BUILDING DRAWING PAPER 3

Architectural symbols and conventions

To avoid the representation of the various building members and fitments differently by different draftsmen which in turn may confuse the people interpreting there drawings; and to avoid the miscommunication of the draftsman's work, there are a series of conventional architectural symbols that are used to represent the various building members and fitments.

The term "*conventional symbol*" in this particular context means that the symbols are internationally accepted or agreed upon and therefore offer a means of common language between the architects and the builders. In other words, architectural symbols ensure uniformity of drafting works internationally and also ensure effective communication of the draftsman's drawing. These symbols are divided into three categories namely,

- Section symbols
- Plan symbols
- Elevation symbols

Plan symbols

These are symbols that are used to represent various members on the plan of a house. **Fig 1.7b** shows these symbols, which include the wall, windows, doors and building fitments/furniture such as the wardrobe, bath tab, water closet, water sink, cooker, dining table/chairs, sofa chairs and beds.

Elevation symbols

These are symbols that are used to represent various members on the elevation of a house. **Fig 1.7c** shows these symbols, which include windows, doors, the roof and building finishes.

Section symbols

These are symbols that are used to represent various members on a section of a house. **Fig 1.7a** shows some of the section symbols that are most common in building drawing, and these include;

the wall, horizontal and vertical section of timber, door/window, concrete, hardcore stones and murram.

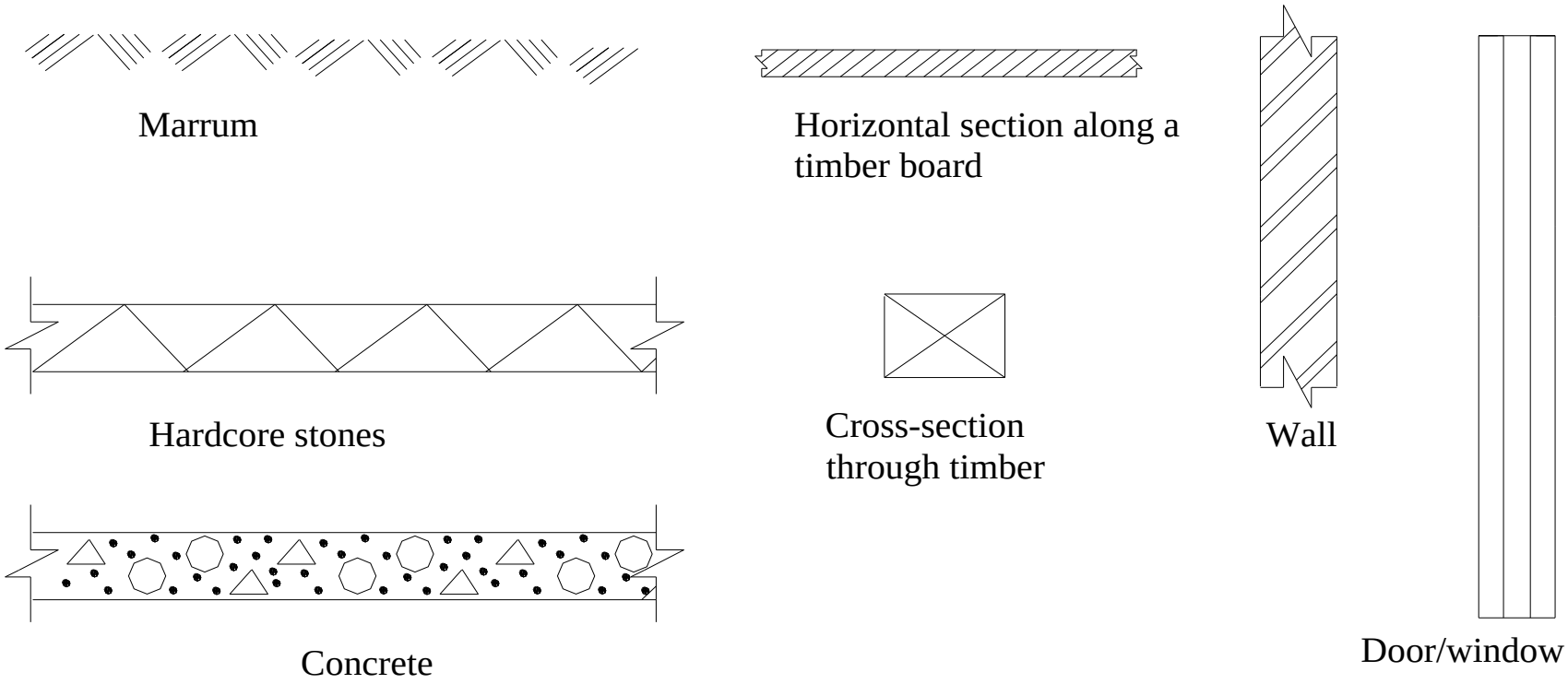


Fig 1.7a Section symbols.

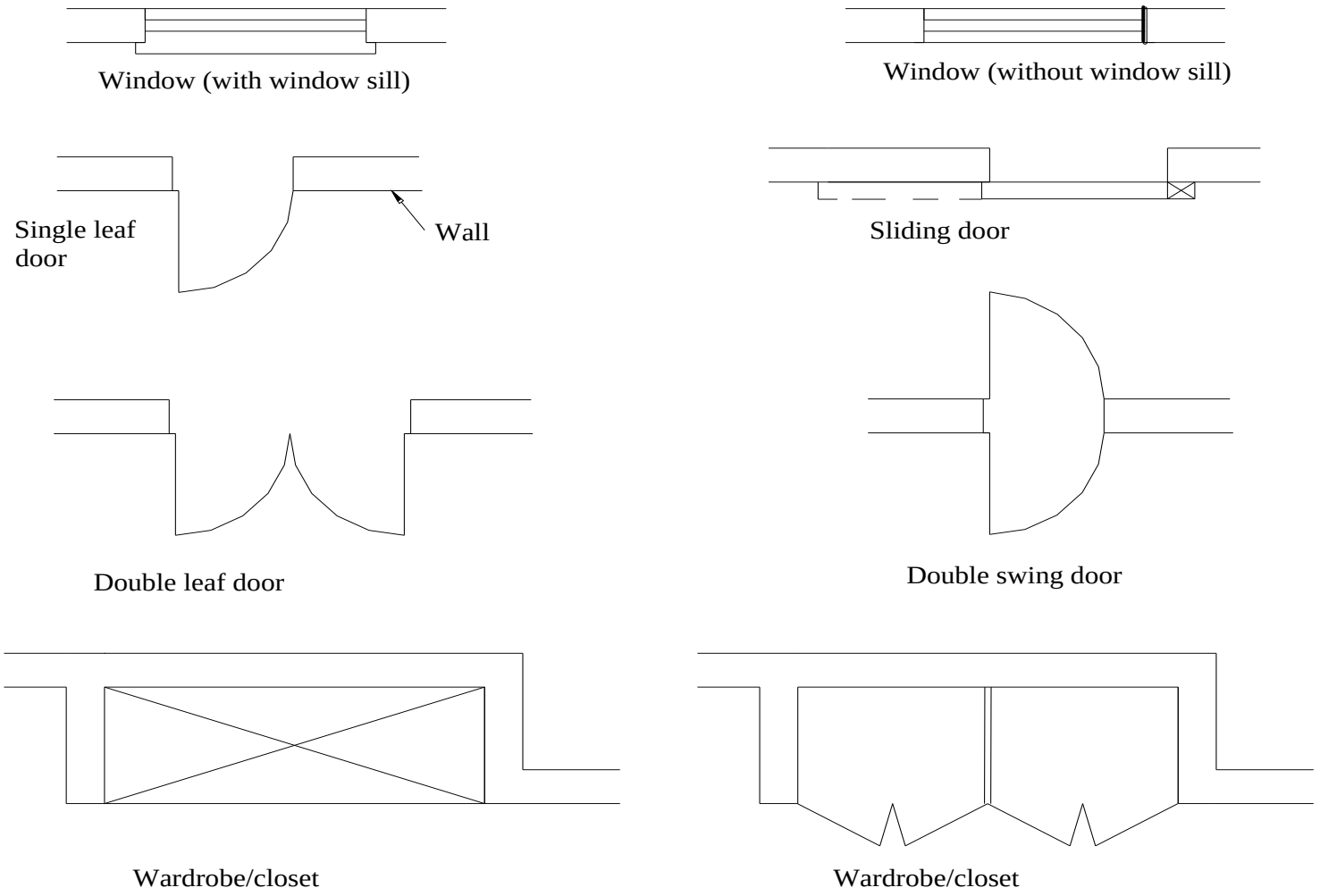


Fig 1.7b Plan symbols.

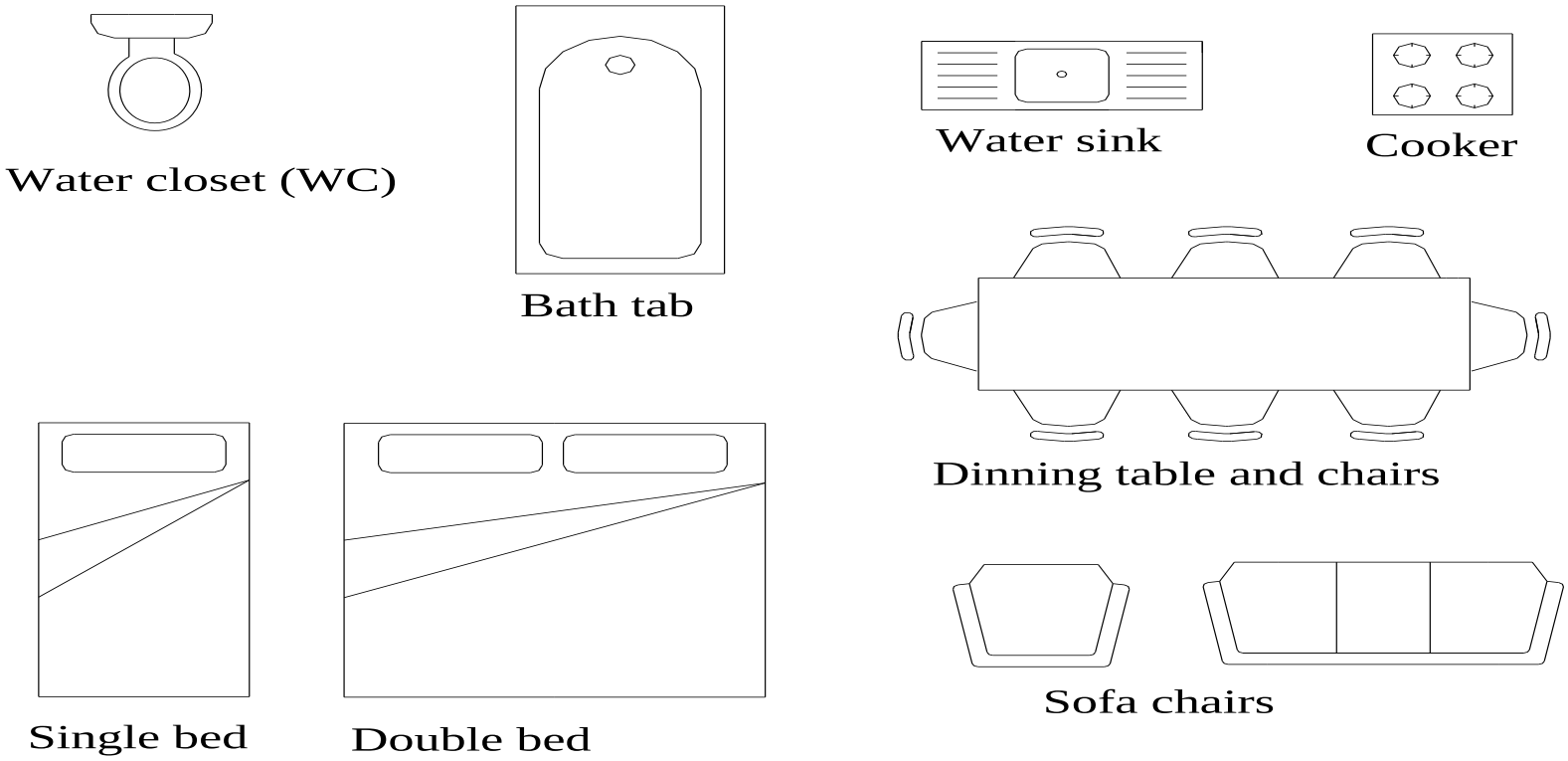


Fig 1.7b Plan symbols (continued)

