

Building Construction Techniques

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1. Introduction

- Building construction techniques are the methods and processes used to assemble materials into safe, durable structures.
- **Scope:** Covers substructure (foundations) and superstructure (walls, floors, roof) from site preparation to finishing.

2. Foundation Systems

- **Shallow foundations:** Strip, pad and raft footings transfer loads to firm soil near the surface for lighter buildings.
- **Deep foundations:** Piles and piers carry loads to stronger strata where surface soil is weak.
- **Site preparation:** Includes excavation, dewatering and compaction to ensure stable bearing.

3. Structural Methods

- **Load-bearing masonry:** Brick or block walls support loads directly, suited to low-rise buildings.
- **Framed construction:** Steel, reinforced-concrete or timber frames carry loads, with infill walls as non-structural cladding.
- **Prefabrication:** Components are factory-made and assembled on site to improve speed and quality control.

4. Materials and Assembly

- **Concrete:** Cast in situ or precast; reinforced with steel to resist tension.
- **Masonry and mortar:** Provide compression strength, thermal mass and fire resistance.
- **Connections:** Welds, bolts and joints transfer forces between members and must resist movement.

5. Quality and Safety

- Workmanship, curing and tolerances affect strength and durability.
- Site safety, scaffolding and sequencing reduce hazards during construction.
- Inspection and testing verify compliance with design and codes.