

N1

Bricklaying and Plastering Theory

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What is covered?

We are using various tools and equipment on a building or construction site to complete the work. If we do plaster or masonry work, we need some specified tools to get the proper finish.

In this module, we cover the various hand tools, their functions, and how to care and store them.

Learning outcomes

After studying this module, you should be able to:

Unit 1

- Name and describe the functions of the following categories of hand tools: wall and floor tiling tools, jointing tools, plastering tools, brick-cutting tools, setting-out tools and bricklaying tools

Unit 2

- Care and storage of hand tools
- Draw and label various hand tools.

Unit 1: Hand tools

LEARNING OUTCOMES

- Name and describe the functions of the following categories of hand tools:
 - wall and floor tiling tools
 - jointing tools
 - plastering tools
 - brick-cutting tools
 - setting-out tools
 - bricklaying tools
- Draw and label various hand tools.

Note

For test and examination purposes, you should be able to draw all the hand tools. Practise this several times.

It is also important to label your hand tools. This will show that it is your property, and at the same time show new employees what kind of tool it is.

Put the words 'Do not use' on damaged or faulty tools.

Introduction

It is important to have the right tools to do a specific job properly. With adequate tools, a tiling project can be much easier, quicker and trouble-free.

Most tools are available at any home improvement store. If you plan to do a large tiling job, you might rent tools, but it is worth investing in the correct tools. You must also be qualified and confident to use the tools.

In this unit, we will look at the functions of modern hand tools used in the trade, how to care for them, how to store them, and how to draw and label them.

Wall and floor tiling tools and their functions

Tiling is not just placing tiles on a floor. It requires years of practice and a good eye to merge tiles in an interesting pattern or design. Experience is important, but the tiling tools play a major role in the success of a perfect tiling job.

Wall and floor tiling tools include the following:

Table 2.1 The functions of wall and floor tiling tools

Tool	Function
Manual tile cutter This is the most important tool when tiling. It is lightweight and easy to use. Use a tile cutter with a cutting length exceeding the size of the tiles. For example, use a 600 mm tile cutter to cut a tile with measurements of 500 mm × 500 mm × 20 mm. Every manufacturer has different tile cutters, but the most popular sizes are 600 mm, 900 mm and 1 200 mm.	<ul style="list-style-type: none">■ To cut the tiles precisely and effectively with clean edges and no damage, cracking or chipping of the tile (ceramic, extruded or porcelain)
Tile trowels Use a notched trowel when tiling. The notches allow air to escape when the tiles are put against the wall or on the floor. Choose the right size for the size of the job, and make sure it is lightweight.	<ul style="list-style-type: none">■ To scooping up and spread the adhesive evenly onto a relatively smooth surface

Tool	Function
Tile spacers	<ul style="list-style-type: none"> ■ To ensure tiles are laid in an equal distance from each other during installation ■ To give tilework a consistent finish

ACTIVITY 2.1 Identify examples and functions of wall and floor tiling tools

Work on your own.

1. Name the three most important wall and floor tiling tools.
2. Name the main function of each tool.

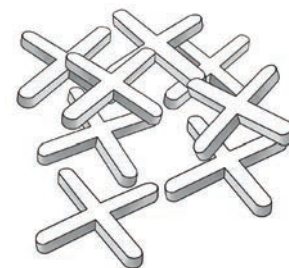


Figure 2.1 Plastic spacers used for tiling jobs

Jointing tools and their functions

The most important function of jointing tools is to clean the mortar joints. It is important to push or drag the jointing tool along the joint bed to make sure you clean out the excess mortar.

Jointing tools include the following:

Table 2.2 The functions of jointing tools

Tool	Function
Long jointer	<ul style="list-style-type: none"> ■ To make horizontal hallow key joints on face bricks
Short jointer	<ul style="list-style-type: none"> ■ To finish off the short, vertical joints on face bricks
Pointing trowel Looks like the bricklaying trowel, but is smaller in size.	<ul style="list-style-type: none"> ■ To fill small holes with mortar
Mastic trowel with a long narrow blade	<ul style="list-style-type: none"> ■ To point brickwork
Scraper (steel)	<ul style="list-style-type: none"> ■ To rack out excess mortar from the joints

