ACI CUSTOM SEMINAR TOPIC

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

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

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.

Seminar handouts:

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

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