BUILDING SETTING-OUT

From Architectural Drawings to the Ground

COURSE SYLLABUS

A practical introduction to building layout and setting-out procedures

1. Course Overview

This course introduces learners to the principles and basic procedures involved in setting out buildings. It explains how information from architectural and site drawings is transferred to the ground to establish the position, dimensions, alignment and layout of a proposed building before excavation and construction.

The programme combines drawing interpretation, measurement principles, site preparation, setting-out methods and an introduction to commonly used tools and surveying equipment. Practical activities should be carried out using approved drawings and under appropriate site supervision.

2. Course Aim

To equip learners with foundational knowledge and practical understanding of how to interpret building drawings and establish accurate building layouts on site.

3. Learning Outcomes

- Interpret basic architectural and site drawings for setting-out purposes.
- Identify dimensions, grid lines, reference points and building orientation.
- Explain how to establish site reference points and benchmarks.
- Use basic measurement techniques to transfer dimensions onto the ground.
- Apply the 3-4-5 method to establish a right angle.
- Explain the use of profiles, pegs and string lines in setting out.
- Mark building lines and foundation trench positions from approved drawings.
- Check dimensions, diagonals, alignment and squareness, and recognise common setting-out errors.

4. Course Modules

Module 1: Introduction to Building Setting-Out

- Meaning, purpose and importance of setting out.
- Relationship between architectural drawings and construction work.
- Stages of setting out before excavation.
- Roles and responsibilities of the site team.

Module 2: Understanding Architectural and Site Drawings

- Reading floor plans and site plans.
- Understanding dimensions, scales, grid lines and reference points.
- Identifying building orientation, boundaries and setbacks.
- Extracting setting-out information from approved drawings.

Module 3: Site Preparation and Reference Points

- Initial site inspection and preparation.
- Understanding site boundaries and working space.
- Establishing baselines, reference points and benchmarks.
- Protecting reference points during construction.

Module 4: Measurement, Tools and Equipment

- Linear measurement and accurate tape reading.
- Use and care of pegs, string lines, ranging rods and profile boards.
- Introduction to builder's squares, spirit levels and plumb bobs.
- Overview of automatic/dumpy levels, theodolites, total stations and laser levels.

Module 5: Setting Out Building Lines and Grid Lines

- Establishing baseline and building control lines.
- Transferring dimensions from drawings to the site.
- Setting out building corners and grid intersections.
- Maintaining alignment and checking measured distances.

Module 6: Establishing Right Angles — The 3-4-5 Method

- Principles of perpendicular lines and right angles.
- Applying the 3-4-5 method on site.
- Checking corners and diagonals.
- Common errors when establishing right angles.

Module 7: Building Profiles, Corner Pegs and String Lines

- Purpose and positioning of profile/batter boards.
- Fixing pegs and establishing profile levels.
- Using string lines to define building faces and corners.
- Maintaining clear setting-out marks during site operations.

Module 8: Setting Out Foundation Trenches

- Reading foundation dimensions from structural and architectural information.
- Marking foundation wall and trench lines.
- Understanding offsets and trench widths.
- Checks required before excavation begins.

Module 9: Checking Dimensions, Alignment and Squareness

- Verifying overall dimensions and individual offsets.
- Using diagonal measurements to check squareness.
- Checking line, level and alignment.
- Recording checks and correcting identified discrepancies.

Module 10: Practical Site Demonstration and Assessment

- Demonstration of a simple building layout exercise.
- Transferring a sample plan onto a prepared ground area.
- Setting out corners, right angles and string lines.
- Review of learner work, common mistakes and safety considerations.

5. Tools and Equipment Introduced

- Architectural/site drawings and drawing scale
- Measuring tape and measuring staff
- Wooden pegs, nails and string lines
- Ranging rods and profile/batter boards
- Builder's square, spirit level and plumb bob
- Calculator
- Automatic/dumpy level and levelling staff
- Theodolite, total station and laser level (overview or demonstration, where available)

Software: AutoCAD and Revit may be introduced for viewing or understanding digital drawings. They do not replace the physical measuring and surveying equipment used for site setting-out.

6. Suggested Practical Exercise

Using a simple rectangular building plan, learners identify the required dimensions, establish a baseline, mark the building corners with pegs, form right angles using the 3-4-5 method, run string lines between profiles and verify the layout using overall dimensions and diagonal checks. The exercise should be completed on a safe, suitable practice area and checked against the approved drawing.

7. Assessment Approach

- Short knowledge checks on drawing interpretation, tools and setting-out terminology.
- A measurement and right-angle exercise.
- A practical building-layout task using pegs, profiles and string lines.
- A final review of accuracy, procedure and safe working practices.

8. Intended Participants

Architecture, civil engineering and building technology students; construction trainees; site assistants; aspiring site supervisors; and other learners seeking an introduction to building setting-out.

9. Certificate

A certificate of course completion may be issued to learners who meet the course provider's completion and assessment requirements. The certificate recognises participation and completion of this training; it should not be

represented as a professional licence or statutory accreditation unless separately authorised.

10. Important Training Note

Setting-out work on a live construction project must be based on current, approved drawings and project specifications. Boundary information, levels and critical dimensions should be verified by appropriately qualified personnel. Learners should not independently alter design dimensions or proceed where drawing information is unclear or inconsistent.

End of Syllabus