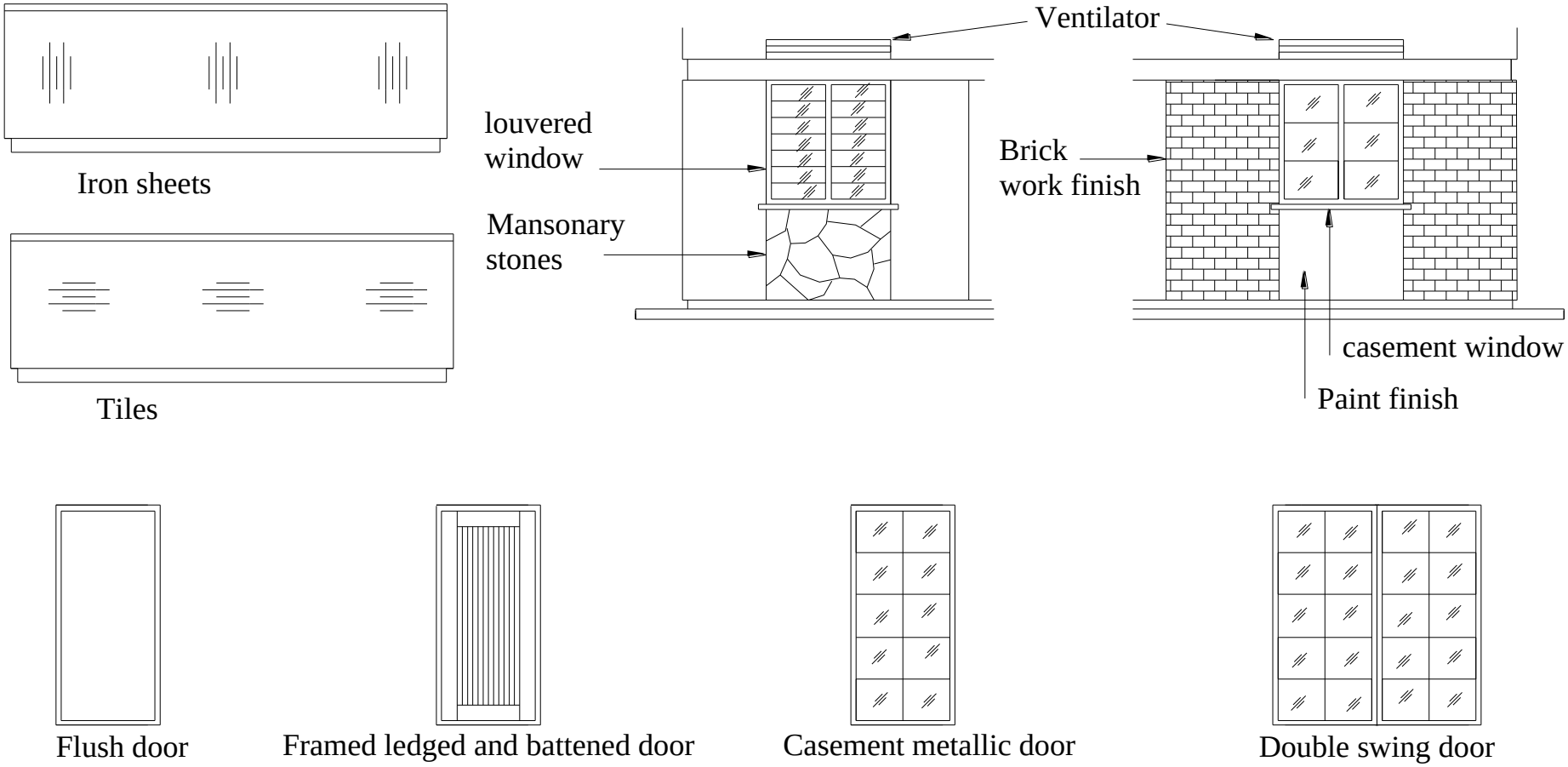


Fig 1.7c Elevation symbols

In the introduction we have laid emphasis on the symbols of the various building materials and members, however it's important for the Technical drawing student to master and understand what makes up a building. This masterly can best be achieved by studying the different building details carefully and separately.

. Most of the details included in this book are those based on our environment i.e. in the Ugandan or African style of building. I feel this is good for the student of today as opposed to most western books which show the building details according to their own environments. I urge the student to relate what is in this particular section to the buildings around him/her.

Since this part deals with building drawing, I have not gone into the theory of the details but has rather simplified them diagrammatically to enable you understand them well. Important dimensions of the details are shown on the drawings to enable one draw the details. The student is urged to practice drawing these details to bigger scales like 1:10 and 1:20, as this will help him to internalize them.

In the chapters that will follow am going to use small scales like that of 1:100 to be able to show you how the various plans are interpreted; therefore it's in your own interest to make sure that you understand the details in this section.

BRICKWORK BONDING

This is the arranging of bricks in a predetermined pattern so as to eliminate straight joints and at the same time present a pleasant surface appearance. Types of bonding whose detail we shall look at in this chapter include stretcher bond, English bond and Flemish bond. Other types of bonding are discussed in the second part of this book (building theory).

Before looking at the different types of bonds lets first look briefly at the different brick terminologies and some necessary dimensions. **Fig 2.1** Shows some of the brick terminology and dimensions that will be necessary when drawing the brickwork details.

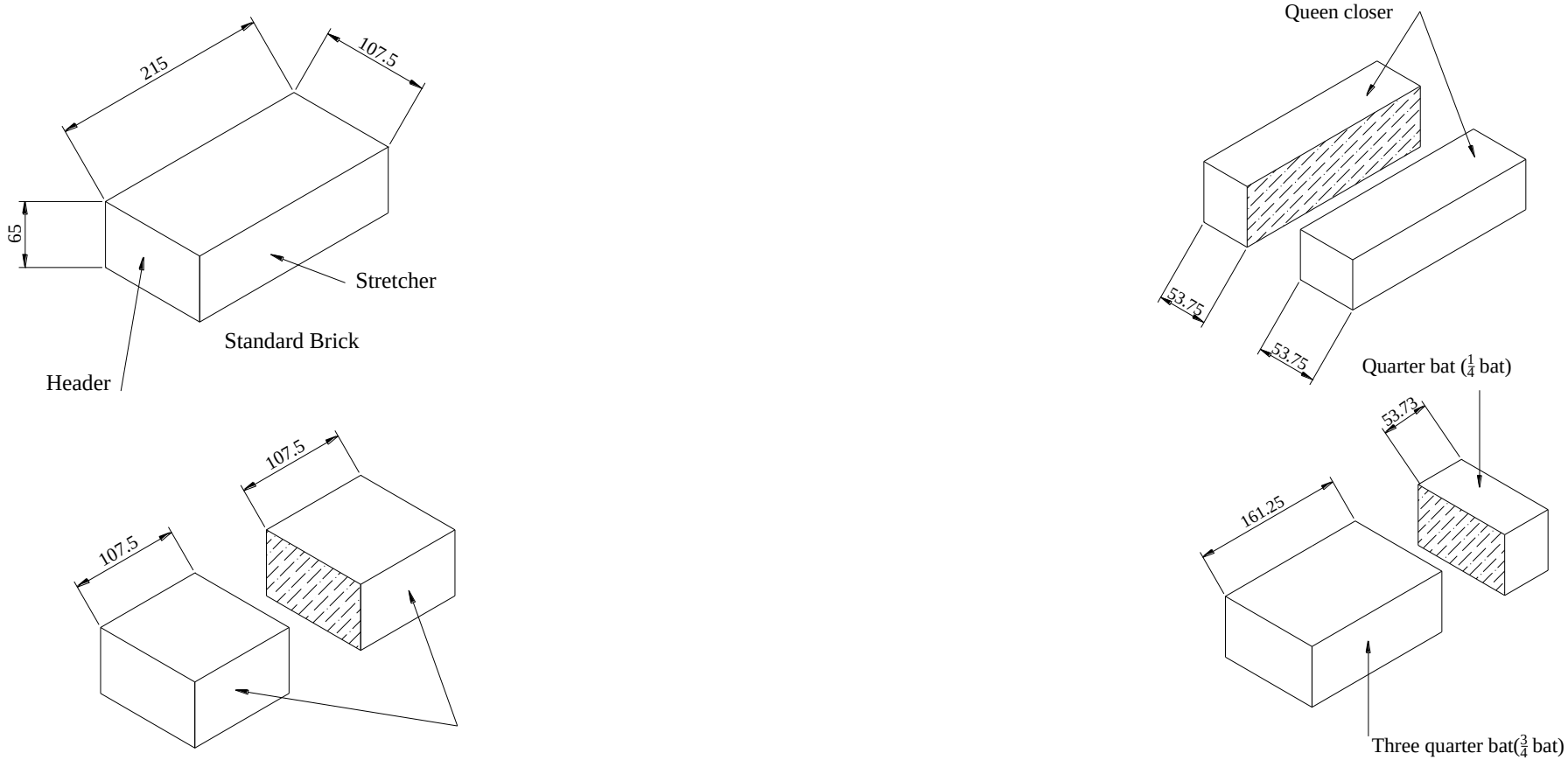


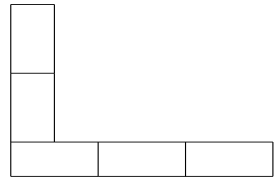
Fig 2.1 Brick terminologies and dimensions.

A **queen closer** is obtained by splitting the brick equally along its length.
A **half bat** is obtained by cutting a brick through the centreline across its width
A **three quarter bat** is obtained by cutting a closer (quarter bat) off the brick.
Bonding can be categorised into half brick wall bonding, one brick wall bonding and one and half brick wall bonding. The most commonly used types of bonding include the stretcher bond which is a half brick wall bond, English and Flemish bonds which can be either one brick or one and half brick thick. This section discusses the details of these bonds especially at the corners, T-junctions and piers.

STRETCHER BOND

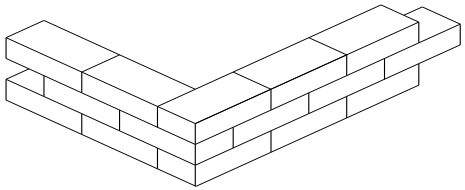
This is a type of bond that consists of all stretchers in every course and is used for half brick walls and leaves of cavity walls.

Fig 2.2a Stretcher bond corner

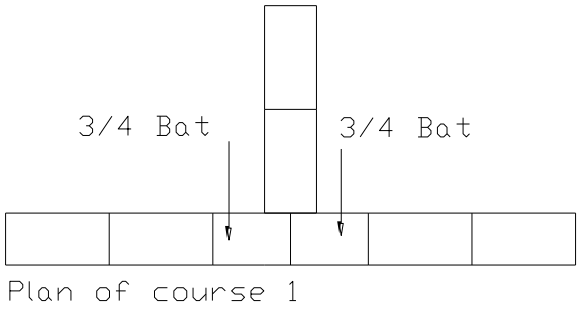


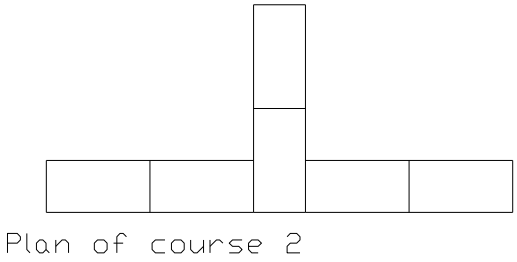
Plan of course 1

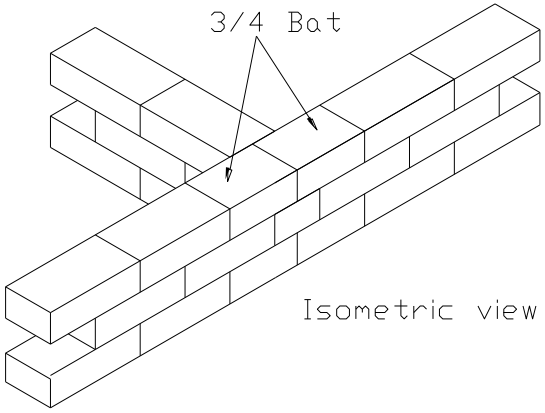
Plan of course 2

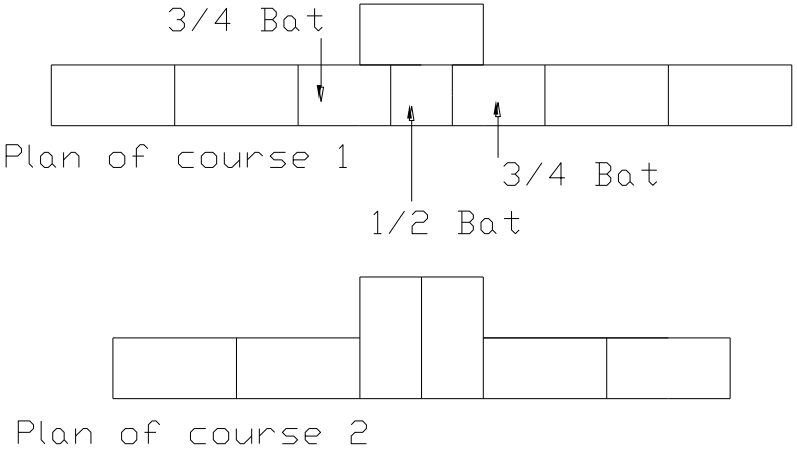


Isometric view


3/4 Bat
3/4 Bat
Plan of course 1


Plan of course 2


3/4 Bat
Isometric view


3/4 Bat
Plan of course 1
3/4 Bat
1/2 Bat
Plan of course 2

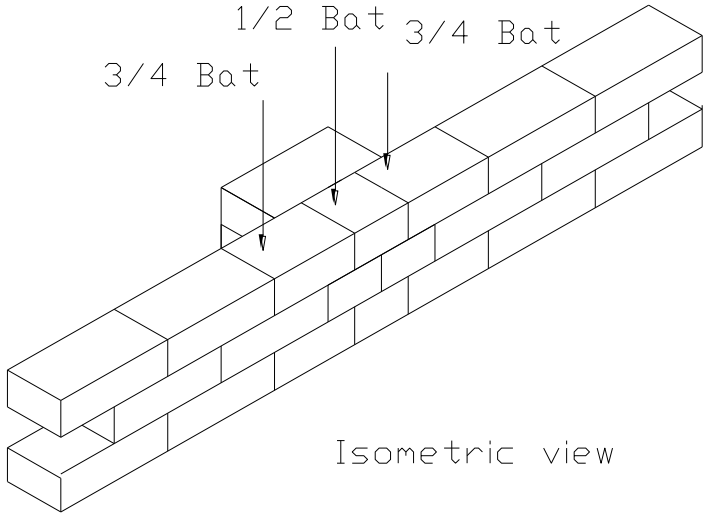
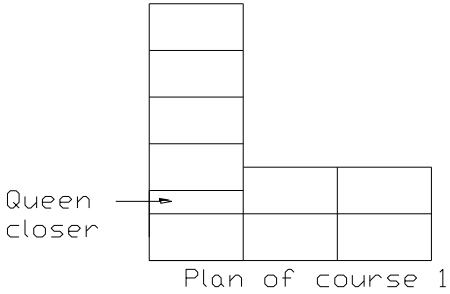