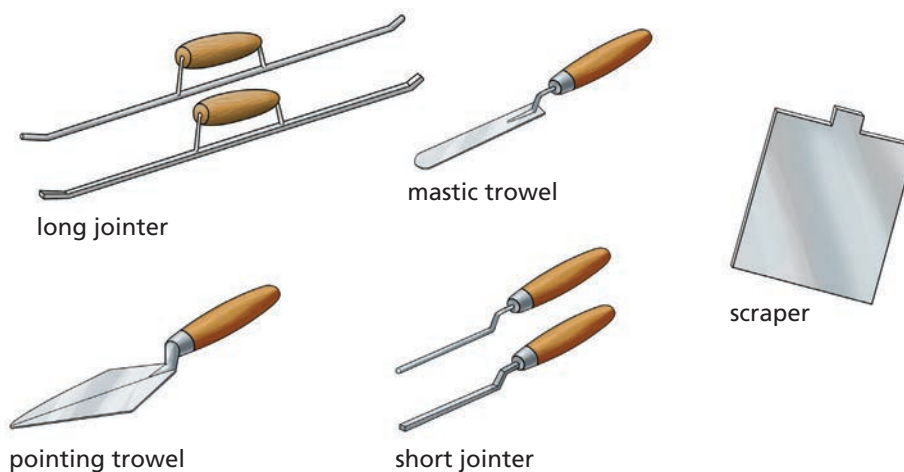


Figure 2.2 Jointing tools

ACTIVITY 2.2**Identify examples and functions of jointing tools**

Work on your own.

1. Name three examples of jointing tools.
2. List the main functions of each of the examples identified in 1.

Plastering tools and their functions

Plastering tools include the following:

Table 2.3 The functions of plastering tools

Tool	Function
Floating trowels/tools (steel, gauging, floating and setting trowels)	<ul style="list-style-type: none"> ■ To create a slick surface that delivers a perfect finish for indoor high-traffic areas
Metal scratcher	<ul style="list-style-type: none"> ■ To scratch a layer of plaster and 'key' it before rendering takes place
Corner trowel	<ul style="list-style-type: none"> ■ To finish, smooth and render the internal and external corners of any building

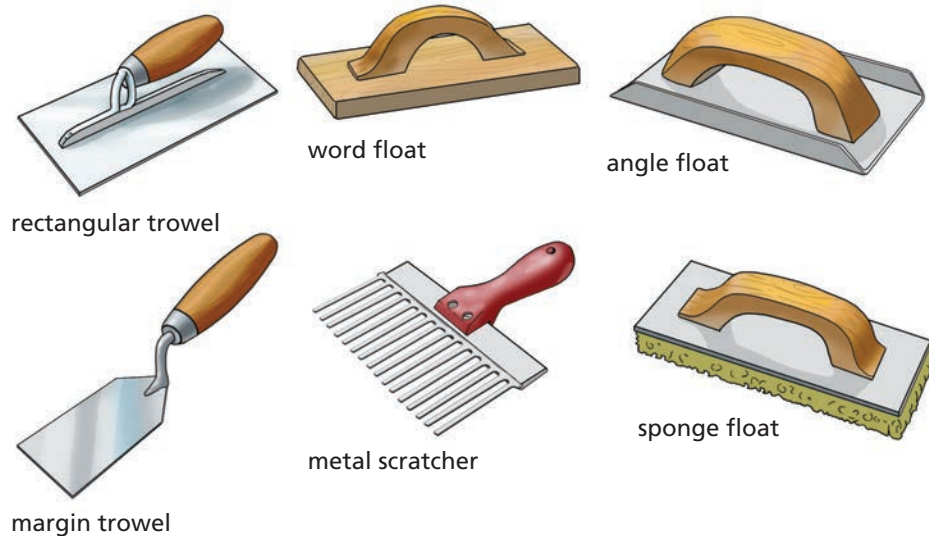


Figure 2.3 Plastering tools

ACTIVITY 2.3**Identify examples and functions of plastering tools**

Work on your own.

1. Name three examples of plastering tools.
2. List the main functions of each of the examples identified in 1.

Brick-cutting tools and their functions

Brick-cutting tools include the following:

Table 2.4 The functions of brick-cutting tools

Tool	Function
Brick hammer	<ul style="list-style-type: none"> For any hammering that needs to be done The chisel side is used for cutting (splitting) standard bricks
Bolster	<ul style="list-style-type: none"> Used with a hammer to cut (split) bricks Used to cut chases in brickwork
Club hammer (or at least a 2 kg hammer)	<ul style="list-style-type: none"> Used with most brick-cutting tools (for example, bolster and/or cold chisels)
Cold chisel	<ul style="list-style-type: none"> To chase a wall for a water pipe or an electrical lead To punch a small hole in a brick
Comb/scutch hammer This hammer is like a brick hammer, but instead of the chisel end, a slot is cut to hold a comb.	<ul style="list-style-type: none"> To chase and trim bricks

