

Guidance Note: Traditional Casement Windows

Repair and Replacement



January 2011

Introduction

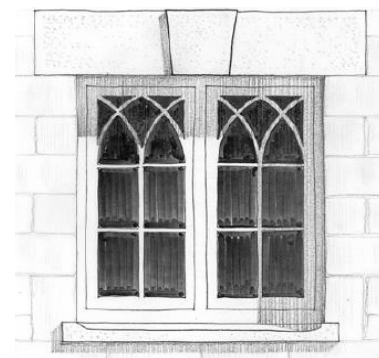
Windows can be thought of as the eyes of a building. They reflect the development in design and technology that has been seen throughout recent centuries. Casement windows were the most common form of window before the introduction of sash windows in the 17th century. Subdivided by glazing bars, joining together the small panes of glass, the earlier designs had the opening part of the window, the 'casement', made of iron with lead latticing to the glass. By around 1840, the beginning of the Victorian period, the frames and opening casements were made entirely of timber.

Design

Casement windows would be hinged, usually on the vertical, and could be latched shut with an iron catch, or held open with an iron stay. Glazing within the casement is most commonly seen as 6 panes per window however, designs were occasionally elaborated by the use of Gothic arches or smaller panes, especially during the mid-nineteenth century. From then, though, glass technology improved and the number of panes per casement were reduced to two with one horizontal glazing bar. Traditional windows were usually no wider than about 450mm (18") per casement. The newer glass-making processes produced much larger sheets although many imperfections occurred, and these can often be seen in the poorer quality glass used in cottage casements. Modern Polished Plate glass has no imperfections, and has none of the special character of the older material.



Six-pane casement windows



Gothic arch casement windows



Traditional casement window development

Pre-14th century

The earliest examples of windows can be seen from the Norman period and most commonly found in churches. Glass was an expensive commodity, thereby windows were often unglazed with the openings shuttered or covered by horn or wooden lattice. Windows were often relatively small to stop the weather entering the building, however, to maximise light the internal window reveals were often chamfered.

14th - 17th centuries

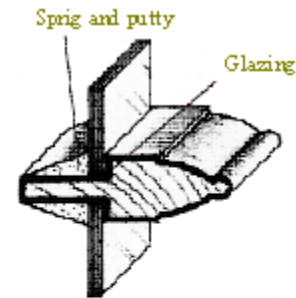
During this period windows were more frequently glazed but glass was still expensive. Large panes of glass were not manufactured at this time, which meant that windows had multiple panes set in lead bars to hold the structure together. These are often referred to as 'leaded lights'. The window glass was set in stone or timber mullions and transoms. However, many of the windows did not open, with those that did set into an iron frame.

18th century onwards

The use of heavier frames such as stone mullion and transoms and big timber frames began to give way to more slender frames during this period. Leaded lights were replaced by larger panes and jambs, cills, and head were pegged with mortice and tenon.

The glass was now directly affixed in a rebate in the frame with sprigs and putty. The inner edge of the frame was usually moulded with glazing bars. In traditional construction glazing bar mouldings meet at mitred corners, and were never routed after assembly (rounding the inner edges) as is common today. Traditional glazing profiles can be seen adjacent.

Typical Glazing Bar Moulds



Historical Accuracy

Storm proofing and trickle vents

The opening light of traditional casements were always set flush with the frame or recessed when closed. This distinguishes a traditional casement from many modern 'off the peg' windows that are storm proofed, where the opening lights sits atop the frame.

Trickle vents that provide background ventilation are commonly seen in modern windows, these however were not part of traditional casements. In many cases this type of ventilation is not needed as ventilation can be achieved in other ways by additional air vents or ventilation latch on the window itself.

Side hung or top hung

Casement windows would usually be hinged down the vertical side (side hung). Hinging the entire opening window along the top edge (top hung) was uncommon and hinging only a small section of window to provide a small top opener was also uncommon up until the 20th century. Top hung windows are often inappropriate in older properties.

Routed window frames

The profile of a frame should always be determined before assembly as traditional casement glazing bars were mitred to the frame. Any machine routing after assembly is not appropriate to the character of the traditional windows and will not be accepted.

Cills and drip mouldings

Casement windows were traditionally set into stone surrounds and therefore did not have a timber cill. The masonry below the frame acted like a cill and directed the rainwater away from the window. It is therefore undesirable in most cases to have a timber cill on a casement window. Casement windows are simplistic in nature and therefore any extra adornments, such as drip mouldings, are not appropriate.