1/2 Bat
3/4 Bat
3/4 Bat
Isometric view

Fig 2.2b Stretcher bond T-Junction

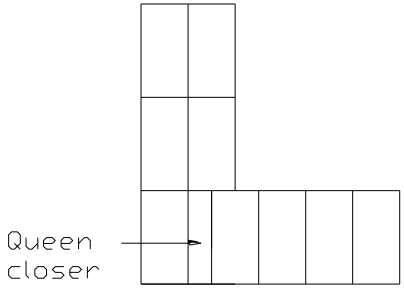
Fig 2.2c Stretcher bond Attached Pier or pilaster

ENGLISH BOND

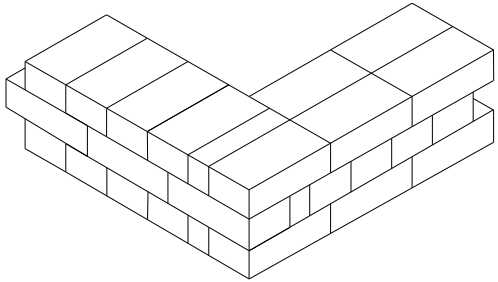
This type of bond consists of stretchers throughout the length of one course and headers throughout the next course. It's important to note how a stopped end is bonded with the three quarter bats. This applies to all the sides that need to be stopped in an English bond. **Fig 2.3a,b,c** and **d** show various details of a one brick thick English bond whereas **Fig 2.3e** and **f** show Details of a one and half brick thick English bond.



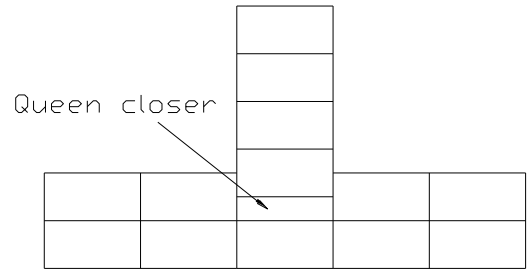
Plan of course 1



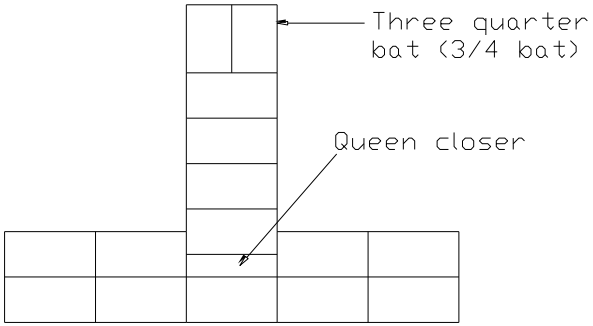
Plan of course 2



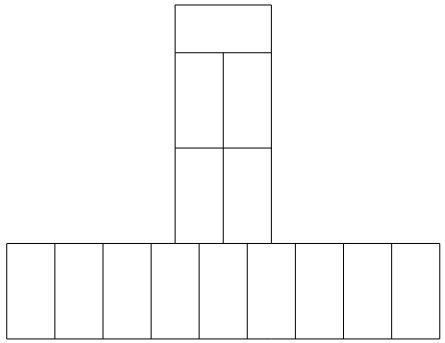
Isometric view



Plan of course 1



Plan of course 1



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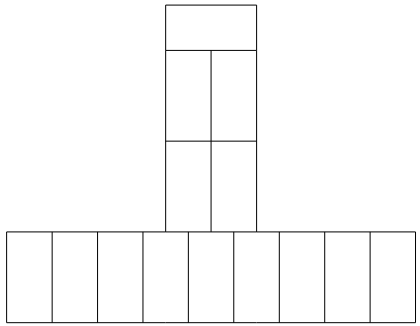
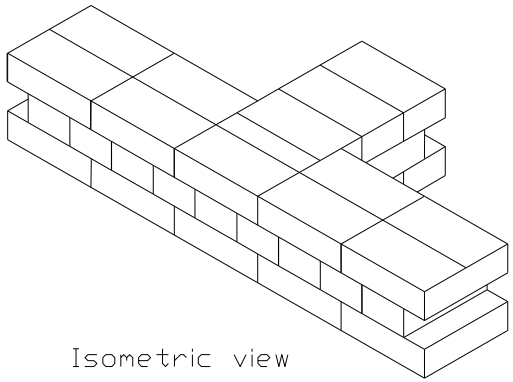
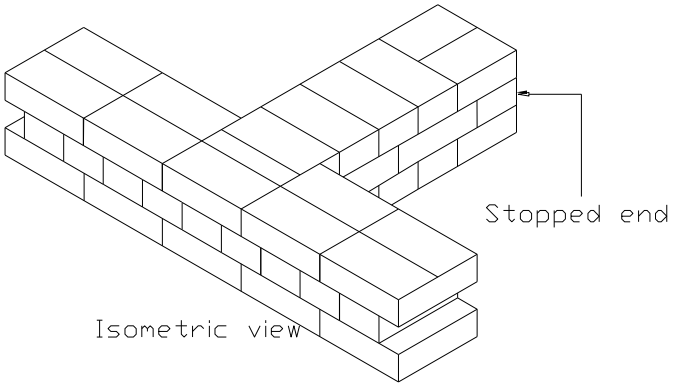


Plan of course 2



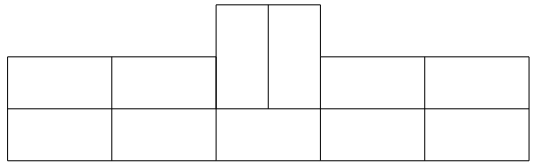
Isometric view



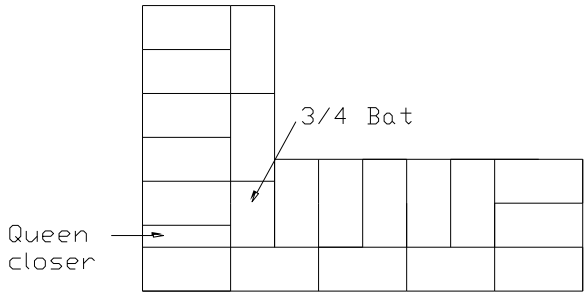
Isometric view

Fig 2.3b English bond T-junction

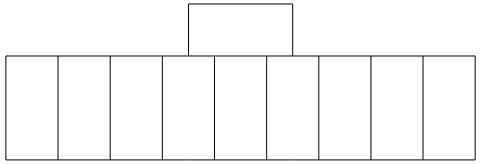
Fig 2.3c English Bond T-junction with a stopped end



Plan of course 1



Plan of course 1



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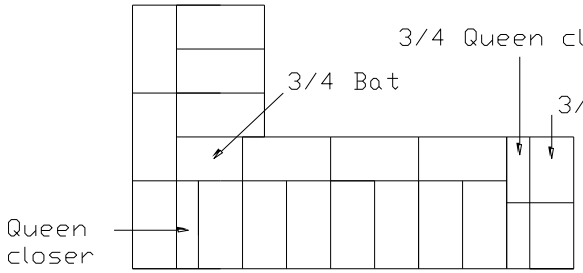
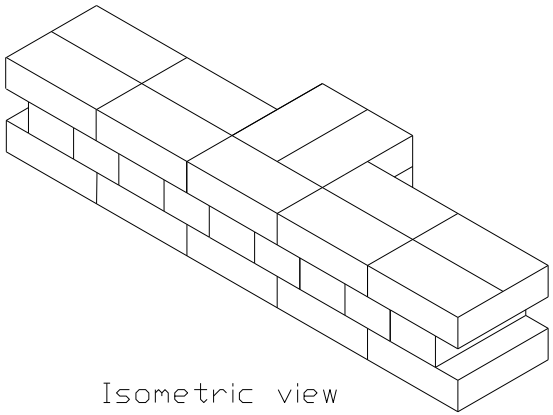
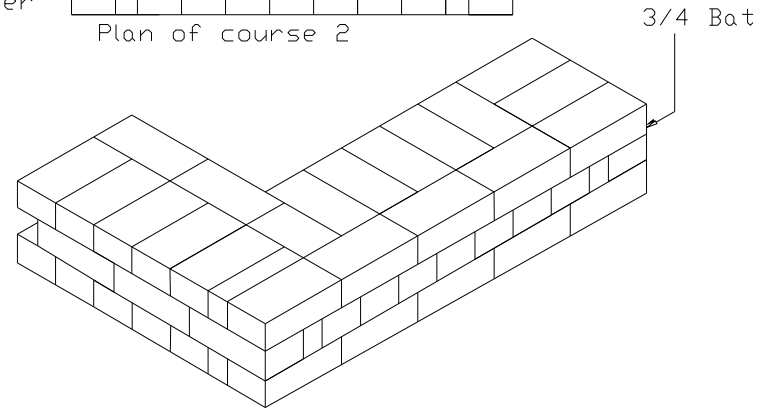


Plan of course 2



Isometric view



Isometric view

Fig 2.3e English bond corner.

Fig 2.3d English Bond Attached Pier or pilaster

FLEMISH BOND

This bond consists of alternate headers and stretchers in the same course. **Figs 2.4a, b** and **d** show the plans of course 1 and 2, and the isometric views of a corner, T-junction, and a pier bonded in Flemish bond. **Fig 2.4c** Shows how a stopped end is bonded and its important to note that also in this case three quarter bats are used. **Fig 2.4e** shows how a Flemish bond can be set in a one and half brick thick wall.

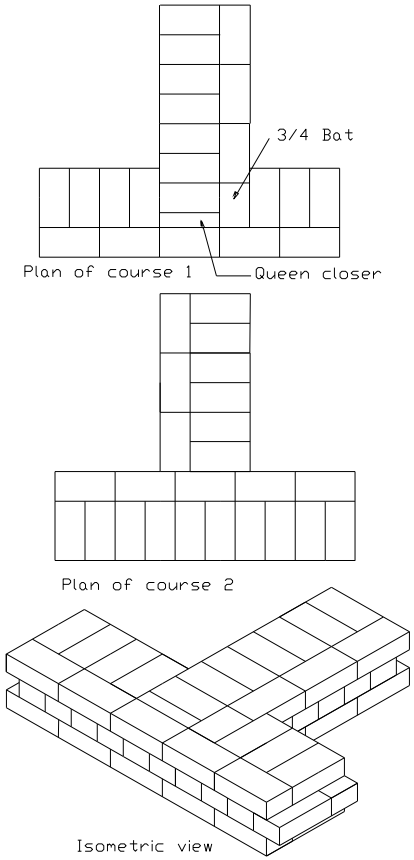
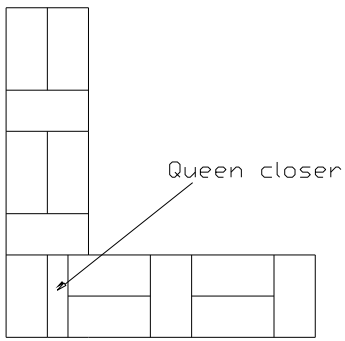
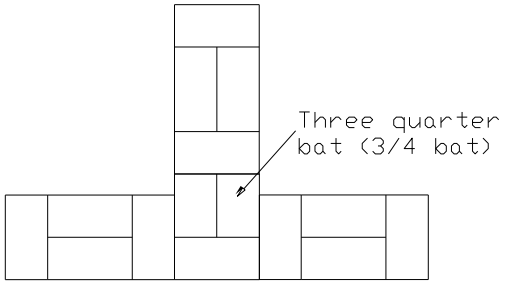


