

Environmental Engineering Concrete Structures: Design and Details

ONE DAY, 7.5 HOURS

Based on the 2006 provisions of the ACI 350 Code and ACI 350.3, instructors will familiarize you with the 350 Code requirements for environmental engineering concrete structures, and will present design examples to illustrate practical applications.

Program Content:

■ Durability

General requirements
Material requirements
Crack control
Chemical effects
Coating and liners

■ Joints

Types of joints
Joint spacing
Joint materials
Joint design
Joint construction considerations

■ Loads

Loads
Load combinations and load factors
Environmental durability factors (EDF)

■ Serviceability

Cracking
Application of restraint factor in design
Bar spacing criteria
Gergly-Lutz equation

ACI 318 and ACI 350 equations for bar spacing
Bar spacing versus bar stress
Deflection

■ Design of nonprestressed members

Strength requirements
Members subjected to flexure, shear, and direct tension
Unified design approach
Design examples

■ Design of prestressed members

Subgrade preparation
Footings
Design assumptions/approach
Wall types
Wall and roof design
Prestressed systems
Design examples

■ Seismic

Design response spectrum
Impulsive and convective seismic forces
Seismic load distribution
Design for horizontal and vertical acceleration

Who should attend:

Consulting engineers, government agencies including municipalities, material suppliers, testing agencies, academia, and contractors.

Instructors:

Carl Gentry, Charles S. Hanskat, M. Reza Kianoush, Ramon E. Lucero, Javeed A. Munshi, Satish K. Sachdev, William C. Sherman

Seminar handouts:

Code Requirements for Environmental Engineering Concrete Structures and Commentary (ACI 350-06)
Seismic Design of Liquid-Containing Structures and Commentary (350.3-06)
Special handout with notes and design examples authored by the instructors