Legal Position

When altering a listed property in any way, including the windows, approval from the District Planning Authority must be obtained in the form of Listed Building Consent. This is due to the fact that any change could be detrimental to the building's character, its special architectural interest or its historic interest. If any work is carried out on a listed property without consent it is considered a criminal offence and the offender could be liable to prosecution and/or the expense of rectifying the change. For unlisted residential buildings, Planning Permission is not usually required for replacing windows. Properties within Conservation Areas may be the subject of an Article 4 Direction; in this case Planning Permission may be required. To be sure of the legal position, it is always advisable to check with the District Planning Authority before commencing any works to a historic building's fabric.

Maintenance and Repair

The homeowner should regularly inspect windows ideally every year and a qualified professional should be brought in to check the windows every 4/5 years. Typical problems that are encountered when maintaining casement windows include:

- **Cracked and flaking paintwork.**

The outside of a window should be repainted every 5 to 8 years to help protect the timber from deterioration and to also improve appearance. (See external treatment for paint advice)

- **Hinges**

Hinges and moving metalwork should be occasionally lubricated with a drop of mineral oil. This can be applied on the tip of a paintbrush or similar to prevent spillage.

- **Failed Putty and Broken Glass**

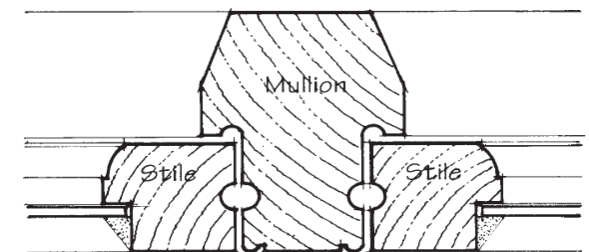
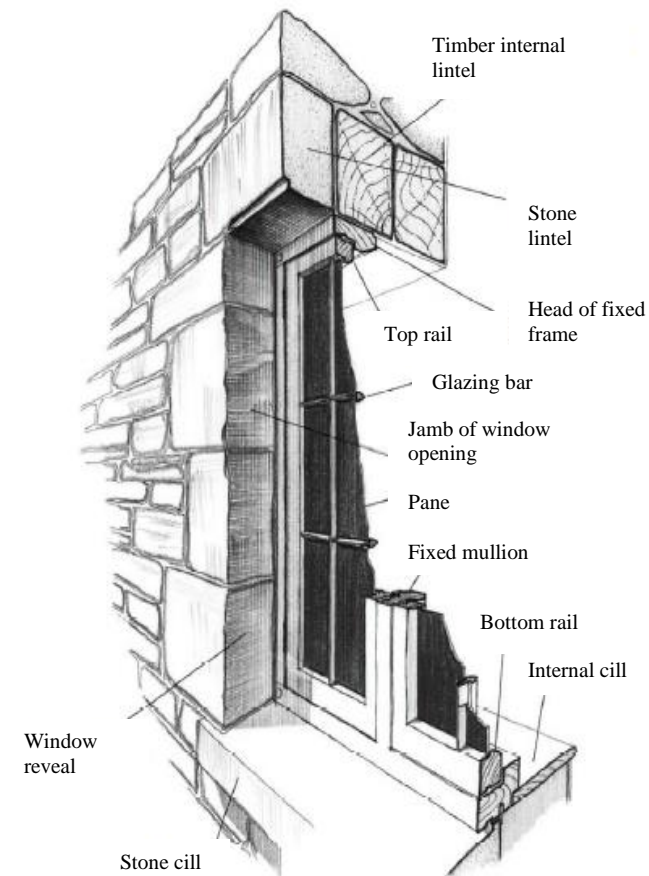
Replacing either the putty or glass panes easily rectifies these problems.

- **Timber Decay**

Timber decay is usually seen localised to the bottom part of a window usually the found on the bottom rail. (See Figure adjacent for construction detail.) The decay is most likely to be caused by wet rot, but in certain instances woodworm or dry rot could have affected the frame. If dry rot is suspected advice should be sought from a specialist. Fillers can be used for minor decay and surface imperfections and where there are loose corner joints corner brackets could be used and painted over. For more significant repairs involving the removal of the decayed timber a skilled joiner should and consulted.

- **Leaks and Draughts**

Leaks and draughts are usually due to a misalignment of the window. Removing the pointing and fixing the window back to its original position is the best way of rectifying the problem. If building settlement or movement has led to the frame becoming twisted making it impossible to put the window back in its original place it is often advisable to contact a specialist firm who can install draught stripping and also refurbish the windows. A secondary glazing system could also be considered to retain heat and reduce bills.



Cross section through a flush fitting (not storm-proofed) casement window (courtesy of Tewkesbury Borough Council)

Repair Suggestions:

- Repair rather than replace wherever possible.
- Do not alter window openings in proportion or detail as they help to establish character.
- Retain and reuse all historic details, including old glass, window fittings and ironwork.
- Replace damaged or missing pieces with accurate modern reproductions or reclaimed originals that match those that have survived.
- Consider installing modern weather-stripping seals.
- Use heavy curtains and internal shutters, or consider the installation of a lightweight secondary glazing to reduce heat loss.