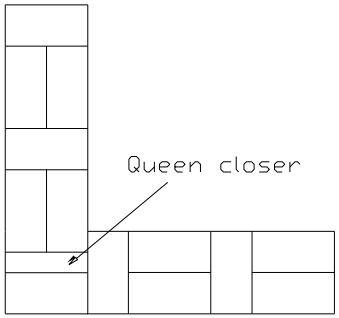
Fig 2.3f English bond T-junction



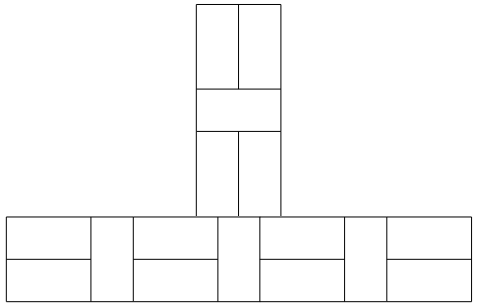
Plan of course 1



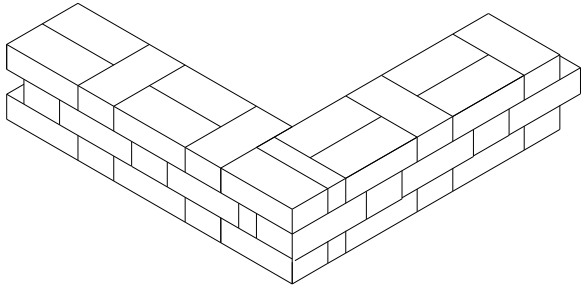
Plan of course 2



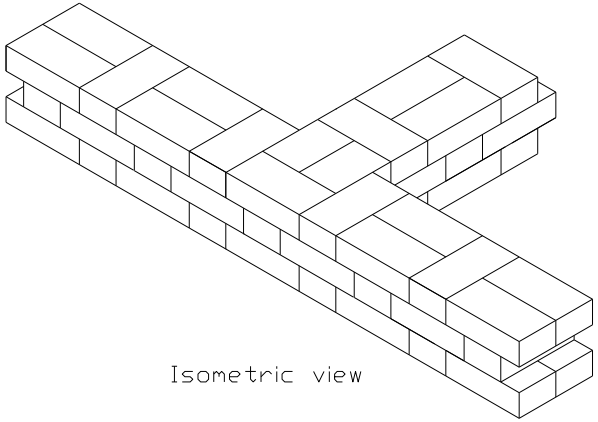
Plan of course 2



Plan of course 1



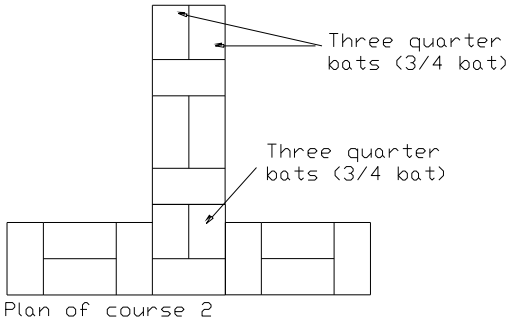
Isometric view



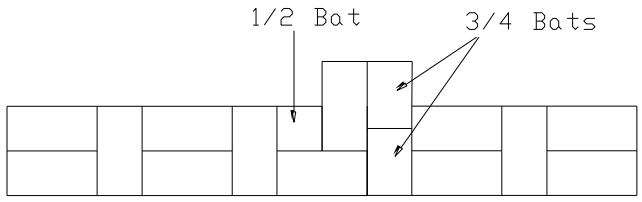
Isometric view

Fig 2.4b Flemish bond T-junction

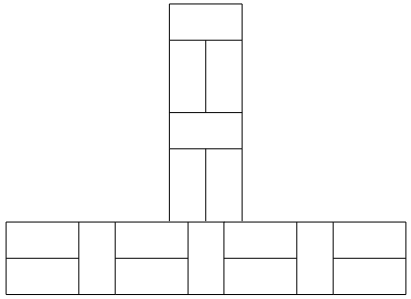
Fig 2.4a Flemish bond corner



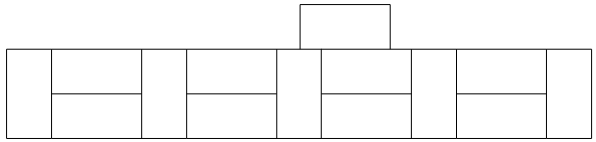
Plan of course 2



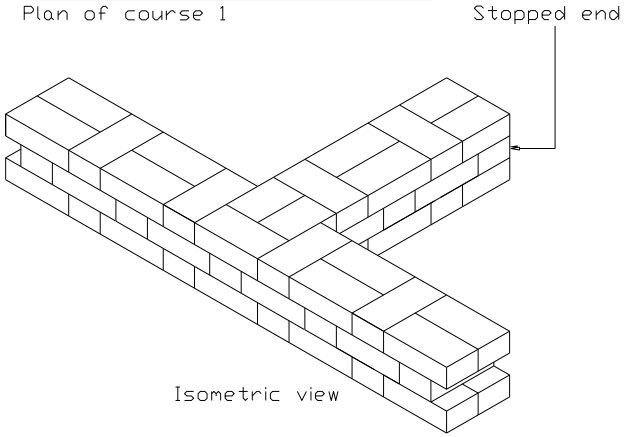
Plan of course 2



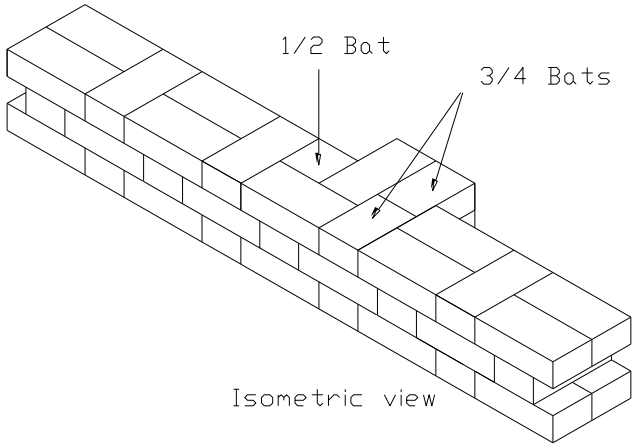
Plan of course 1



Plan of course 1



Isometric view



Isometric view

Fig 2.4d Flemish bond Attached Pier or pilaster ***Fig 2.4c Flemish bond T-junction with a stopped end***

FLOORS

Floors are grouped into ground and upper floors. Ground floors rest on the foundation of the building whereas upper floors separate storeys in a storied building. The floors can be constructed of concrete (solid floors) **Fig 2.4a** or constructed of timber (suspended timber floors) **Fig 2.5b**. In a timber floor the fireplace is given special treatment to prevent the floor from catching fire. **Fig 2.4d** shows how a fireplace is constructed.

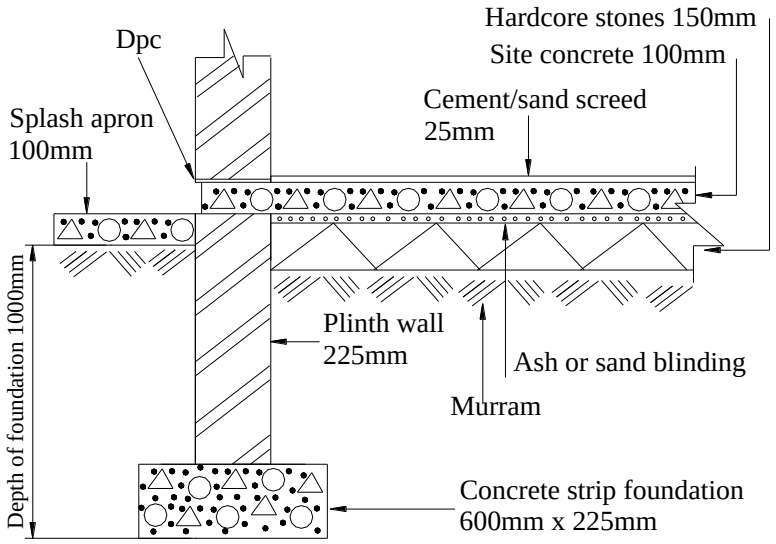


Fig 2.5a Solid ground floor

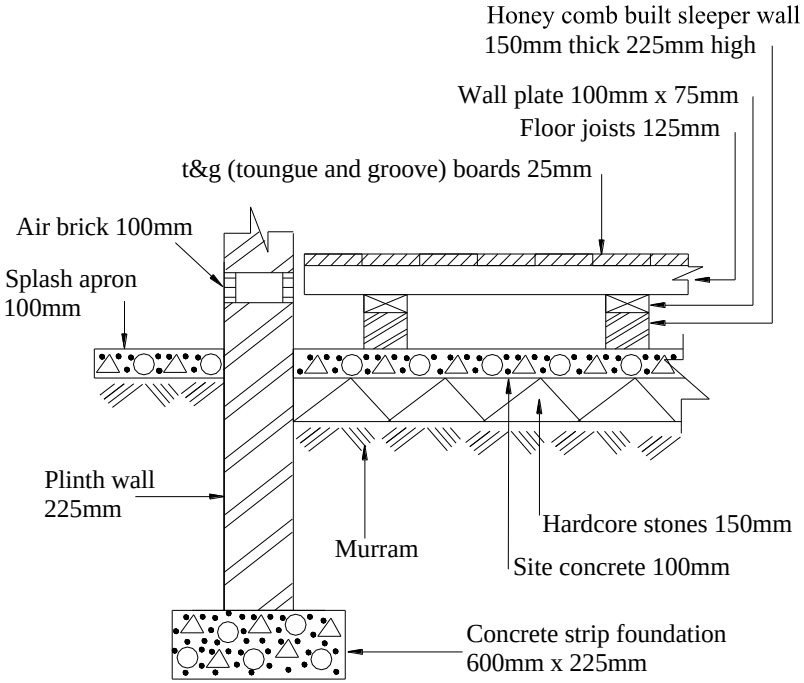


Fig 2.5b Suspended timber ground floor

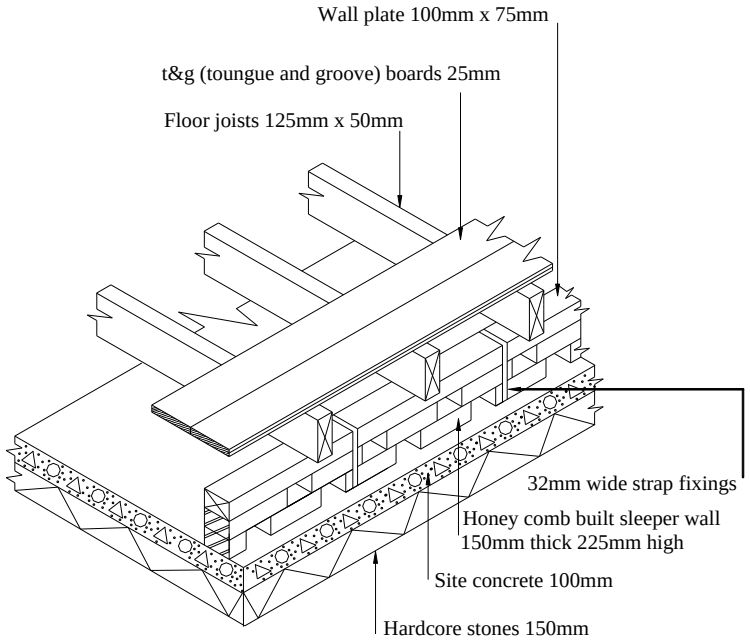


Fig 2.5c Isometric view of a suspended ground floor

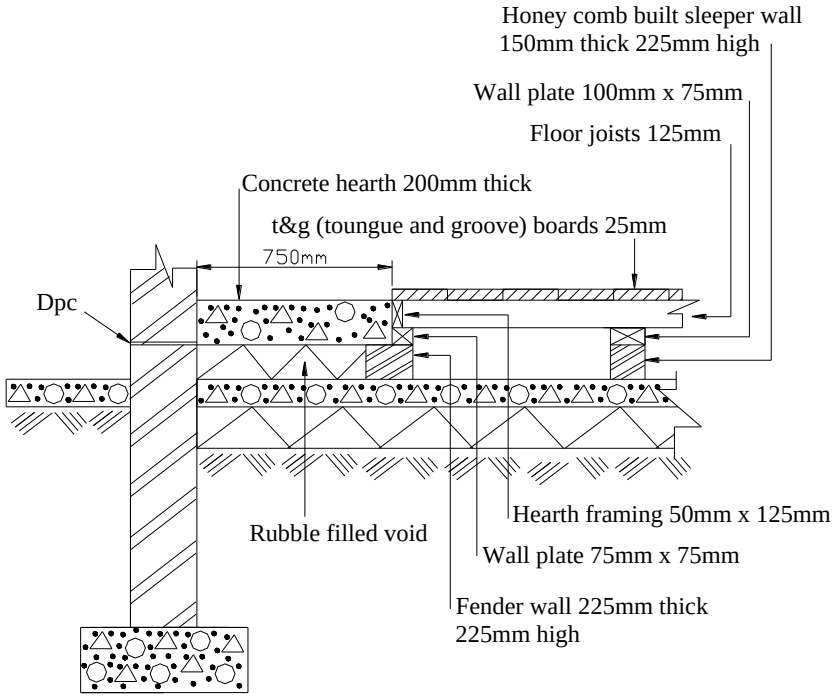


Fig 2.5d Fireplace treatment in suspended timber floor

WALLS

A wall is a structure of bricks, stones or blocks used to enclose, divide or support a building. **Fig 2.6a** shows a vertical section through a wall with a window and **Fig 2.6b** shows a horizontal section through a wall with a door.