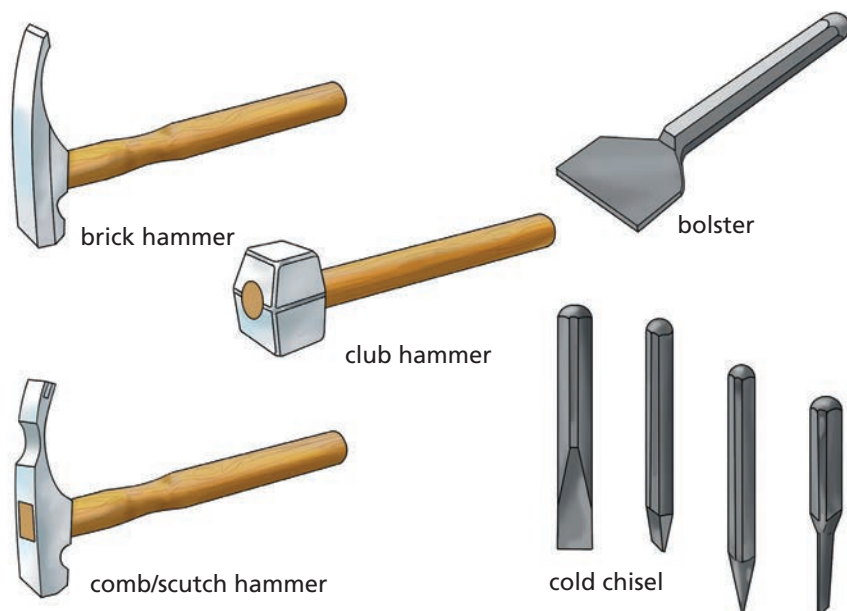


Figure 2.4 Brick-cutting tools

ACTIVITY 2.4 Identify examples and functions of brick-cutting tools

Work on your own.

1. Name three examples of brick-cutting tools.
2. List the main functions of each of the examples identified in 1.

Setting-out tools and their functions

Setting-out tools include the following:

Table 2.5 The functions of setting-out tools

Tool	Function
Steel tape	<ul style="list-style-type: none"> To set out a house according to a building plan
Folding ruler It should be approximately 1 m in length.	<ul style="list-style-type: none"> To measure shorter distances
Large steel square	<ul style="list-style-type: none"> To layout guidelines To check that all inside and outside corners are 90 degrees during building
Building line These are available in long rolls.	<ul style="list-style-type: none"> A guide to set out a building plan for a house
Steel/wooden pegs Short lengths of steel or wood which are hammered into the ground.	<ul style="list-style-type: none"> To mark a point To measure the accuracy of the concrete when levelling a foundation
Wood or aluminium straight-edge A length of wood approximately 2,3 m long with straight, square edges.	<ul style="list-style-type: none"> To make sure the concrete is level and smooth To transfer a level from one point to another To build two pillars or walls to the same height

Keyword
levelling to make something flat

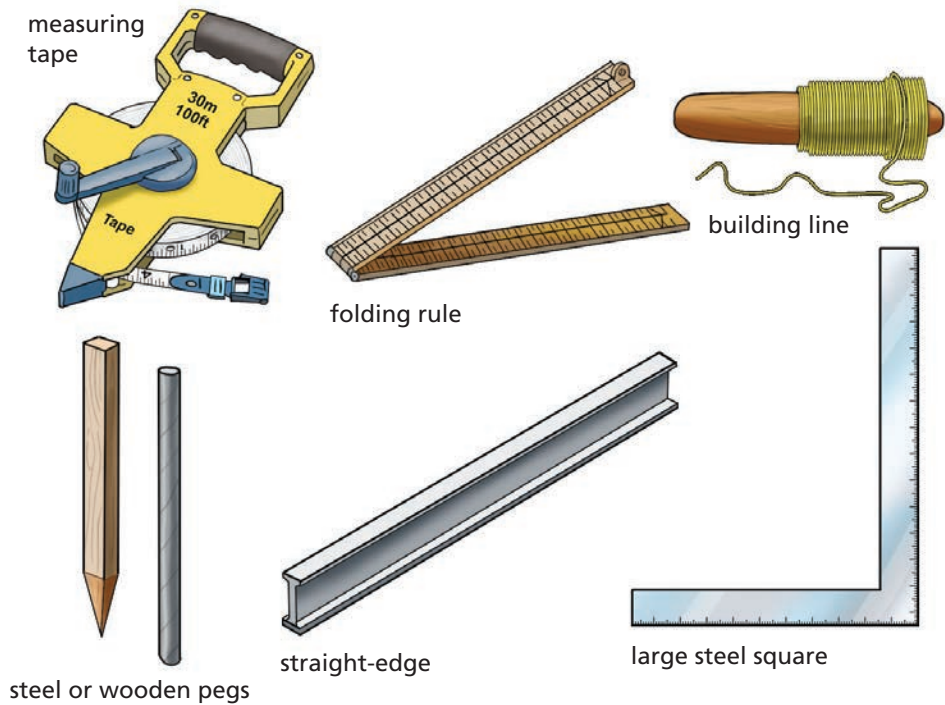


Figure 2.5 Setting-out tools

ACTIVITY 2.5 Identify examples and functions of setting-out tools

Work on your own.

