CARPENTRY & JOINERY

Community College HACKNEY

FCA

CARPENTRY & JOINERY

THEORY

04 WINDOWS

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INTRODUCTION

A window is a glazed frame which is built into the fabric of a house to admit light and to allow a reasonable circulation of air throughout the building.

Windows are classified into types by the way in which they open. This can vary acording to the needs of the occupant or the whim of the architect who designs the building.

Basically the classifications are as follows:
• Direct glazed windows – windows with direct fixed glazing and no sashes or casements.
• Casement windows – windows with casements which are fixed, hinged or pivoted.
• Sash windows (sometimes called box windows) with sashes that slide vertically or horizontally within the frame.

The classifications can be further classified by the way in which the sashes or casements are designed to be incorporated within the window.

These classifications are as follows:
• Straight windows.
• Bay windows (square or splayed).
• Bow windows.

Windows are manufactured in a variety of softwood and hardwood timbers each with its own design and specifications offering the designer a wide choice.

Modern innovations have led to a great demand for uPVC windows. These windows are manufactured from extruded uPVC plastic sections joined together to form a complete soundproof unit which is impervious the wind and weather.

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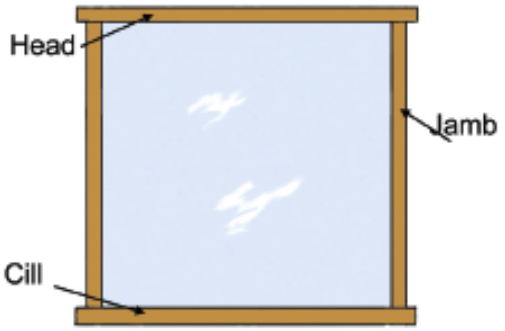
WINDOW COMPONENTS

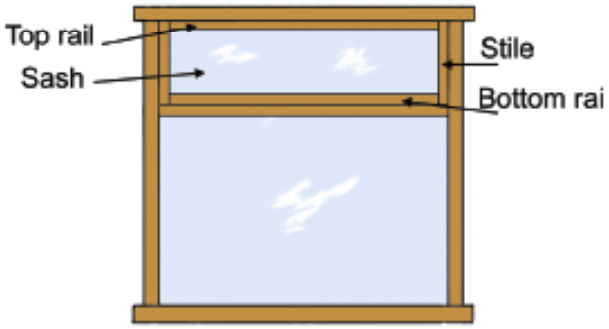
A window comprises of two main parts:
- A frame.
- A fixed or opening sash or casement.

THE FRAME

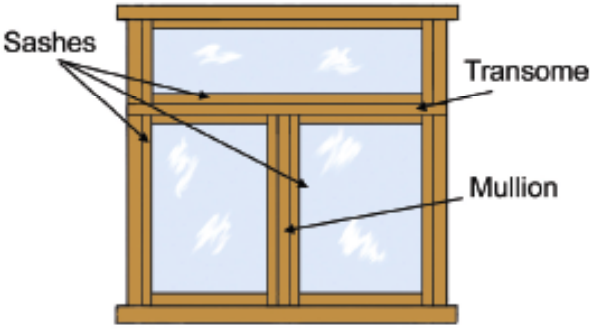
The frame consists of a number of components joined together to form a strong solid unit into which glass can be fitted, or one or more sashes or casements can be fitted.
The components of the frame are as follows:



Direct glazed window



Window with one opening top sash



Window with three opening sashes

FRAME COMPONENTS

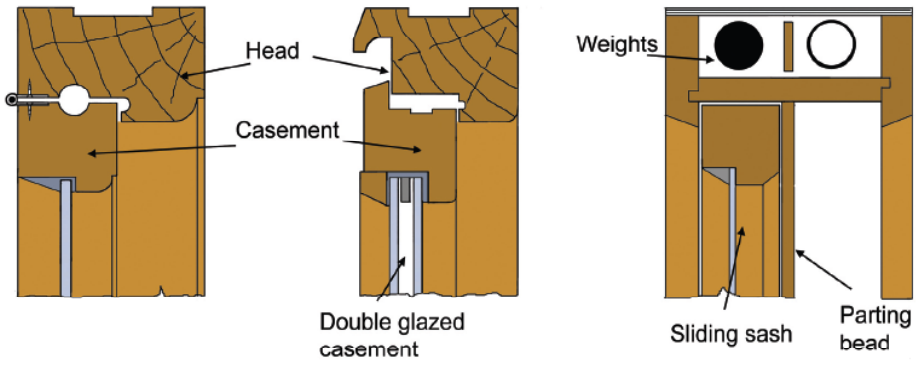
The names of the parts of a window will vary according to the type and design of window.
The names of the components are as follows:
Head – The top horizontal component of the frame.
Cill – The bottom horizontal component of the frame.
Jambs – The outer vertical component of the frame.
Transom – The horizontal component between the head and the cill.
Mullion – The vertical component between the two jambs.