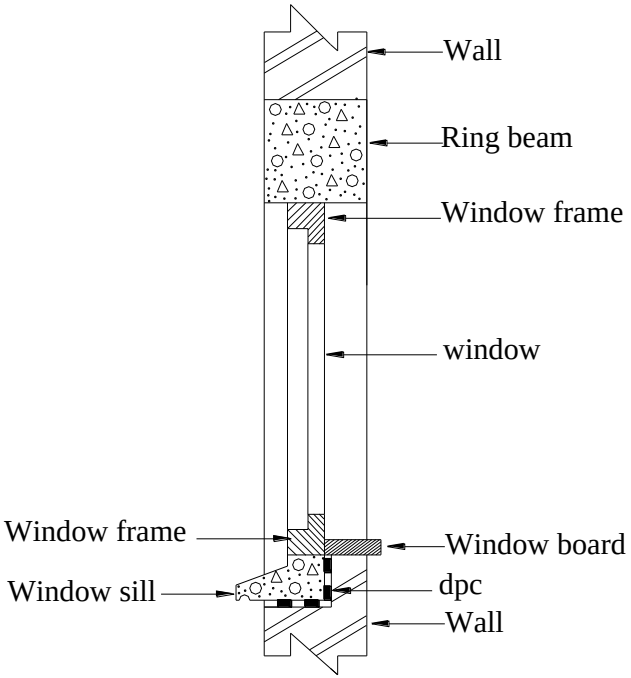


Fig 2.6a Vertical section of a wall with a window

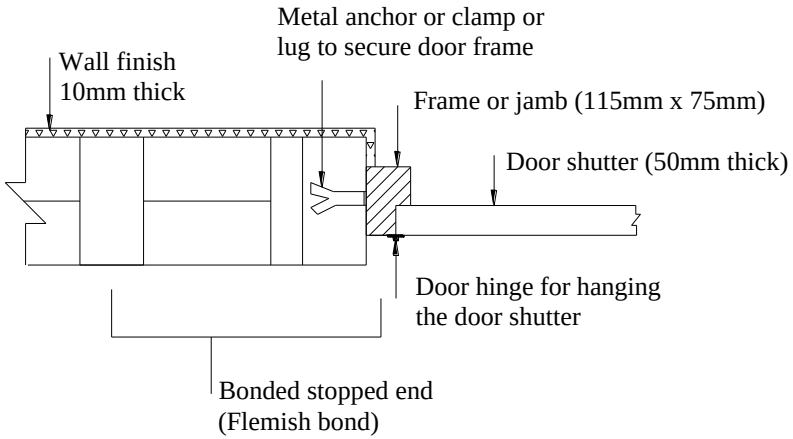


Fig 2.6b Horizontal section of a wall with a door

ROOFS

A roof is a protective covering to the upper surface of a building. Below are details of the various roof constructions and there terminologies. The roofs may be roofed with iron sheets or tiles.

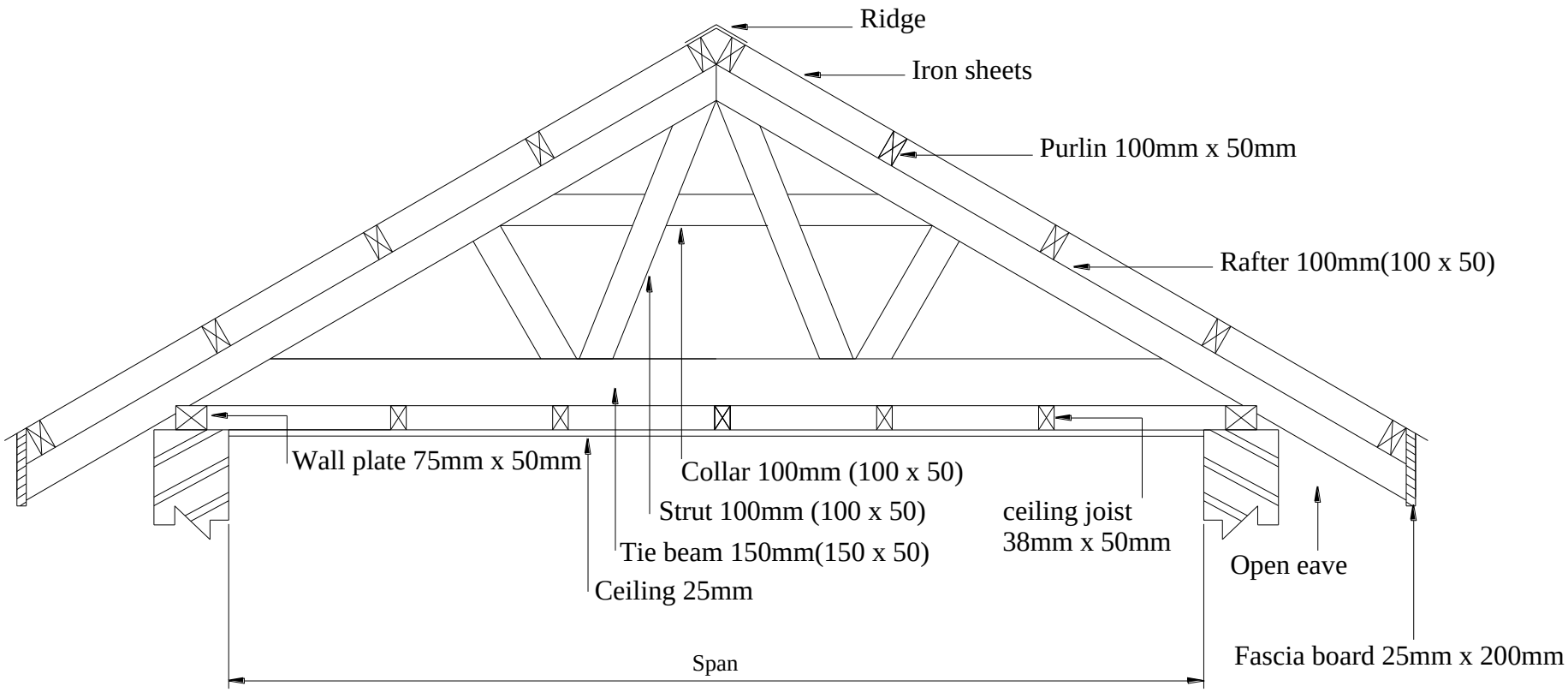


Fig 2.7a Timber Roof truss with iron sheets

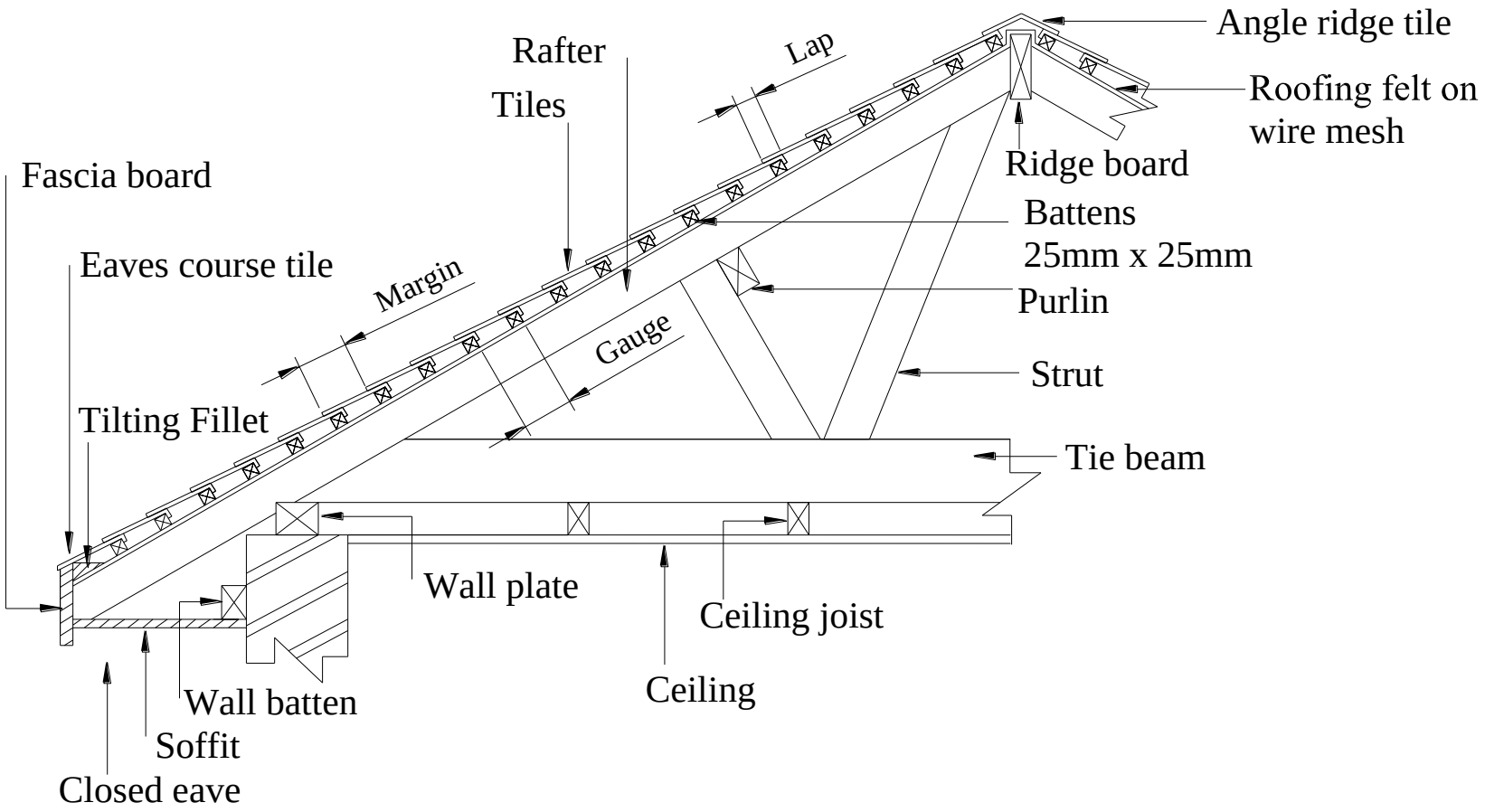


Fig 2.7b Timber roof truss roofed with Tiles (closed eave)

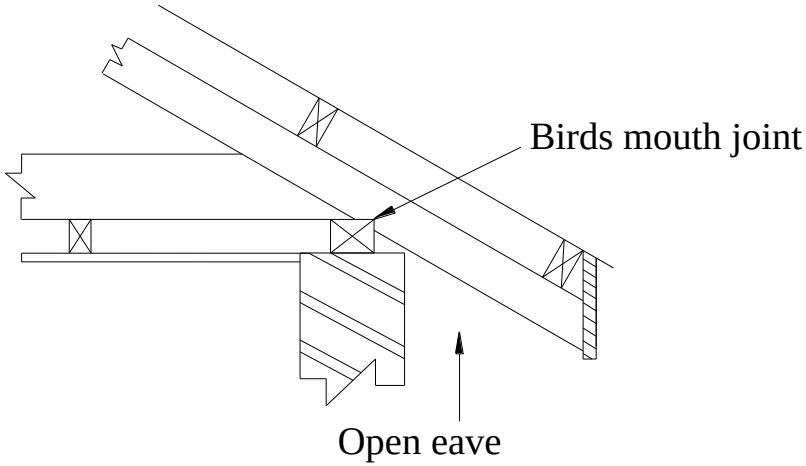


Fig 2.7c Open eave detail

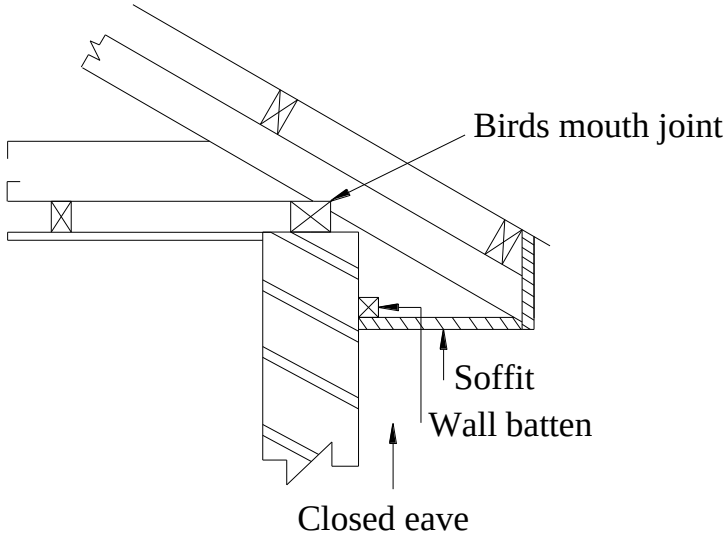


Fig 2.7d Closed eave detail

DOORS

A door is a screen used to seal an opening into a building or between rooms within a building. The main types of doors include the following;

1. Match boarded doors
2. Panelled doors
3. Flush doors

Below are details of these doors and dimensions used in their construction.