Replacement

It is normally aesthetically pleasing and cost-effective to repair rather than replace a casement window. Although double-glazing is popular and provides some benefit in terms of energy conservation, it is a poor substitute for an authentic single glazed sash window. Weather-stripping single-glazed windows is much more economical. In aesthetic terms, it is virtually impossible to replicate the fine details and dimensions of a typical historic window when using double-glazed units. Although fake glazing bars are incorporated in some types of double-glazing, they cannot match the delicately moulded glazing bars that are

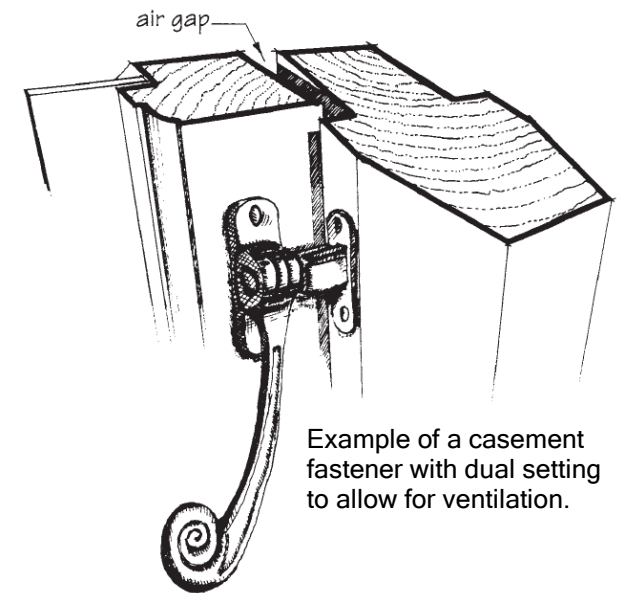
characteristic of Georgian or Victorian windows. The glass used also has an entirely different visual character from historic glass. The end result is a window that may look superficially similar, but has very little historic accuracy.

Replacement suggestions:

- Retain the original depth of window.
- Incorporate glazing bars of the appropriate thickness and profile, which will usually be that of the glazing bars being replaced.
- Ensure that the opening method and mechanism match that of the original window.
- Do not assume that building regulations require the use of double-glazing or trickle vents, as this is not the case. The character of a historic building will be compromised by the use of double-glazing and or trickle vents.

External Treatment

In most cases, joinery should always be painted. It is a common misconception that windows were traditionally stained. Almost all windows have been painted since the start of the 18th century. For much of the 18th century windows were painted a Georgian white (which is not comparable with the modern day white) however by the 1780's, windows began to be painted in darker hues. Dark greys, greens and browns were popularly used for fashionable homes. Many of these colours were over painted in the late 19th



Useful Contacts

English Heritage

Regional Office
44 Derngate
Northampton
NN1 1UH
01604 735400

The Society for the Protection of Ancient Buildings (S.P.A.B.)

37 Spital Square
London
E1 6DY
020 73771644

The Georgian Group

6 Fitzroy Square
London
W1P 6DX
020 73871720

The Victorian Society

1 Priory Gardens
London
W4 1T
020 89941016

The Twentieth Century Society

70 Cowcross Street
Bedford Park
London
EC1M 6EJ
020 72503857

century in keeping with 'Queen Anne' style. A favourite Victorian technique was graining, a process of painting softwood, in particular front doors and window joinery, to imitate hardwood. Another trend was to paint windows two in tones, with the outer framework being a darker colour than the inner sash.

If there is no evidence of darker hues on the window frames it may be necessary to play it safe and keep it to an off white. If a darker paint is more desirable and is found to be more appropriate, a selection of acceptable colours can be seen to the right. The choice of colour that is acceptable on historic buildings depends on the period and architectural style of the building, the material to be painted and in some cases the location of the building. However for listed buildings, changing the colour of external joinery, walls and rainwater goods will often require Listed Building Consent. It is always advisable to contact the Local Planning Authority with any queries before work is carried out.

Advice

If in doubt about the character of your street or property, seek professional advice. The District Planning Authority's Conservation Team can offer advice on traditional window design and may be able to suggest firms who have supplied windows for historic property restoration, which have previously been approved. If you are in any doubt at all, owners should discuss their proposals with the District Planning Authority at an early stage.

Finally, make sure that anyone promoting or selling replacement windows knows that your property is in a Conservation Area or whether it is a Listed Building. They could be liable if they advise you to proceed with inappropriate work without planning or listed building approval.



The above colour swatch gives an idea of the type of acceptable paint colours that would be considered by the Local Planning Authority when repainting the outside facade of a window.

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