CASEMENT & SASH COMPONENTS

The names of the casement and sash components will also vary according to the type and design of the window. The names are as follows:
Top rail – The top horizontal component of the casement.
Bottom rail – The bottom horizontal component of the casement.
Stiles-The vertical components of the casement.
Glazing bars – The vertical and horizontal components built into the casement for the purpose of glazing.

Casements and sashes can be incorporated into the frame in a number of ways.
Casements can be:
• Fitted into full rebates, the depth of the casement within the frame.
• Fitted into smaller rebates where the casement is rebated over the face of the frame.

Sashes can be:
• Fitted into channels and separated by a wooden parting bead. The sashes are lifted and dropped by means of a system of pulleys, or a spiral spring.



Casement into full rebate

Casement into smaller rebate and rebate over face of the frame

Sliding sash lifted and dropped by cast iron weight

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TRADITIONAL CASEMENT WINDOWS

Traditional windows are windows that have been traditionally constructed for many years. Some old properties still have traditional windows installed, but innovations and new designs have superseded this type of window.

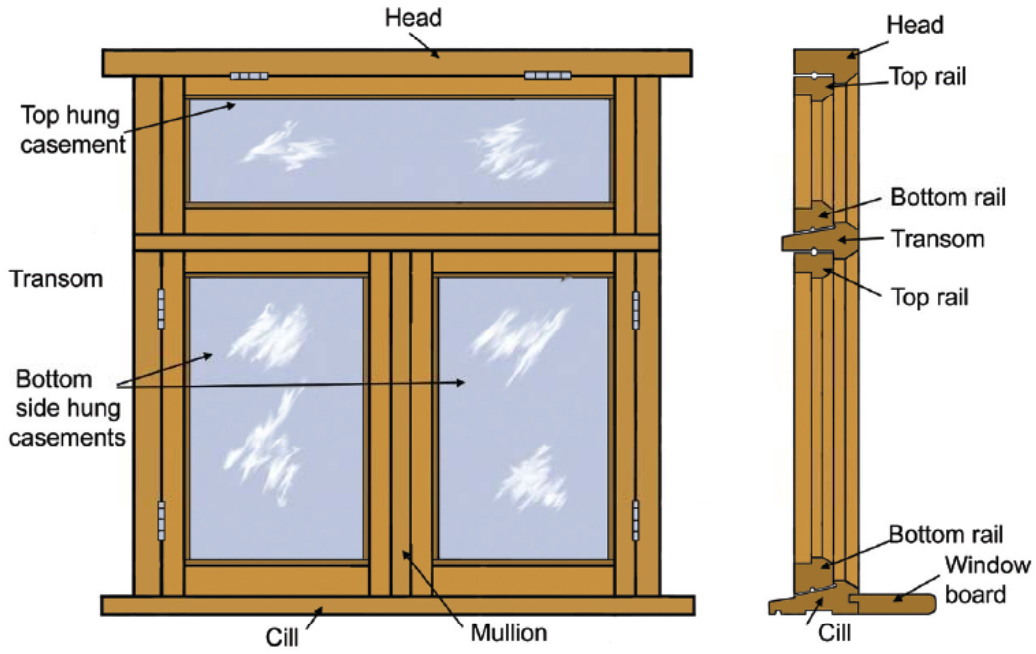
There are many designs of this type of window, but basically the window consists of an outer frame into which casements are fitted. The casements fit in rebates the full depth of the casement with a small allowance around so that the casement can open and close without binding on the frame.

To prevent water penetration, both the frame and the casement have anti–capillary grooves machined all around the rebates and the edges of the casement.

Any opening casements are hung on steel butts with casement stays or fasteners fitted.

The cill and transom are much wider than the rest of the frame. These components extend over the front of the frame and they have a drip groove machined into the underside and a throat . These grooves prevent wind assisted rain water from penetrating into the gap between the casement and the frame and getting into the building. Both the front of the cill and transom have a slope called a weathering which allows water to run off the front of the window.

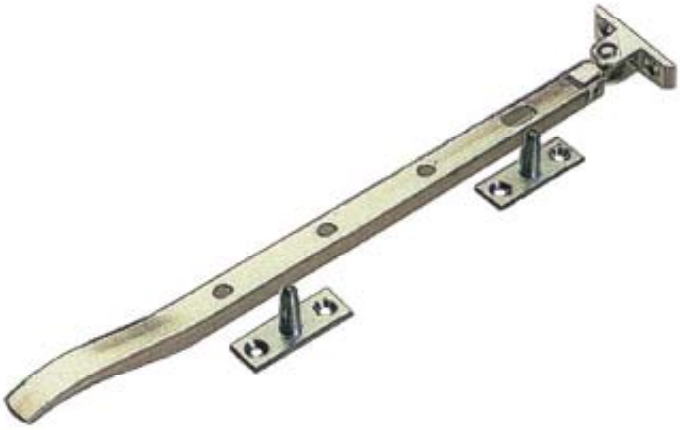
All joints used in the construction of the frame and the casements are mortice and tenon joints.