Match boarded doors

These doors include Ledged doors, Ledged and braced doors and framed, ledged and braced door.

Note: The dimensions of the door take into account those of the rebated doorframe.

With braced doors, the braces help in determining the hinging and locking sides of the door. The side on which the braces touch the top is the locking rail and the other one automatically becomes the hinging side. The reason is that the braces create an upward force at the locking side, which prevents the door from scratching the floor on opening and closing.

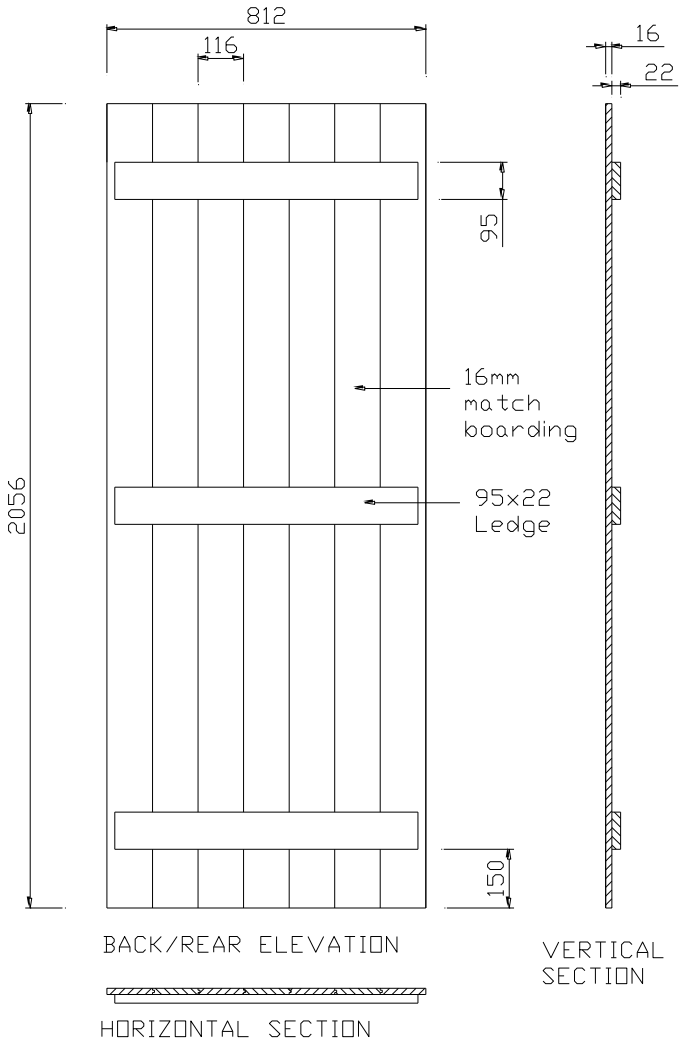


Fig 2.8a Ledged door

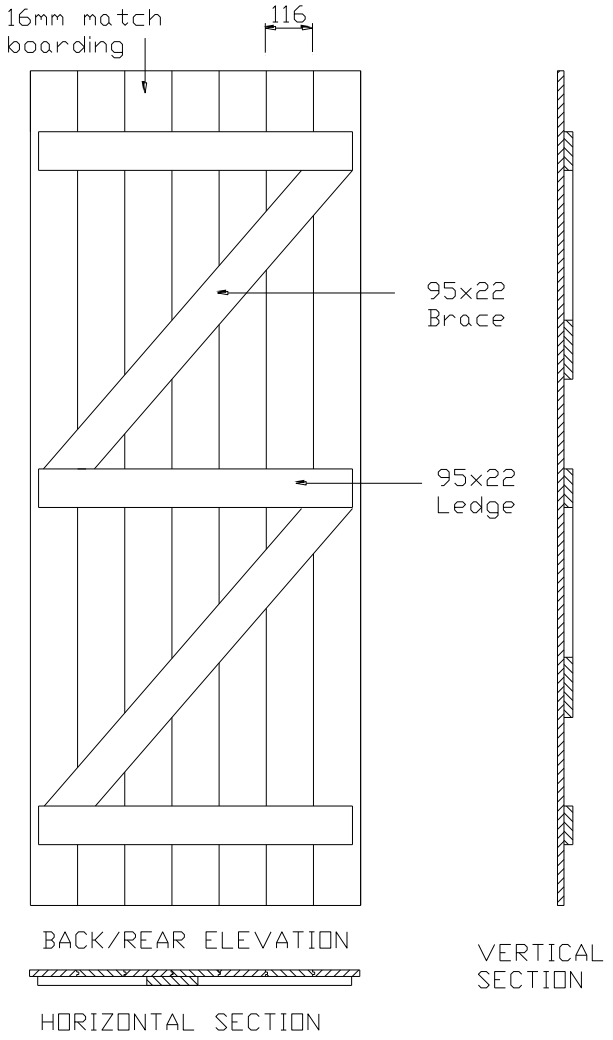


Fig 2.8b Ledged and braced door

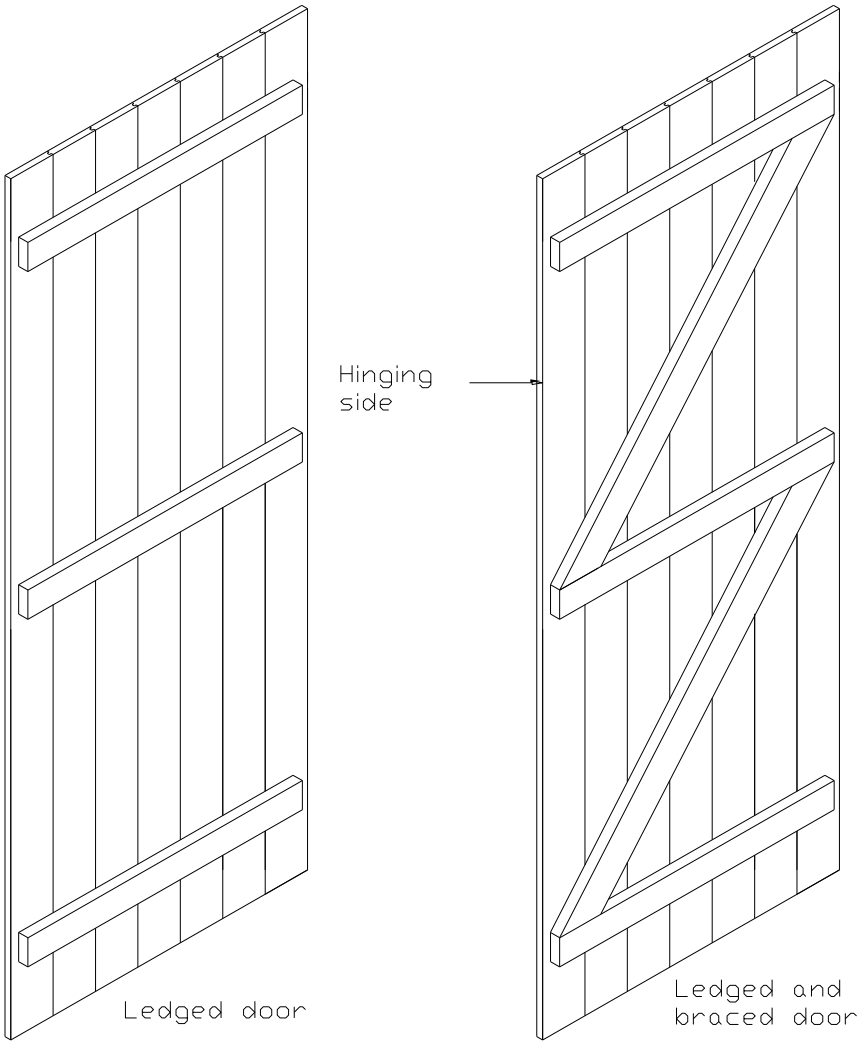


Fig 2.8c Isometric views

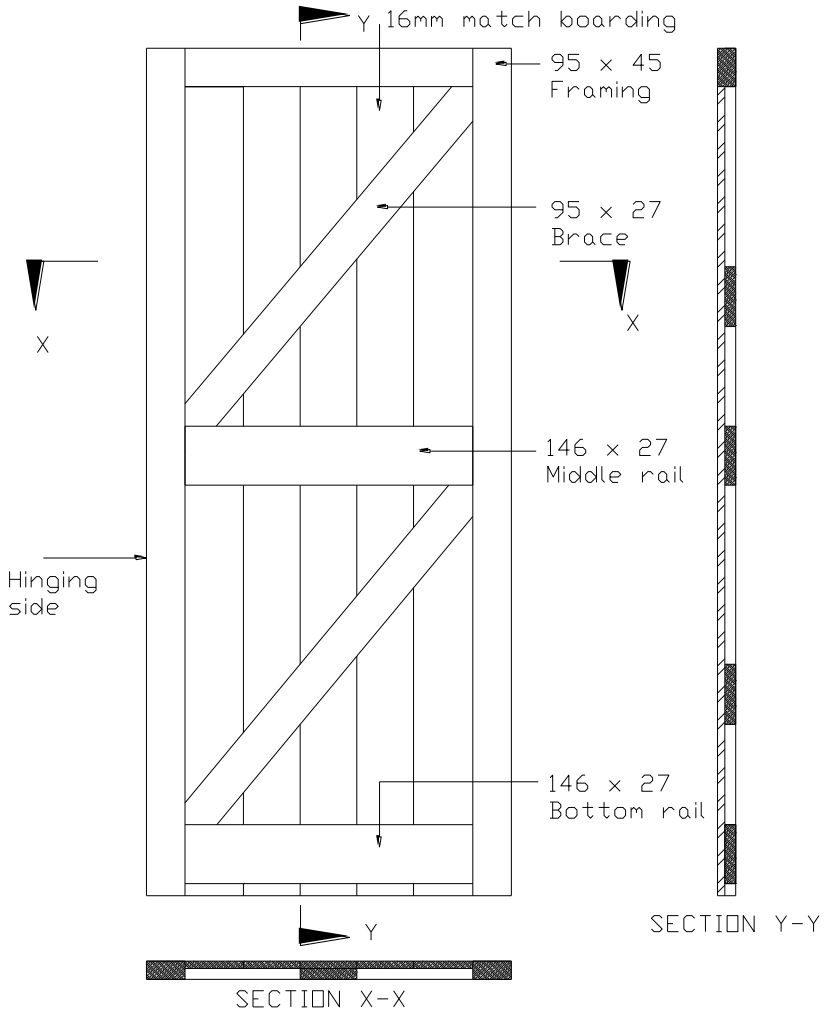


Fig 2.8d Framed, ledged and braced door

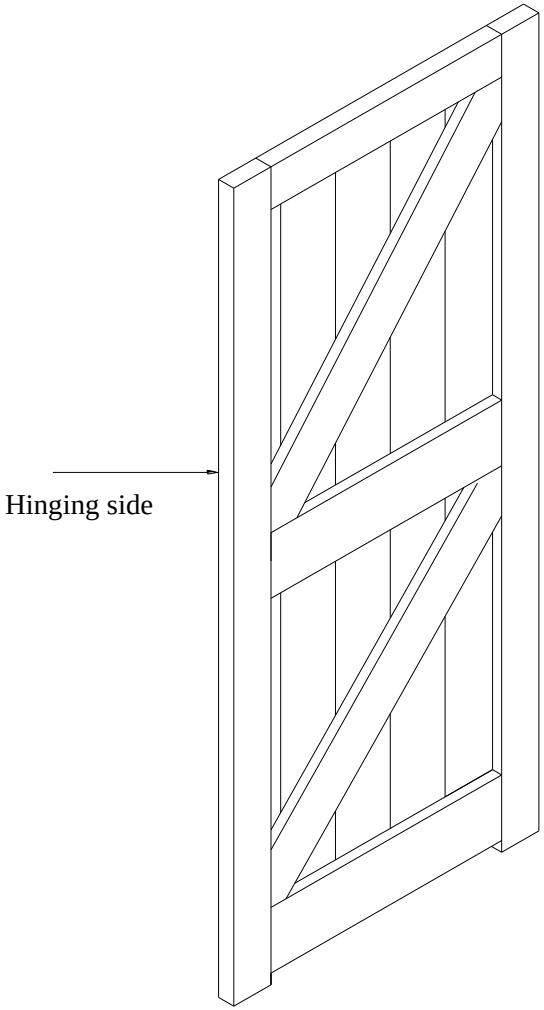


