MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

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ACI CODE REQUIREMENTS & SPECIFICATIONS FOR CONCRETE DESIGN, CONSTRUCTION & REPAIR

"Ensuring Structural Integrity and Compliance through ACI 318 and ACI 562 Standards"

Schedule

Date	Venue	Fees (Face-to-Face)
22 – 26 Jun 2026	Dubai, UAE	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

Concrete remains the most widely used construction material globally, and ensuring its design, construction, and repair adhere to internationally recognized standards is critical to structural safety and performance. The American Concrete Institute (ACI) provides comprehensive codes that guide civil and structural engineers in designing durable and code-compliant concrete structures.

This 5-day advanced training program focuses on the application of ACI 318 (Building Code Requirements for Structural Concrete) and ACI 562 (Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures). Participants will learn how to design, assess, and rehabilitate concrete structures, interpret critical design clauses, apply best practices, and manage construction and repair activities in compliance with international codes.

Objectives

By the end of this course, participants will be able to:

- Apply ACI 318 and ACI 562 codes in concrete design, construction, and repair
- Design structural members including beams, slabs, and columns using ACI provisions
- Evaluate existing concrete structures and plan repair strategies per ACI 562
- Ensure quality control, material selection, and reinforcement detailing standards
- Prevent construction errors and ensure code compliance throughout the project lifecycle

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Why Attend

- Gain in-depth understanding of ACI concrete codes and their practical application
- Ensure your designs and repairs meet global safety and durability benchmarks
- Strengthen your ability to supervise construction teams and manage inspections
- Receive practical guidance on material selection, placement, and curing
- Reduce the risk of structural failure, delays, and non-compliance penalties

Target Audience

This program is designed for:

- Civil and structural engineers
- Construction supervisors and project managers
- Design consultants and site engineers
- Quality control and inspection personnel
- Professionals involved in concrete repair and rehabilitation

Individual Benefits

Key competencies that will be developed include:

- Reinforced concrete member design according to ACI 318
- Understanding of repair evaluation and procedures under ACI 562
- Practical interpretation of structural detailing and layout
- Concrete mix design, testing, and placement practices
- Code-compliant inspection, documentation, and reporting

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved compliance with ACI codes and construction standards
- Higher quality concrete work, reducing rework and material waste
- Enhanced safety and performance in structural design and repairs
- More effective supervision, inspection, and documentation practices
- Increased project efficiency and reduced lifecycle costs

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Code Lectures – Detailed breakdown of ACI 318 & ACI 562 requirements
- Design Workshops – Beam, slab, and column calculations and checks
- Case Studies – Common failures, repair methods, and lessons learned
- Construction Simulations – Pouring, curing, testing, and inspection tasks
- Templates & Tools – Design checklists, QA/QC forms, repair documentation

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Course Outline

Training Hours: 7:30 AM – 3:30 PM Daily Format: 3–4 Learning Modules | Coffee Breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Overview of ACI Codes & Structural Fundamentals

- Module 1: Introduction to ACI 318 and ACI 562 (07:30 – 09:30) • Scope, purpose, and structure of the codes • Code evolution and integration with international standards
- Module 2: Fundamentals of Structural Concrete Design (09:45 – 11:15) • Load considerations, serviceability, and design philosophy • Overview of LRFD and ASD methods
- Module 3: Materials and Testing Requirements (11:30 – 01:00) • Concrete grades, cement types, and aggregates • Slump, strength, durability, and curing parameters
- Module 4: Workshop – Concrete Mix Design Review (02:00 – 03:30) • Selection and verification of concrete materials

Day 2: Structural Member Design According to ACI 318

- Module 5: Beam and Slab Design (07:30 – 09:30) • Bending, shear, and deflection checks • Bar placement and reinforcement limits
- Module 6: Column and Compression Member Design (09:45 – 11:15) • Axial, eccentric, and interaction diagrams • Ties, spirals, and confinement
- Module 7: Footings, Walls, and Foundations (11:30 – 01:00) • Spread footings, wall sections, and pile caps • Soil-structure interaction considerations
- Module 8: Workshop – Design and Detailing of Reinforcement (02:00 – 03:30) • Preparing bar bending schedules (BBS)

Day 3: Construction Practices and Quality Assurance

- Module 9: Construction and Workmanship Standards (07:30 – 09:30) • Formwork, placing, compaction, and curing • Field inspection checklists
- Module 10: Concrete Durability and Cracking Control (09:45 – 11:15) • Causes and control of cracking • Durability factors: exposure classes, permeability
- Module 11: Quality Control and Acceptance Criteria (11:30 – 01:00) • Field tests (slump, cylinder), tolerances, curing records • ACI QA/QC standards and documentation
- Module 12: Site Simulation – Identify Construction Defects (02:00 – 03:30) • Visual inspection and remedial recommendations

Day 4: Assessment & Repair Based on ACI 562

- Module 13: Condition Assessment and Investigation (07:30 – 09:30) • Identifying damage and deterioration causes • Nondestructive testing (NDT) and evaluation tools
- Module 14: Repair Strategies and Structural Rehabilitation (09:45 – 11:15) • Material compatibility, surface prep, overlays, and anchors • Design of repairs for strength and durability
- Module 15: Repair Documentation and Inspection (11:30 – 01:00) • Work plans, method statements, and acceptance criteria • Repair log templates and recordkeeping
- Module 16: Workshop – Develop a Repair Specification (02:00 – 03:30) • Prepare and review repair scope documents

Day 5: Case Studies, Failures & Certification Review

- Module 17: Case Studies of Concrete Failures (07:30 – 09:30) • Causes of collapse, corrosion, and serviceability loss • Design and construction errors
- Module 18: ACI Inspection and Field Reporting (09:45 – 11:15) • Inspector qualifications, report content, and sampling • ACI field documentation practices
- Module 19: Final Design Challenge – Multi-Element Structure (11:30 – 01:00) • Group exercise: review and evaluate real project design
- Module 20: Certification Exam & Wrap-up (02:00 – 03:30) • Knowledge test and discussion

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Certification

Participants will receive a Certificate of Completion in ACI Code Requirements & Specifications for Concrete Design, Construction & Repair, certifying their understanding of ACI 318 and ACI 562 standards and their ability to apply them in real-world structural projects.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**