MERCURY

# Formwork and Falsework Design Safety Training Course

30 August – 3 September 2027
Lisbon (Portugal)



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# Formwork and Falsework Design Safety Training Course

**Ref:** 41_1082456 **Date:** 30 August – 3 September 2027 **Location:** Lisbon (Portugal) **Fees:** 5600 Euro

The Formwork and Falsework Design Safety Training Course is a one-week course for structural engineers, temporary works coordinators, and site safety supervisors responsible for temporary structures. Working with structural load calculations, procedural risk controls, and stability criteria, you assemble a Temporary Works Design and Safety Management Plan. Mercury Training Center delivers this course to help you enforce rigorous engineering standards across site temporary works.

## About This Course

Structural failures in temporary works cause catastrophic collapses, project delays, and severe hazards when teams miscalculate fresh concrete lateral pressures or omit formal design checks. To follow this course, you must already manage site construction operations or review structural engineering submittals. Through technical evaluations and design check simulations, you practice verifying formwork stability and establishing safe load authorizations.

## Who It Is For

- Professionals responsible for reviewing structural designs, calculations, and fabrication drawings for temporary shoring systems
- Professionals responsible for inspecting falsework assemblies, reshoring sequences, and foundation ground support before concrete placement
- Professionals responsible for establishing temporary works management procedures, risk registers, and design check categories
- Professionals responsible for enforcing site occupational safety standards, permit-to-load authorizations, and safe dismantling protocols

This course is not for entry-level trade apprentices seeking basic carpentry or hammerhand instruction, nor is it for general administrative personnel seeking introductory workplace health and safety awareness.

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## Competencies You Will Build

- Lateral Pressure Modeling: Calculating fresh concrete lateral loads and pour rate limits using ACI PRC-347-1421 equations.
- Temporary Works Governance: Implementing procedural control frameworks, registers, and check categories under BS 5975-1:2024.
- Falsework Stability Analysis: Verifying multi-tier shore bracing, permissible stress limits, and tower capacities per BS 5975-2:2024.
- Shoring Cycle Engineering: Formulating structural reshoring schedules and multi-floor load distributions for elevated cast-in-place slabs.
- Quality Interface Control: Auditing formed concrete surface tolerances and finish categories in accordance with ACI 347.3R-13.
- Erection Hazard Mitigation: Establishing pre-pour inspection routines, single-post shore limits, and permit-to-load sign-offs.

## What You Will Be Able to Do

By the end of the course you will be able to:

- From concrete mix properties and placing rates, calculate design lateral pressures and hydrostatic envelopes using ACI PRC-347-1421.
- Given site temporary works schemes, classify design check categories from zero to three in compliance with BS 5975-1:2024.
- Using manufacturer technical data, evaluate vertical shore load capacities and multi-tier tower stability against overturning forces.
- From structural slab strength gain data, establish safe stripping thresholds and reshoring sequences for multi-story concrete structures.
- Given project visual criteria, establish form face material selections and deflection limits complying with ACI 347.3R-13 standards.
- Using project execution requirements, assemble a Temporary Works Design and Safety Management Plan to govern site temporary works safely.

## Course Content

## Day 1: Structural Loads and Concrete Pressure Mechanics

- Design Load Classifications and Dead Load Allowances in ACI PRC-347-1421
- Fresh Concrete Lateral Pressure Equations and Pour Rate Thresholds
- Hydrostatic Head Adjustments for Retarded and Self-Consolidating Concrete
- Live Load Allowances and Environmental Wind Forces on Vertical Falsework
- Material Specifications for Proprietary Modular Wall and Column Systems

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## Day 2: Temporary Works Procedures and Design Verification

- Management Principles and Procedural Controls Defined in BS 5975-1:2024
- Appointment Duties of Temporary Works Coordinators and Supervisors
- Risk Categorization Schemes and Design Check Categories Zero Through Three
- Temporary Works Register Implementation for Tracking Design Packages
- Permit-to-Load and Permit-to-Dismantle Procedures for Jobsite Operations