Fig 2.8e Isometric view of Framed door

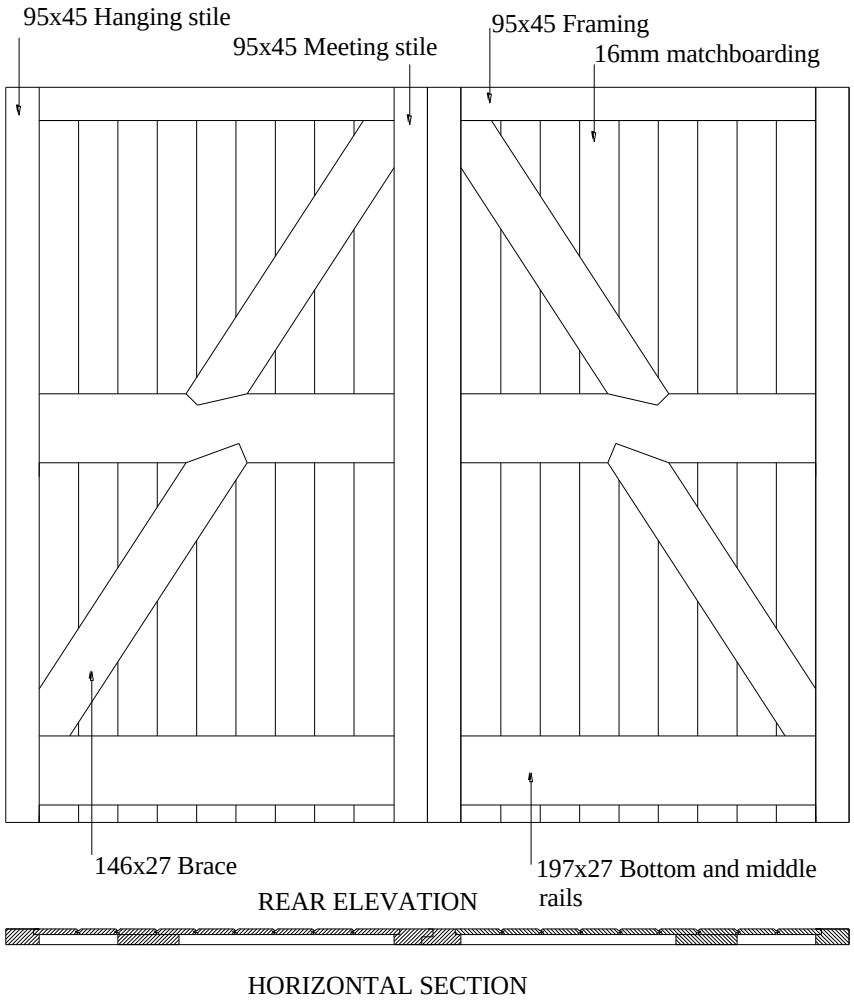


Fig 2.8f Match boarded double leaf door

Panelled doors

These doors are usually described by the number of panels that they contain and these vary from one to six panels. The panel may be raised on one side or both sides of the door.

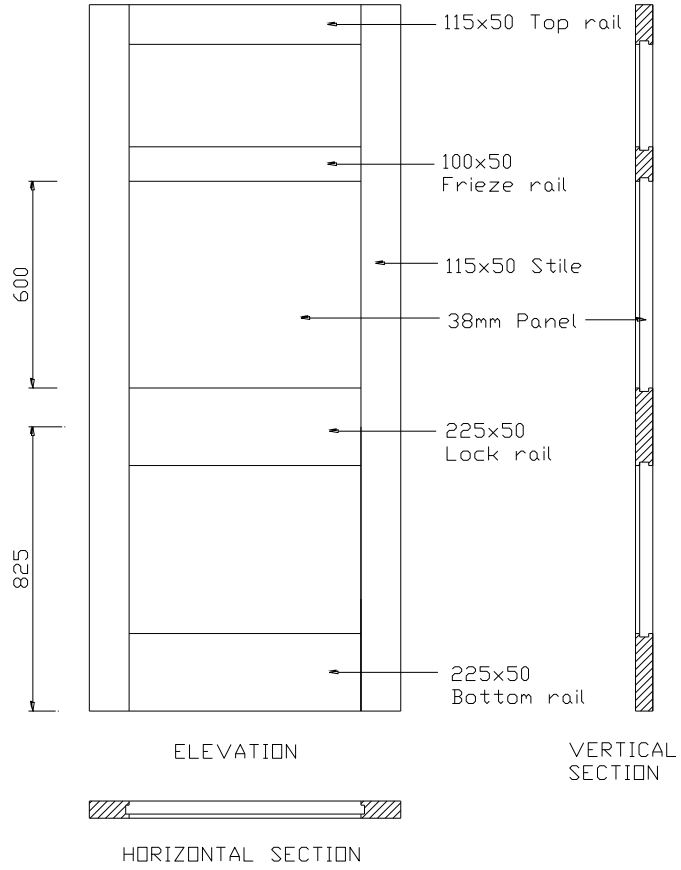


Fig 2.8g Panelled door (three panelled door)

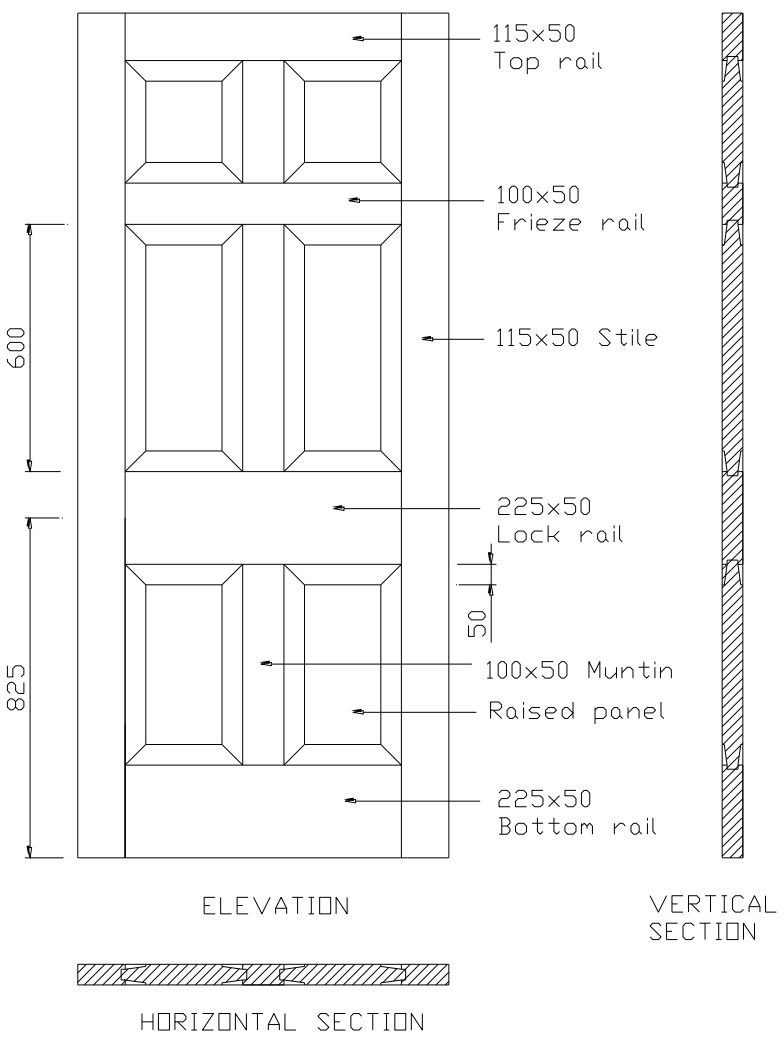


Fig 2.8h Six-paneled door with raised panels

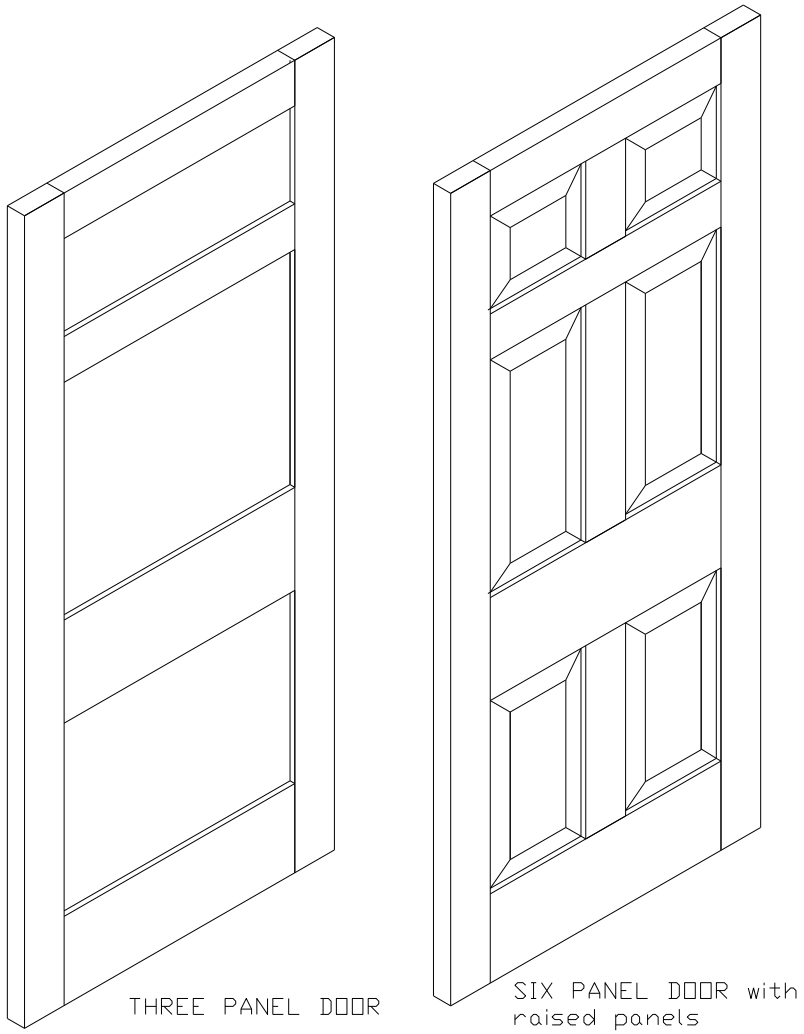


Fig 2.8j Isometric view of panelled doors

Flush doors

These are doors faced with a hard board, plywood or plastic laminate to give a plain face that is easy to clean and decorate. The doors are classified depending on the core used.

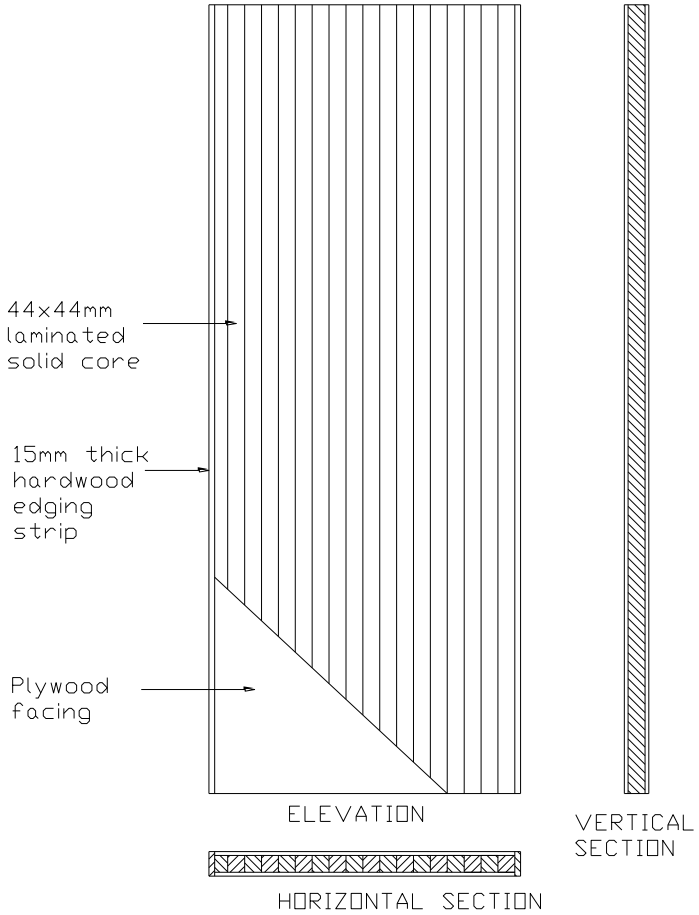
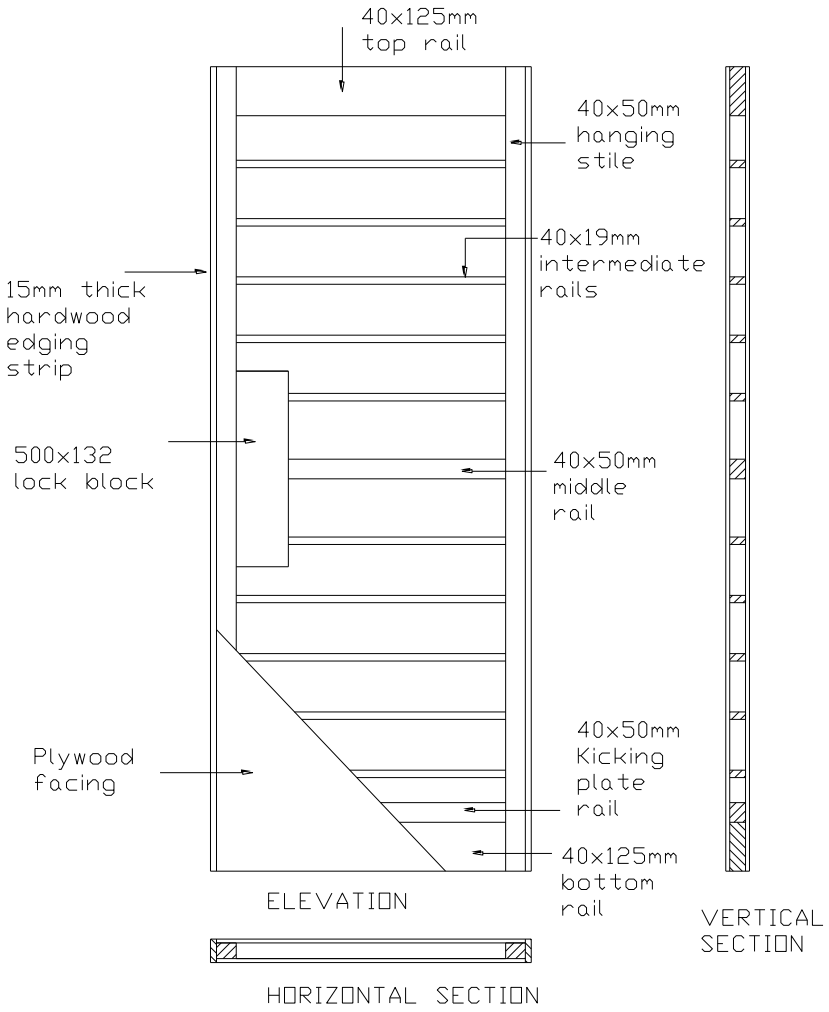