Traditional casement window

Traditional cesement window ironmongery

Wedge casement fastener



Casement stay

Brass casement fastener

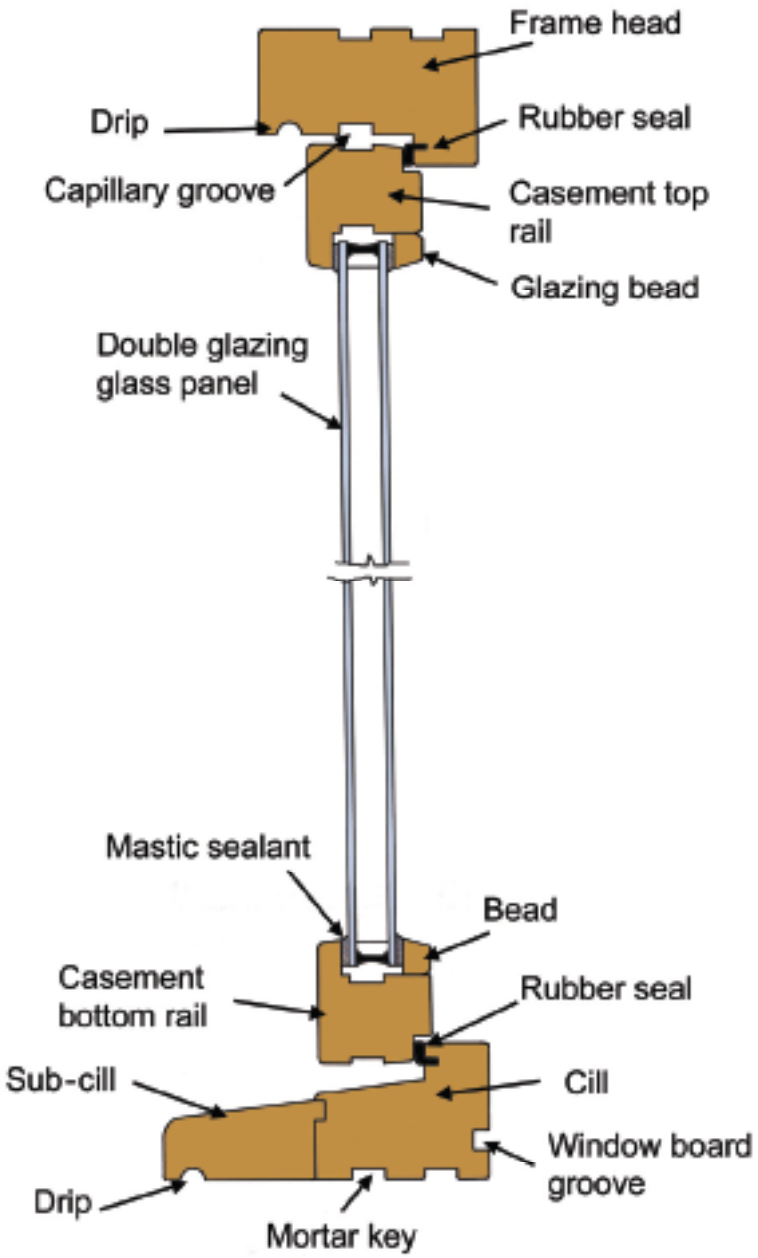
Brass casement stay

STORMPROOF CASEMENT WINDOW

There are many variations in the design and construction of this type of window. Most manufacturers have their own designs, but all of them revolve around the same principle of prevent the ingress of water, retaining room heat and providing a more soundproof environment.

Unlike traditional casement windows, stormproof casement windows have their casements inserted into partial rebates and the face of the casement is rebated over the front face of the frame.

Below is a typical example of a new, advanced stormproof casement window which includes a rubber seal around all casement openings to increase efficiency.



Stormproof casement window

Stormproof window ironmongery

Cranked hinge

Casement stay

Friction hinges

Casement fasteners

QUICK REFERENCE GUIDE

• A window is a glazed frame which is built into the fabric of a house to admit light and to allow a reasonable circulation of air throughout the building.
• Windows are classified into types by the way in which they open.
• Direct glazed windows are windows with direct fixed glazing and no sashes or casements.
• Casement windows are windows with casements which are fixed, hinged or pivoted.
• Sash windows are windows with sashes that slide vertically or horizontally within the frame.
• A window is comprised of two main parts, a frame and a fixed or opening sash or casement.
• A head is the top horizontal component of the frame.
• A cill is the bottom horizontal component of the frame.
• A jamb is the outer vertical component of the frame.
• A transom is the horizontal component between the head and the cill.
• A mullion is the vertical component between the two jambs.
• Windows are manufactured in a wide range of shapes and sizes, but most manufacturers produce their own range of designs and all of them produce windows to recognised stock sizes.
• Traditional windows are windows that have been traditionally constructed for many years.
• The cill and transom of a traditional casement window are much wider than the rest of the frame.

HOMEWORK

In a traditional casement window frame, name:
a) The vertical member that separates two casements.
b) The horizontal member that separates two casements.

a) _____

b) _____

What is the principal joint used to join the frame of a traditional casement window frame together?

_____

_____

With regard to a window cill, use a sketch to describe the terms:
• Weathering.
• Rebate.
• Mortar groove.
• Throating.
• Window board groove.
• Moulding.