Tall Building Crane, Hoist and Formwork Training Course: Selection, Layout and Floor Cycle

7 – 11 June 2027
Rome

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Programme Summary

Tall building crane, hoist and formwork selection is the subject of this one-week training course for construction directors, project managers and planning heads at managerial level, ending in a method and plant plan for one tall building. Choices made before work starts fix the floor cycle, the plant bill and the lifting risk. The programme moves from the method decision to floor cycle logic, then to cranes, hoists, formwork and vertical transport, and ends with a plan a project board can adopt. Mars Training Centre UK delivers this programme on tall building crane, hoist and formwork selection to mixed-organisation cohorts.

The Business Case

Office towers and residential blocks repeat the same floor many times, so an idle hour in the cycle is multiplied by every storey. Plant is hired and placed early, often before the frame method is settled. Directors who test these choices together can balance plant cost, programme and lifting safety, and can avoid late changes that are expensive to reverse once cranes and formwork are on site.

- Floor Cycle Time: Falls as capacity is matched to the work on each floor.
- Plant Cost: Falls as idle hire and late changes are removed.
- Lifting Safety Exposure: Falls as lift demand and positions are checked early.

Principles and Evidence Base

- Critical Path Method and Line of Balance: Model repeating work, applied in Session 2 to the floor cycle.
- Value Engineering: Compares options by function and cost, applied in Sessions 1 and 4.
- ISO 12480-1: Sets expectations for the safe use of cranes, applied in Session 3.
- ISO 45001 and ISO 21502: Set expectations for safety management and project management guidance, applied in Sessions 4 and 5.

Intended Participants

- Construction directors who commit plant and method before a contract starts.
- Project managers who answer for cost, programme and safety on a tower.
- Planning heads who build floor cycles and master programmes.
- Plant managers who place cranes and hoists.

Typical settings include commercial towers, residential blocks and hotels.

Learning Outcomes

1. Participants will be able to evaluate structural frame and formwork options by function, cost and programme effect.
2. Participants will be able to construct a floor cycle and test it with line of balance and critical path tools.
3. Participants will be able to design a crane and hoist layout from a lift demand schedule.
4. Participants will be able to diagnose bottlenecks in vertical transport.
5. Participants will be able to justify a method and plant plan to a project board.

Programme Structure

Day 1: Tall Building Crane, Hoist and Formwork Choices

Which method and plant decisions set the cost, programme and safety of a tall building?

- Method Decision Map
- Structural Frame Option Matrix
- Floor Cycle Baseline Sheet
- Constructability Review Checklist
- Value Engineering Function Sheet

Day 2: Floor Cycle and Programme Logic

How is a repeating floor cycle built and tested?

- Critical Path Floor Network
- Line of Balance Chart
- Cycle Time Breakdown
- Trade Handover Sequence
- Weather and Delay Allowance Table

Day 3: Cranes and Hoists

How are tower cranes and material hoists chosen and placed?

- Tower Crane Capacity Check
- Crane Position and Radius Plan
- Material Hoist Capacity Study
- Lift Demand Schedule
- ISO 12480-1 Safe Use Review

Day 4: Formwork, Climbing Systems and Vertical Transport

Which formwork and climbing system fits the frame, and how do people and materials move up?

- Climbing Formwork Option Table
- Self-Climbing System Check
- Formwork Reuse Count Sheet
- Vertical Transport Flow Model
- ISO 45001 Work at Height Review

Day 5: Method and Plant Plan for One Tall Building

Do the earlier tools combine into one plan that a project board can adopt?

- Applying the Session 1 Method Decision Map
- Testing the Session 2 Line of Balance Chart
- Checking the Session 3 Lift Demand Schedule
- Rehearsing the Session 4 Climbing Formwork Option Table
- Completing the Method and Plant Plan

Methodology

The programme uses case analysis built on prepared files for two towers, one a concrete-framed residential block and one a steel-framed commercial tower, each with drawings, quantities and a plant list. Participants work in small groups, test layouts against the files, and defend choices to peers acting as a project board.

- Suggested activity: Moving a tower crane and measuring the effect on lift reach.
- Suggested activity: Comparing two climbing formwork systems on reuse and crane time.
- Suggested activity: Tracing a queue at the hoist to its cause.

Capstone Output

Each participant completes a method and plant plan for one tall building. It holds a method decision record, a floor cycle with a line of balance chart, a crane and hoist layout, a lifting plan outline and a formwork and vertical transport choice. The plan is used at work to brief a project board and agree duties with suppliers.

Frequently Asked Questions

Is a course on tall building crane, hoist and formwork selection suitable for directors who are not engineers?

Yes. Tall building crane, hoist and formwork selection is taught through prepared files and templates, and assumes experience in construction delivery or planning, but no design calculations.

Which standards does tall building crane, hoist and formwork selection rest on?

Tall building crane, hoist and formwork selection rests on critical path and line of balance methods, value engineering, ISO 12480-1, ISO 45001 and ISO 21502.

How is the plan from tall building crane, hoist and formwork selection used at work?

You use the method and plant plan to brief your project board and agree duties with suppliers.

How does tall building crane, hoist and formwork selection differ from a general construction planning programme?

Tall building crane, hoist and formwork selection concentrates on repeating floors, plant and vertical movement, while a general construction planning programme concentrates on whole-project schedules.