

# Assessment, Repair, and Rehabilitation of Existing Concrete Structures

ONE DAY, 7.5 HOURS

A code for assessment of damage and deterioration, design of appropriate repairs, and selection of rehabilitation strategies for existing concrete structures.

## Program Content:

- **Need for a Repair Code**
  - Causes and types of deterioration
  - History of repair codes
  - Success of repair work and reasons for its failure
  - Performance vs. prescriptive code language
- **Preliminary Evaluation**
  - Applies to buildings and non-buildings
  - Reviewing existing plans, specifications, and reports and determining if existing structures are safe and in compliance with the original building code
- **Design-basis Code**
  - Determining what code to use for assessment, repair, and rehabilitation of existing concrete structures
  - Defining different structural damage levels
- **Load Factors, Reduction Factors, and Load Combinations**
  - Determining the appropriate reduction factors
  - Conditions for applying external non-mechanical strengthening systems and effect of fire
- **Assessment, Evaluation, and Analysis**
  - Determining material properties for assessment
  - Differentiating between destructive and non-destructive test methods used for evaluation
  - Performing the assessment process
  - When to use load testing
- **Design of Structural Repairs**
  - Maintaining continuous load path
  - Distinguishing between different bond strengths for different applications
- **Durability**
  - Selecting repair materials that are compatible with the structure and surrounding environment
  - Methods for protecting steel bars
- **Construction**
  - Installation of temporary shoring and bracing
  - Condition for applying temporary loading
  - Addressing environmental issues
- **Quality Assurance**
  - Including inspection program in contract documents
  - Testing repair materials
  - Reviewing inspectors' qualifications
  - Retaining test records
- **Application of Repair Strategy**
  - Case study that uses FRP repair method and strategies

## Who should attend:

Engineers, inspectors, testing agencies, and public works engineers

## Instructors:

Tarek Alkhrdaji, Keith Kesner, Lawrence Kahn, Carl Larosche, Khaled Nahlawi.

## Seminar handouts:

Assessment, Repair, and Rehabilitation of Existing Concrete Structures (ACI 562)  
Guide to the Code for Assessment, Repair, and Rehabilitation of Existing Concrete Structures (MNL-3)  
Course Notes



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