1. Name three examples of setting-out tools.
2. List the main functions of each of the examples identified in 1.

Bricklaying tools and their functions

Bricklaying tools include the following:

Table 2.6 The functions of bricklaying tools

Tool	Function
Builder's trowels The most important bricklaying tool.	<ul style="list-style-type: none"> ■ To apply mortar on the bed and to spread it evenly ■ To knock the bricks into position ■ To cut off surplus mortar
Builder's line and pins	<ul style="list-style-type: none"> ■ To keep a course of bricks in line and level ■ To lay the brick courses to the height of the line, which is strung taut between outside corners using the pins or line blocks
Line blocks Line blocks are like line pins; builders normally make their own wooden line blocks.	<ul style="list-style-type: none"> ■ Used instead of line pins when the corners are built up to keep a course of bricks in line and level
Spirit level	<ul style="list-style-type: none"> ■ To ensure that the vertical faces of the work are true and that the structure is level
Tingle Tingles are cut from a piece of flat iron.	<ul style="list-style-type: none"> ■ To lift the line between the pins and keep it straight ■ As the weight of the line between the line pins tends to make a sag, tingles are used to lift it and keep it straight
Gauge rod A long straight rod, marked at intervals equal to the thickness of one brick, and the thickness of the mortar joint	<ul style="list-style-type: none"> ■ To ensure that all corners of the building will be of equal height upon completion ■ To check and keep the brick courses at even multiples of bricks plus mortar joint thicknesses when working on different sections of the building

