
Precast Concrete Package Review Training Course: Joints, Robustness and Site Erection

4 – 8 April 2027
Cairo





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Programme Summary

Precast concrete is the subject of this one-week training course for structural engineers, project engineers and client-side technical leads at managerial level, ending in a package review file for one precast structure. Precast designs pass between designers, manufacturers and erectors, and weaknesses in joints, stability or erection sequence often surface only on site. The programme moves from load paths and element systems to connections, robustness, manufacture and erection, using cases from car parks, warehouses and residential frames. Mars Training Centre UK delivers this programme on precast concrete package review to mixed-organisation cohorts.

The Business Case

A precast structure works only if every joint carries its load, every element is stable while it is lifted and before it is tied, and every unit can be made, moved and placed. Failures in these links cost redesign, crane time and delay, and they usually trace to a package approved without anyone testing it as a whole. A common review method lets leaders find those gaps before units are cast.

- Site Rework: Falls as joint and tolerance clashes are found before units are cast.
- Erection Delay: Reduces as lifting, bracing and sequence are checked against the design.
- Structural Risk: Reduces as stability and robustness assumptions are recorded and challenged.

Principles and Evidence Base

- fib Bulletin 74, Planning and Design Handbook on Precast Building Structures: Provides an international reference for planning, load paths, connections and stability, applied in Sessions 1, 2 and 3.
- EN 13369, Common Rules for Precast Concrete Products: Sets requirements for the manufacture and control of precast products, applied in Session 4.
- Precast Erection Guidance: Covers lifting, bracing and sequence for placing units safely, applied in Sessions 4 and 5.

Intended Participants

- Structural engineers who check precast frames, floors and walls.
- Project engineers who coordinate designers, manufacturers and erectors.
- Client-side technical leads who review and approve precast packages.
- Precast contractors' managers who answer for manufacture and site placing.
- Quality and site managers who inspect units and joints on delivery.



Typical settings include building contractors, precast manufacturers, engineering consultancies and developers.

Learning Outcomes

1. Participants will be able to diagnose the load path through a precast frame, floor and wall arrangement.
2. Participants will be able to evaluate connection types for the forces, movements and tolerances they must carry.
3. Participants will be able to appraise structural stability and robustness, in service and during erection.
4. Participants will be able to assess detailing for manufacture, transport and handling.
5. Participants will be able to prioritise erection risks and the temporary works that control them.
6. Participants will be able to justify a package review file with findings and decisions for one precast structure.

Programme Structure

Day 1: Precast Concrete Systems and Load Paths

How does a precast structure carry its loads from slab to foundation?

- Precast System Selection Matrix
- Frame, Wall and Floor Layout Review
- Load Path Sketch
- Bearing and Support Condition Check
- Design Basis Register

Day 2: Connections and Joints

Which connection suits each force, movement and tolerance?

- Connection Type Comparison
- Dry and Wet Joint Review
- Tolerance and Fit-Up Check
- Bearing Pad and Dowel Detail Review
- Joint Defect Log

Day 3: Stability and Robustness

Does the structure stay stable in service, after damage and during construction?



- Diaphragm Action Check
- Stability Core and Wall Review
- Tying System Review
- Robustness Under Accidental Loss Screen
- Stability Assumption Sheet

Day 4: Manufacture, Transport and Erection

Can each unit be made, moved and placed as designed?

- Mould and Casting Detail Check
- Lifting Point and Handling Stress Review
- Transport Envelope Screen
- Crane and Erection Sequence Plan
- Temporary Bracing Schedule

Day 5: Package Review File for One Precast Structure

Do the earlier records support one defensible decision on the package?

- Applying the Session 1 Design Basis Register
- Testing the Session 2 Joint Defect Log
- Reviewing the Session 3 Stability Assumption Sheet
- Checking the Session 4 Erection Sequence Plan
- Completing the Package Review File

Methodology

The programme uses a field-style design audit built on one prepared precast structure with layout drawings, connection details, unit schedules and an erection outline. Participants review the package against stated criteria, log each finding in a common format, and then apply the same sheets to a structure from their own portfolio.

- Suggested activity: Tracing the load path through a precast car park and finding the weakest joint.
- Suggested activity: Checking a wall panel for stability before its floor is tied.
- Suggested activity: Comparing two erection sequences for a warehouse frame.

Capstone Output

Each participant completes a package review file for one precast structure. It holds the design basis register, a load path and connection assessment, a stability and robustness note, a manufacture and erection review and a decision record for each finding. The file is used at work to brief management and return comments to the designer or manufacturer.



Frequently Asked Questions

Is precast concrete training suitable for managers who are not structural designers?

Yes. Precast concrete is taught through a worked structure. It assumes experience in building design, construction or technical review, but not design software skills.

Which references does precast concrete training rest on?

Precast concrete training rests on the fib planning and design handbook on precast building structures, EN 13369 for precast products, and erection guidance on lifting, bracing and sequence.

How is the review file from precast concrete training used at work?

You use the package review file to brief management, return structured comments to the designer or manufacturer, and agree changes before units are cast.

How does precast concrete differ from cast-in-place concrete design training?

Precast concrete training centres on joints, stability before tying, and the making and placing of units, while cast-in-place design training centres on members cast and cured in position.