Temporary Works Design: Formwork, Falsework, Propping and Scaffold Checks

25 – 29 January 2027
Dubai - Five-star CBD venue



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Introduction:

Temporary works design gaps cause some of the most serious collapses on construction sites: formwork that bursts under fresh concrete, falsework that buckles during a pour, props struck before a slab can carry itself and scaffolds that lose their ties. Most follow an unclear brief, an unchecked design or a load applied without permission. This Core Concept course equips site engineers and designers to classify temporary works, brief and check designs, calculate loads and verify formwork, falsework, propping and scaffold arrangements. Participants build a Temporary Works Register, Design Brief and Check Calculation for a case slab pour.

Course Objectives:

- Classify temporary works by category and assign the matching independence of design check
- Operate a temporary works procedure with coordinator and supervisor duties, a register and permits to load and strike
- Prepare design briefs that state loads, ground conditions, interfaces and programme constraints for the temporary works designer
- Calculate dead, imposed, wind, impact and lateral concrete pressure loads acting on formwork, falsework and scaffolds
- Check the stability of falsework, shoring, propping and back-propping arrangements and the bearing capacity beneath them
- Assemble a Temporary Works Register, Design Brief and Check Calculation for a case slab pour

Target Audience:

- Site engineers who set out, install and load formwork, falsework and scaffolds
- Engineers who produce designs and calculations for temporary structures
- Staff appointed to coordinate the temporary works procedure on a project
- Supervisors who control the erection, loading and dismantling of temporary structures
- Contractor planning engineers who sequence pours, striking and propping
- Design checkers who review temporary works calculations and drawings

Course Outline:

Day 1: Temporary Works Categories and the Management Procedure

- Temporary Structure Definitions: Formwork, Falsework, Shoring, Propping and Access Scaffolds
- Temporary Works Category Classification and Design Check Independence Levels
- Temporary Works Coordinator and Supervisor Appointment, Authority and Stop-Work Power
- Temporary Works Register Set-Up and Current-Project Gap Review
- Collapse Case Review: Blowouts, Buckled Falsework and Premature Striking

Day 2: Design Briefs, Load Actions and Governing Guidance

- Temporary Works Procedure Code of Practice and Design Responsibility Chain
- Design Brief Template: Loads, Ground Data, Interfaces and Programme Constraints
- Dead, Imposed, Construction Operation and Impact Load Take-Down
- Wind Load on Sheeted Scaffolds and Exposed Falsework Using Pressure Coefficients
- Lateral Concrete Pressure Envelope: Pour Rate, Temperature and Hydrostatic Limit

Day 3: Formwork, Falsework and Scaffold Design Calculations

- Wall and Column Form Design: Plywood Face, Walings and Tie Rod Capacity
- Soffit Form Design: Sheathing, Secondary Bearers and Primary Beam Deflection
- Adjustable Steel Prop and Falsework Leg Capacity with Effective Length Check
- Tube and Fitting Versus System Scaffold Arrangements: Standards, Ledgers and Transoms
- Scaffold Tie Pattern, Plan Bracing and Base Plate Ground Bearing Calculation

Day 4: Stability, Back-Propping, Excavation Support and Permits

- Falsework Lateral Stability: Notional Horizontal Force, Bracing and Top Restraint
- Propping and Back-Propping Load Sharing Across Multi-Storey Slab Cycles
- Excavation Support Overview: Trench Boxes, Sheet Piles and Soldier Pile Walls
- Permit to Load and Permit to Strike Sign-Off Against Concrete Strength Evidence
- Design Check Certificate, Pre-Load Inspection Record and Change Control

Day 5: Case Slab Pour and the Temporary Works Package

- Case Slab Pour Brief: Transfer Slab, Soft Ground and Tight Pour Sequence
- Case Register Entries, Category Assignment and Checker Selection
- Design Brief Drafting for the Case Formwork and Falsework Scheme
- Check Calculation Build: Soffit, Prop Loads, Bracing and Sole Plate Bearing
- Temporary Works Package Review Panel with Permit to Load Walkthrough

Skills You Will Gain:

- Temporary Works Categorisation
- Design Brief Preparation
- Construction Load Analysis
- Concrete Pressure Calculation
- Formwork and Falsework Checking
- Back-Propping Planning
- Permit to Load Control
- Scaffold Tie and Bearing Design

Why Attend This Course:

- Leave with a Temporary Works Register, Design Brief and Check Calculation built on a case slab pour
- Challenge a formwork or falsework design with numbers rather than accepting the supplier's drawing
- Stop concrete from being poured or props from being struck without signed evidence
- Compare temporary works practice with engineers from building, bridge, industrial and infrastructure projects

Conclusion:

Temporary structures carry some of the highest loads a site will see, often for only a few days. The course moves from categories, the coordinator and supervisor roles and the register, through design briefs, load actions and concrete pressure, to formwork, falsework, prop and scaffold calculations, then stability, back-propping, excavation support, permits and records. The final day produces a Temporary Works Register, Design Brief and Check Calculation for a case slab pour, ready to apply on the next project.