress-strain relations for concrete and reinforcement, consideration of cracking and time-dependent effects, and compatibility of strains. The analysis shall represent, to a suitable approxi-