CONCEPT

Construction Quality Control (QA/QC): Materials Testing, ITPs and NCR Close-Out

18 – 22 January 2027
London - Central London four-star



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Introduction:

Construction quality control breaks down when concrete cubes are cast but never traced to a pour, rebar cover is guessed, compaction lots are accepted without a density result and defects resurface at snagging with no NCR history. The cost is demolition, retesting and a handover dossier the owner will not sign. This Core Concept course equips QA/QC engineers, inspectors and site engineers to plan, test, record and close out quality on building and civil works. Participants build a Project Quality Plan with ITPs and an NCR Log for a case building project.

Course Objectives:

- Separate quality assurance and quality control duties on site and set up a quality organisation with clear inspection authority
- Draft a project quality plan and discipline ITPs that define acceptance criteria, test frequencies and intervention points
- Verify incoming materials against approved submittals, mill certificates and delivery tickets before they are built in
- Carry out and interpret field tests on concrete, reinforcement, structural steel, bolted and welded connections, fills and finishes
- Raise nonconformance reports, lead root cause analysis and close corrective actions with verified evidence
- Audit site quality performance and assemble the quality records and handover dossier for practical completion

Target Audience:

- Contractor quality engineers who plan, test and release construction activities for inspection
- Consultant-side quality inspectors who witness tests and accept or reject completed elements
- Site and section engineers who carry day-to-day responsibility for workmanship on their work fronts
- Materials and laboratory technicians who sample, test and report on concrete, soils and steel
- Subcontractor quality representatives who answer to a main contractor quality system

Course Outline:

Day 1: Quality Assurance Versus Quality Control on Construction Sites

- Prevention Versus Detection: QA Planning Roles and QC Inspection Roles on a Building Contract
- Site Quality Organisation Chart: Quality Manager, Discipline Inspectors and Testing Laboratory Interfaces
- Cost of Poor Quality in Construction: Rework, Demolition and Retesting Case Examples
- Specification Quality Clauses: Testing Frequencies, Tolerances and Acceptance Criteria Extraction
- Current-State Quality Maturity Scan Using a Site Quality Checklist

Day 2: Project Quality Plan, ITP Structure and Material Approval

- Project Quality Plan Content Following ISO 10005 Guidance and ISO 9001 Process Links
- Discipline ITP Matrix for Concrete, Steel, Earthworks and Finishes with Intervention Point Coding
- Method Statement Cross-Reference to ITP Lines Without Duplicating Safety Content
- Material Submittal Package: Technical Data, Mill Certificates, Samples and Approved Supplier List
- Material Receiving Inspection Checklist and Quarantine Area for Unapproved Deliveries

Day 3: Field Testing of Concrete, Reinforcement, Steel and Earthworks

- Fresh Concrete Acceptance: Slump, Flow Table, Temperature and Cube Sampling Traceability Log
- Hardened Concrete Evaluation: Cube Crushing Results, Core Testing and Rebound Hammer Screening
- Reinforcement Inspection: Bar Schedule Check, Lap Lengths, Spacers and Cover Meter Survey
- Structural Steel Erection Checks: Bolt Tightening Verification, Weld Visual Inspection and Coating Thickness Readings
- Earthworks Compaction Control: Proctor Maximum Dry Density, Field Density Lots and Layer Thickness Records

Day 4: Nonconformance, Root Cause, Calibration and Supplier Quality

- NCR Workflow: Minor, Major and Critical Classification with Use-As-Is, Repair and Reject Dispositions
- Root Cause Methods for Site Defects: 5 Whys, Fishbone Diagram and Pareto of NCR Categories
- Corrective and Preventive Action Tracker with Effectiveness Verification Before Close-Out
- Calibration Register for Site Test Equipment: Cube Moulds, Torque Wrenches, Gauges and Levels
- Subcontractor and Supplier Quality Surveillance: Pre-Qualification, Factory Visits and Scorecards

Day 5: Quality Audit, Snagging, Handover Dossier and Case Building Project

- Site Quality Audit Following ISO 19011 Principles: Audit Checklist, Findings and Follow-Up
- Finishing Works and Snagging Walkthrough: Plaster, Tiling, Joinery and Waterproofing Flood Tests
- Handover Quality Dossier: Test Certificates, Inspection Records, As-Built Mark-Ups and NCR Close-Out Evidence
- Case Building Project: Project Quality Plan and ITP Drafting in Teams
- NCR Log Build and Presentation to a Mock Client Quality Review Panel

Skills You Will Gain:

- Project Quality Planning
- ITP Development
- Material Submittal Verification
- Concrete Testing Interpretation
- Compaction Control
- Nonconformance Disposition
- Root Cause Analysis
- Site Quality Auditing

Why Attend This Course:

- Leave with a Project Quality Plan, discipline ITPs and an NCR Log built on a case building project and adaptable to your own site
- Reject a failing pour, rebar cage or fill layer on test evidence before it is covered up
- Shorten NCR close-out by agreeing dispositions and corrective actions that the client accepts first time
- Compare quality practice with contractor, consultant and laboratory peers from residential, commercial, industrial and infrastructure projects

Conclusion:

Quality on a construction site is proven by traceable test results, signed inspection records and closed nonconformances rather than by intentions in a manual. The week moves from QA and QC roles and quality organisation, through the project quality plan, ITPs and material approval, to field testing of concrete, reinforcement, steel and earthworks, then to NCRs, root cause, calibration and supplier surveillance. The final day applies this to quality audits, snagging and the handover dossier, producing a Project Quality Plan with ITPs and an NCR Log.