

Reinforced Concrete Design

TWO DAYS, 15 HOURS

Based on the ACI 318-08 Building Code

Program Content:

Day One

■ Materials Properties

Concrete and reinforcing steel properties relevant to structural concrete design

■ Strength Design Method

Basic principles for strength design
Load factors and load combinations
Strength reduction factors
Analysis and design considerations
Approximate elastic analysis
Stiffness for lateral load analysis
Redistribution of moments

■ Design of Beams and One-Way Slabs

Flexural design
Tension-controlled and compression-controlled sections
Minimum and maximum flexural reinforcement
Development and splices
Straight bars, standard hooks, and headed bars
Bar cut-offs
Structural integrity reinforcement
Flexural crack control reinforcement
Skin reinforcement
Shear design
Torsion design and detailing

■ Design of Two-Way Slabs

Design by direct design and equivalent frame
Flexural design
Deflection requirements
Two-way shear design
Design of drop panels
Design of headed shear stud reinforcement
Structural integrity reinforcement for slabs

Who should attend:

Designers and engineers

Instructors:

Richard W. Furlong, James R. Harris, Mahmoud Kamara, Dominic J. Kelly, Lawrence C. Novak, and Andrew W. Taylor. For more detailed information on the faculty, go to www.concreteseminars.com.

Seminar handouts:

Building Code Requirements for Structural Concrete and Commentary (ACI 318/318R)
PCA Notes on 318-08
Seminar Lecture Notes

Day Two

■ Columns

Axial load capacity
Combined flexure and axial load interaction
Column slenderness
When are columns non-sway or sway
Column slenderness limits
Moment magnification methods

■ Walls

Axial load and flexure
Design methods
Minimum reinforcement
Shear design

■ Footings

Proportioning footprint
One- and two-way shear strength
Flexural strength
Minimum flexural reinforcement, distribution of flexural reinforcement
Load transfer at base of column

■ Detailing of Earthquake-Resistant Structures

Intermediate moment frames
Special moment frames
Special structural walls and coupling beams
Structural diaphragms



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