## Day 3: Falsework Structural Analysis and Modular Systems

- Permissible Stress and Limit State Methods Governed by BS 5975-2:2024
- Buckling Restraint and Bracing Layouts for Tiered Single Post Shores
- Proprietary Modular Slab Shoring Systems and Tower Capacity Calculations
- Ground Bearing Pressure Verification and Sole Plate Sizing on Variable Strata
- Tie Rod Tensile Working Stresses and Anchor Pull-Out Safety Factors

## Day 4: Stripping Criteria, Reshoring, and Architectural Finishes

- Structural Concrete Strength Verification and Stripping Criteria Calculations
- Multi-Story Reshoring Analysis and Slab Load Sharing Operations
- Concrete Surface Categories and Visual Deflection Tolerances in ACI 347.3R-13
- Form Lining Material Selection and Chemical Release Agent Compatibility
- Safe Stripping Sequences and Fall Protection During Formwork Dismantling

## Day 5: Temporary Works Design and Safety Verification Practice

- Exercise on Lateral Pressure Calculations and Tie Spacing Optimization
- Exercise on BS 5975-1:2024 Temporary Works Register Setup and Risk Auditing
- Exercise on Multi-Tier Shoring Stability Checks and Sole Plate Evaluations
- Exercise on Reshoring Scheduling and Stripping Permit Authorization Sequences
- Finalization of the Temporary Works Design and Safety Management Plan

## Case Studies and Exercises

These suggested activities provide practical application of temporary works engineering standards across varied operational settings:

- Case study: A commercial high-rise tower project where you calculate lateral formwork pressures during rapid pumped placements and verify multi-story reshoring load capacities.
- Case study: An industrial bridge viaduct project where you assess tiered falsework towers under severe wind loading and specify ground bearing requirements.
- Exercise: An elevated metro station deck where you evaluate proprietary modular shoring assemblies and assign independent structural design check categories.
- Exercise: An architectural civic auditorium where you determine form surface specifications and tie-rod alignments to achieve ACI 347.3R-13 architectural finish criteria.

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## What You Take Back

The Temporary Works Design and Safety Management Plan provides procedural registers, design check templates, and safety sign-off protocols to manage site installations immediately during your first month back at work. You will use it to audit temporary works drawings, check structural calculations, and control physical pouring operations.

- Temporary works register template incorporating BS 5975-1:2024 design check categories
- Lateral concrete pressure calculation sheets based on ACI PRC-347-1421 formulations
- Falsework and shoring pre-pour inspection checklists and permit-to-load certificates
- Reshoring schedule framework for coordinating multi-floor structural load distribution

## Quick Answers FAQ

### What background is required before attending the Formwork and Falsework Design Safety Training Course?

You need prior experience in civil engineering, site construction supervision, or structural design review. Familiarity with reading structural drawings, basic statics principles, and general reinforced concrete building procedures ensures you can readily apply the technical calculations and temporary works governance standards covered throughout the course.

### How does this course differ from general scaffolding or concrete placement training?

General scaffolding or concrete placing courses focus primarily on manual scaffolding erection, concrete pouring techniques, and general labor safety. This course focuses specifically on temporary works engineering design, lateral pressure calculations, falsework structural stability, BS 5975-1:2024 procedural governance, and multi-tier reshoring analysis.

### Why are formal design checks essential in formwork and falsework design safety?

Formal design checks prevent premature stripping, excessive deflections, and structural falsework collapse under construction loads. Applying independent structural verification ensures that lateral concrete pressures, ground bearing conditions, bracing connections, and multi-story load redistributions remain fully within safe working capacities before concrete placement begins.

### What completed document do you take back from the Formwork and Falsework Design Safety Training Course?

You take back the Temporary Works Design and Safety Management Plan. This document equips your site team with a functional temporary works register, concrete pressure calculation sheets, pre-pour verification forms, and formal permit-to-load sign-off protocols ready for implementation on current construction packages.

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## For Your Manager

Your team member will return equipped to evaluate falsework stability, verify fresh concrete pressure calculations, and enforce procedural controls that protect jobsites against structural temporary works failures. They take back a complete Temporary Works Design and Safety Management Plan, applied immediately to upcoming elevated deck pours, wall formwork packages, and high-risk falsework operations.