Fig 2.8k Solid core flush door



doors Fig 2.8m Timber railed /skeleton core flush door

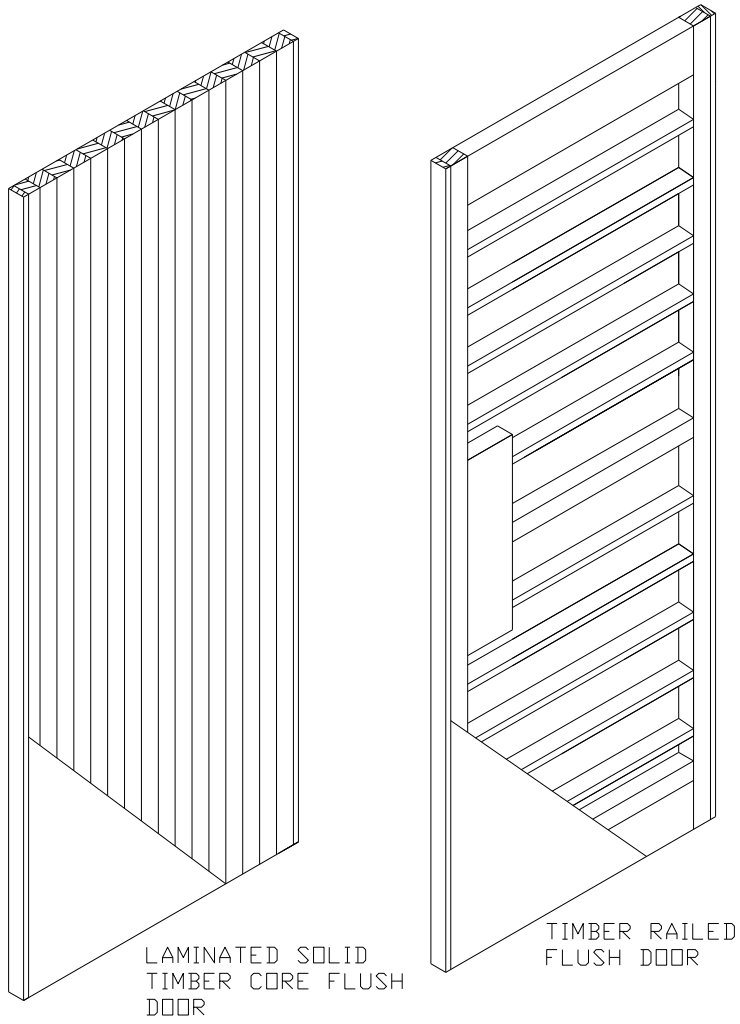


Fig 2.8n Isometric view of flush

WINDOWS

A window is an opening formed in a wall or roof that admits daylight through some transparent or translucent material fixed in the window opening. This primary function of the window is served by a sheet of glass fixed in a frame of the window opening. The two major types of windows are the timber casement and the steel casement window. **See fig 2.9**

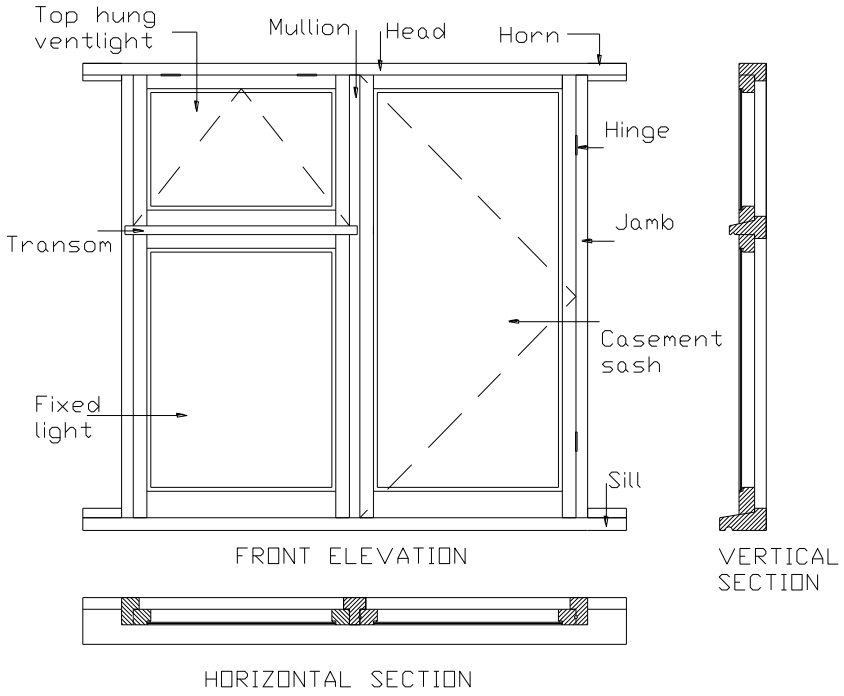


Fig 2.9a Timber casement window

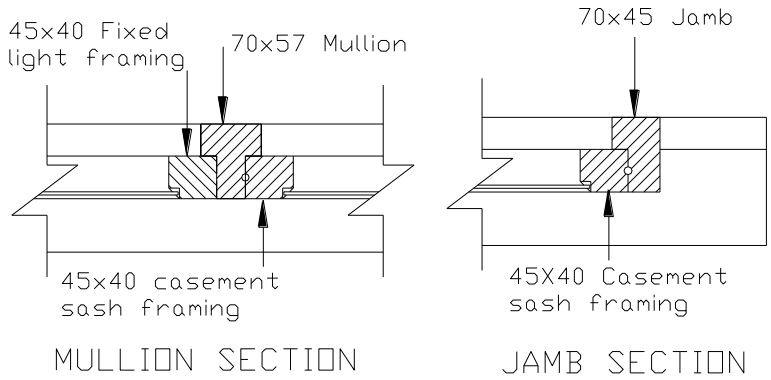


Fig 2.9b Horizontal section details and dimensions

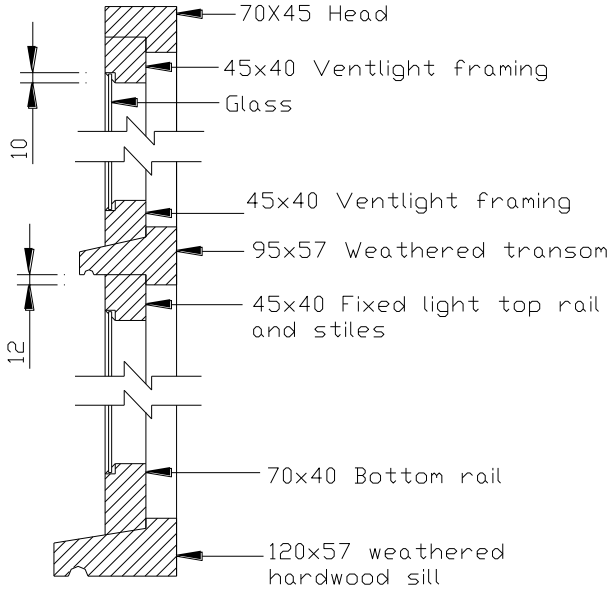


Fig 2.9c Vertical section details and dimension

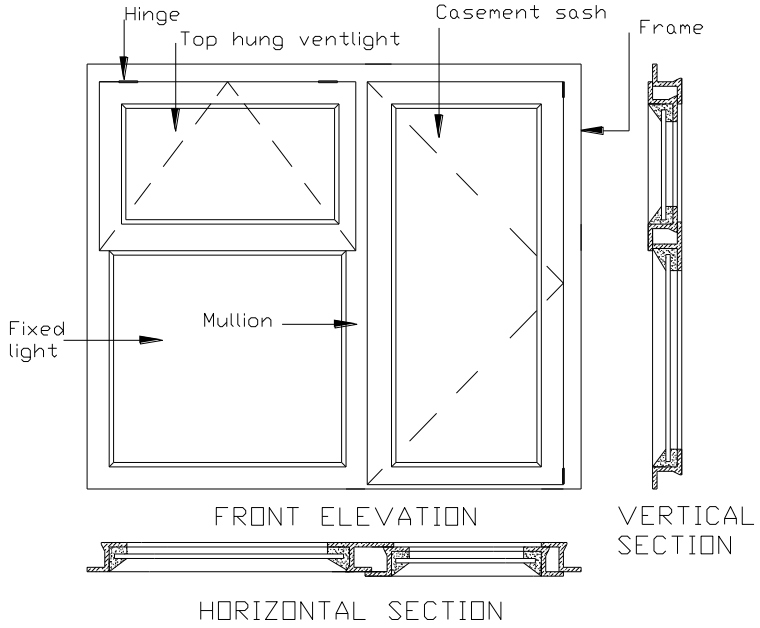


Fig 2.9d Steel casement window

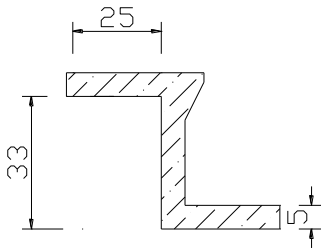


Fig 2.9e Details of a rebated angle bar (25x33)

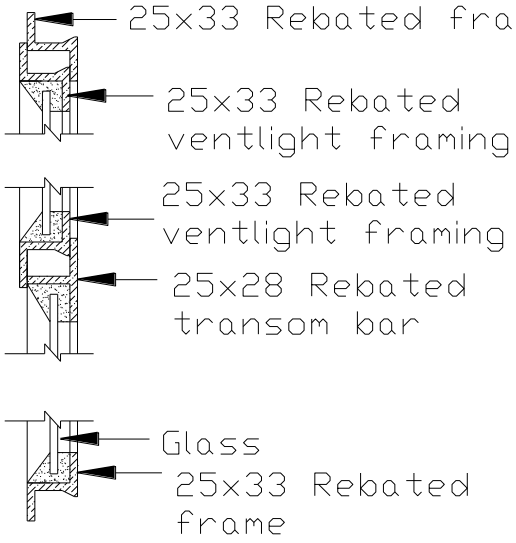


Fig 2.9f Vertical section details and dimensions

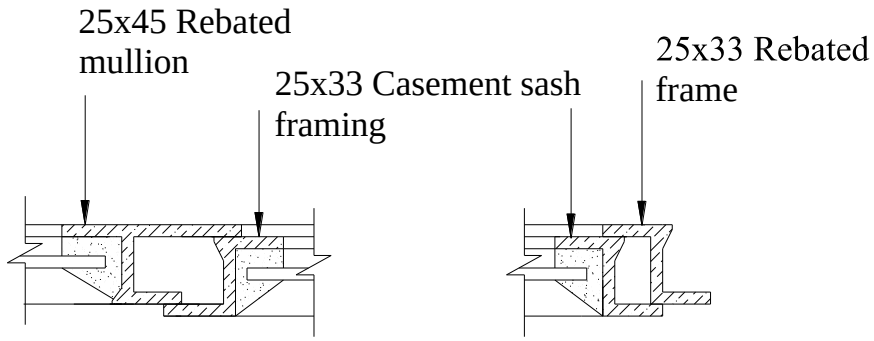


Fig 2.9g Horizontal section details and dimensions