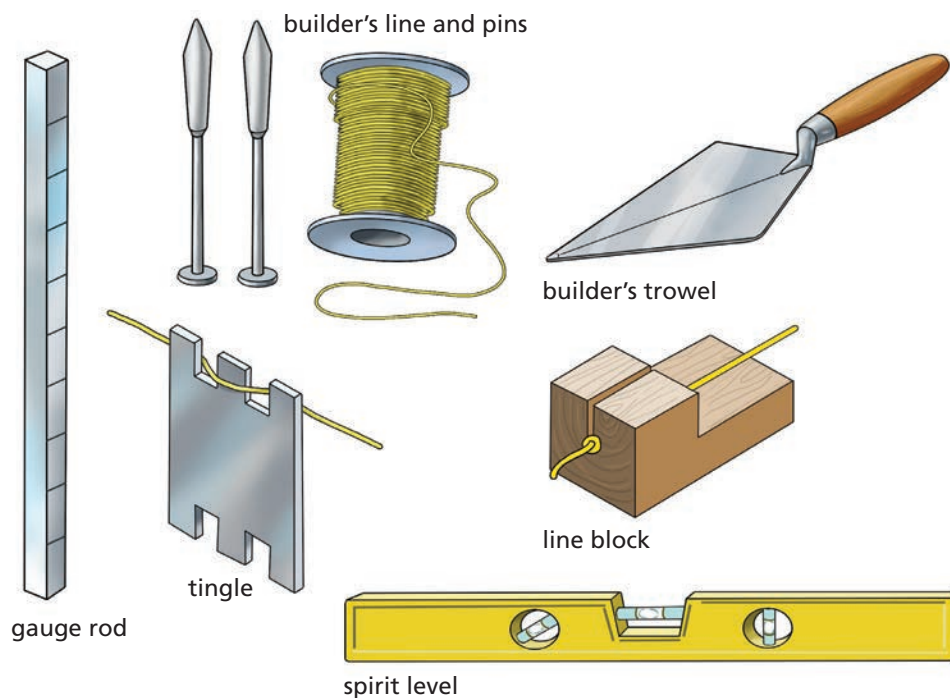


Figure 2.6 Bricklaying tools

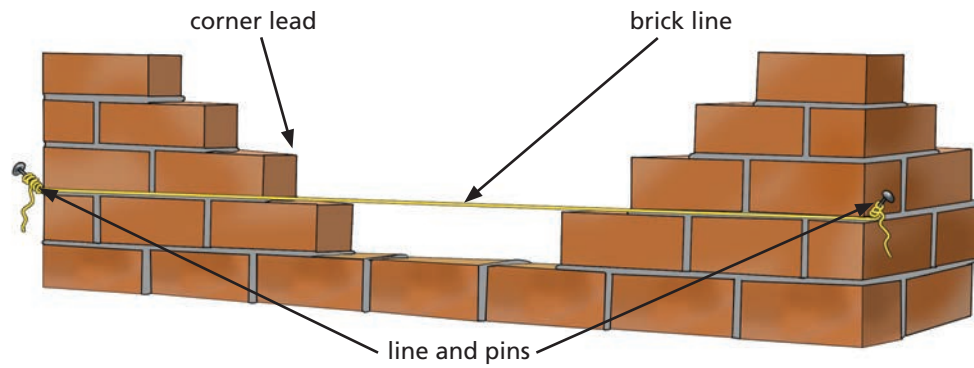


Figure 2.7 Builder's line and pins in building work

ACTIVITY 2.6

Identify examples and functions of tools

Work on your own.

1. Name three examples of bricklaying tools.
 2. List the main functions of each of the examples identified in 1.
-

Unit 2: Care and storage of hand tools

LEARNING OUTCOMES

- Describe how to take care of hand tools
- Explain how to store hand tools.

Introduction

It is important to handle your hand tools carefully. Some may have sharp edges or points and can cut or injure you. Taking good care of your tools and storing them properly will let them last for years and save you money and time.

Care of hand tools

Follow the steps to ensure your tools are well-maintained.

Step 1: Put tools back where they belong

- Always put your tools back in your toolbox after using them (or in a safe area or cupboard). However, faulty or damaged tools should first be repaired by following the manufacturer's manual.
- Make sure your tools are safely stored and free from unnecessary dust. Never leave tools lying around – someone else could pick it up and use it or hurt themselves.



Figure 2.8 Put tools back where they belong

Step 2: Always clean tools after use

- Joint compounds easily harden in a short time. Therefore, you should not leave messy dirt stuck on your tools. Clean your tools promptly after every use by scraping off the joint compound and scrub out the residue with a cloth and water.
- Tools like the spirit level may be dipped in water to clean, but it should be dried thoroughly with a clean cloth afterwards.



Figure 2.9 Always clean tools after use



Figure 2.10 Rustproof your tools

Step 3: Rustproof your tools

- You can extend the lifetime of your tools by using a rust protectant to prevent corrosion.
- Use the aerosol sprays so that you can coat your tools on all sides.
- Lubricate the metal. Pay close attention to small screws and bolts, which are more likely to rust.
- Do not wet wooden handles too much as it will crack and become loose. Wooden handles do not need any coating.

Step 4: Store tools in a dry place

- Leaving them exposed to moisture will cause rusting and affect the quality of your tools.
- After cleaning, wipe the tools with a clean cloth and store them in a dry place.



Figure 2.11 Store tools in a dry place

ACTIVITY 2.7

Clean and store tools

Work in pairs.

You are busy with in-service training. It is your responsibility to look after the tools used during the day.

Describe how you will clean and store the following tools:

1. manual tile cutter
 2. club hammer with wooden handle
 3. tile trowel
 4. scraper
 5. spirit level.
-

Module summary

- Certain tools are necessary for building. We have now studied most of the important hand tools. Before you start any building project, make sure you have the necessary tools to make your job easier and quicker, and that you know how to use them.
- Specially designed tools are necessary for specific jobs such as the different rectangular, margin and builders' trowel. These are all trowels but designed differently for the specific job to be done.
- It is also the responsibility and duty for every workman to clean and store tools in such a way that it can be stored in the appropriate state to prevent rust or damage.
- Cleaning and storage of tools needs to be approached in a systematic way to ensure that tools are preserved and ready for use again.

Exam questions

1. Make neat, freehand sketches with labels of the following hand tools:
 - 1.1 pointing trowel
 - 1.2 scraper
 - 1.3 scratcher
 - 1.4 club hammer
 - 1.5 spirit level
 - 1.6 steel square
 - 1.7 wooden peg
 - 1.8 tingle
 - 1.9 folding ruler
 - 1.10 bolster. (10 × 3 = 30)
2. Complete the table by filling in the missing words.

Tool classification	Tool examples
Setting-out tools	Straight-edge 2.1 _____ 2.2 _____
2.3 _____	Gauge rod 2.4 _____ 2.5 _____
Brick-cutting tools	2.6 _____ 2.7 _____
2.8 _____	Tile spacer 2.9 _____ 2.10 _____

(10)

[40]