Temporary Site Power Design and Safety Training Course for Engineers

25 – 29 January 2027
Geneva

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Programme Summary

Temporary site power design is the subject of this one-week training course for project engineers, site electrical engineers and construction managers, taught at applied level and ending in a temporary power design package for one construction site. Site supplies are often built up as work grows. The programme moves from load assessment to supply sizing, cable and protection selection, earthing and inspection, using prepared site records from a building project and an industrial plant. Mars Training Centre UK delivers this programme on temporary site power design to mixed-organisation cohorts.

The Business Case

Sites that design their temporary supply from a recorded load schedule avoid overloaded generators, tripping circuits and unsafe improvised connections. Where boards and cables are added as needs arise, voltage drop, missing protection and unproven earthing remain hidden until a fault or an inspection exposes them. The programme works on the measures below.

- Unplanned Power Interruptions: Fall when loads, generators and protection are matched in a written design.
- Electrical Safety Findings: Reduce when earthing, residual current protection and area precautions are checked and recorded.
- Rework and Cable Replacement: Decline when cable size and voltage drop are calculated before installation.

Principles and Evidence Base

- IEC 60364-7-704: The international requirements for installations on construction and demolition sites, applied in Sessions 1 and 4 to set the scope and the checks for the temporary installation.
- IEC 60364 series: The international series on low-voltage electrical installations, of which the construction site part forms a section, applied in Sessions 2 and 3 to size circuits and select protective devices.

Intended Participants

- Project engineers who specify and approve temporary site supplies.
- Site electrical engineers who install, extend and inspect distribution boards and cables.
- Construction managers who answer for electrical safety and continuity of supply.
- Safety officers who review site installations before they are energised.

Typical settings include building construction, industrial plant projects, infrastructure works and demolition sites.

Learning Outcomes

1. Participants will be able to construct a connected load schedule with agreed diversity assumptions for a construction site.
2. Participants will be able to evaluate generator and supply capacity against site demand.
3. Participants will be able to diagnose voltage drop and protection problems in a temporary circuit design.
4. Participants will be able to prioritise earthing, residual current and area precautions by site risk.
5. Participants will be able to justify an inspection and test routine for a temporary installation.

Programme Structure

Day 1: Temporary Site Power Design Principles and Load Assessment

What does a site need from its temporary supply, and how is that demand estimated?

- Site Electrical Demand Survey
- Connected Load Schedule
- Diversity Factor Assumptions Table
- IEC 60364-7-704 Scope Review
- Supply Point and Metering Layout

Day 2: Supply Sizing, Generators and Distribution Layout

How are the supply, generators and distribution boards sized and arranged for a moving site?

- Generator Sizing Calculation
- Standby and Parallel Supply Options
- Distribution Board Hierarchy Diagram
- Final Circuit and Socket Outlet Plan
- Phase Balancing Check

Day 3: Cables, Voltage Drop and Protection

How are cables chosen and circuits protected so faults clear safely?

- Cable Rating and Installation Method Table
- Voltage Drop Calculation Sheet
- Overcurrent Protective Device Selection
- Residual Current Device Application Chart
- Earth Fault Loop Impedance Check

Day 4: Earthing, Wet Areas and Inspection Records

What earthing and area precautions keep people safe, and how is the installation proven?

- Temporary Earthing Arrangement Sketch
- Wet and Conductive Area Precautions
- Hazardous Area Exclusion Review
- Inspection and Test Record Form
- Periodic Inspection Schedule

Day 5: Temporary Power Design Package for One Site

Do the earlier results join into a design package a site team can build and inspect?

- Applying the Session 1 Load Schedule
- Testing the Session 2 Board Layout
- Checking the Session 3 Voltage Drop Results
- Reviewing the Session 4 Inspection Schedule
- Completing the Temporary Power Design Package

Methodology

The programme is a structured exercise built on prepared site records from a building project and an industrial plant: load lists, board layouts, cable schedules, test sheets and inspection findings. Participants size supplies, calculate voltage drop, select protection and defend their design package to peers.

- Suggested activity: Building a load schedule for a site office, hoists and welding area.
- Suggested activity: Calculating voltage drop on a long cable run to a distant board.
- Suggested activity: Marking up a board layout to show where residual current devices are needed.

Capstone Output

Each participant completes a temporary power design package for one construction site. It holds a load schedule, a supply and generator sizing note, a distribution layout, a cable and protection table, an earthing sketch and an inspection schedule. At work it goes to the site electrical review team for approval and becomes the reference for later extensions.

Frequently Asked Questions

Is temporary site power design training suitable for engineers new to construction sites?

Yes. Temporary site power design is taught from prepared records and templates. You need a working knowledge of low-voltage circuits and basic electrical calculations, but no earlier experience of site supply design.

Which standards does temporary site power design rest on in this training?

Temporary site power design here rests on IEC 60364-7-704 for construction and demolition site installations, within the wider IEC 60364 series on low-voltage installations.

How is the design package from temporary site power design training used at work?

You take the design package to your site electrical review team for approval, use its schedule to guide installation and extend its layout as site needs change.

How does temporary site power design differ from permanent building electrical design?

Temporary site power design covers supplies that move and grow with construction work, while permanent building electrical design fixes circuits for long service once the building is complete.