

Introduction to Building Construction

A Basic Training Guide for TVET Learners

Sample training material — for system testing purposes only

Chapter 1: Construction Materials

Every building begins with the materials chosen to construct it. Understanding the basic properties of common construction materials helps a builder select the right material for the right job, balancing strength, cost, and availability.

Concrete

Concrete is a mixture of cement, sand, aggregate (small stones), and water. It is strong under compression, widely available, and can be cast into almost any shape. Concrete is commonly used for foundations, slabs, and columns.

Bricks and Blocks

Bricks are small, uniform units made from fired clay or concrete, and are commonly used for walls. Concrete blocks are larger and faster to lay, often used for load-bearing walls in low-rise buildings.

Timber

Timber is a lightweight, renewable material used for roofing structures, formwork, and temporary works. It must be protected from moisture and pests to remain durable.

Steel

Steel is strong under both tension and compression, making it useful for reinforcing concrete (rebar) and for structural frames in larger buildings.

Chapter 2: Foundation Types

The foundation transfers the weight of a building safely into the ground. The right foundation type depends on the soil condition, the size of the building, and the loads involved.

Strip Foundations

A continuous strip of concrete laid under load-bearing walls. Commonly used for most small to medium domestic buildings on reasonably firm soil.

Raft Foundations

A single slab of concrete covering the whole building footprint, spreading the load over a wide area. Useful where the ground is soft or the loads are evenly distributed.

Pile Foundations

Long columns driven or bored deep into the ground, used when the soil near the surface is too weak to support the building directly, transferring load to stronger soil or rock below.

Chapter 3: Site Safety Basics

Construction sites involve real hazards, and safe practice protects everyone working on site. The points below are a starting checklist, not a complete safety programme.

- Always wear the required personal protective equipment (PPE): helmet, boots, and high-visibility clothing.
- Keep walkways and work areas clear of loose materials and tools.
- Never work under a suspended load.
- Report damaged equipment or unsafe conditions to a supervisor immediately.
- Know the location of the site's first aid point and emergency exits.

Chapter 4: Basic Tools and Equipment

Hand Tools

Hammers, trowels, spirit levels, tape measures, and chisels form the basic hand-tool kit used across most construction trades.

Power Tools

Power drills, angle grinders, and circular saws speed up work significantly but require proper training and protective equipment to use safely.

Heavy Equipment

Excavators, concrete mixers, and cranes are used for larger-scale work and require certified operators.

Review Questions

The questions below are included only to test how this document behaves inside the library and search tools — they are not a validated assessment.

- 1 Name two materials commonly used for building foundations.
- 2 What is the main difference between a strip foundation and a raft foundation?
- 3 List three items of personal protective equipment used on a construction site.
- 4 Why must timber be protected from moisture?