

Conservation in Tendring



Listed Buildings

Technical Advice on Windows & Window Details

Tendring
District Council





This advice is provided to guide those preparing applications for planning permission and/or Listed Building Consent. More general advice on both Listed Buildings and buildings in Conservation Areas can be found in the two advisory Leaflets which are related to this series of publications.

1 Introduction

Windows are an important feature of any Listed Building and they comprise a very significant part of the building's history. They are the single element which most serves to establish the character of the building. Traditional, historic windows are such an important part of a Listed Building's fabric that they should always be retained and repaired rather than replaced by modern examples.

This leaflet highlights the case to retain historic windows in the District's Listed Buildings.

2 Repairs

With all work to windows it is important to assess what you are dealing with historically before you start. The following guidance in this publication will provide a useful overview of this, whilst the publications referred to at the end of the leaflet give even more detailed guidance. Applicants and their agents are strongly recommended to refer to these other documents.

Traditional windows themselves are composite structures of timber, glass and metal, each part of which can be repaired as a separate element when required.

Whenever possible the original fixtures and fittings of historic windows (hinges, catches, pulleys, handles, stays etc.) should be kept for refurbishment and re-use on the window being repaired.



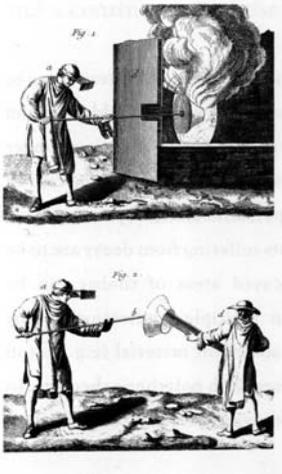
Various historic window styles, Harwich



Repair to wooden window frame

Traditional, historic windows in Listed Buildings should be retained and repaired rather than be replaced

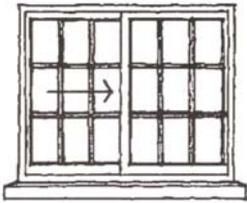
3 Glass



Old illustrations of glass making

When carrying out repairs to historic windows it is important to save for re-use any old glass, which can be carefully removed from old frames by a skilled joiner. This has irreplaceable qualities of unevenness due to the original process of manufacture : cylinder glass was produced by opening out a large blown cylinder of glass whilst Crown glass was produced by spinning a large disc. The centre of this disc, where the pontil was attached, is the bullseye which was generally used in an out of sight location or recycled rather than used as a fake picturesque add on as it is today. The flaws in historic glass catch the light and show off defects which cannot be found in modern glass.

Horticultural glass is a modern substitute that exhibits such defects to some degree and can be used in repairs. When reglazing sash windows, care should be taken to adjust the sash weights for any change in the balance of weights caused by different thickness of glass. In general upper sashes should be slightly lighter than the weights, whilst lower sashes should be slightly heavier. Any glazing should be undertaken using a traditional linseed oil putty rather than modern compounds. Timber beading, which increases the apparent thickness of glazing bars, is particularly unwelcome.



Horizontal sliding sash window

4 Frames

Careful repairs to timber work, maintaining the maximum amount of historic fabric, are preferable to carrying out new work. New sections of framing can be pieced in to match the glazing bars replaced, using existing parts as a pattern. It should be noted that casement frames were traditionally inset within their overall frames, rather than projecting proud of their surrounds as in the weathered casements so popular amongst modern mass-produced window manufacturers.



Horizontal sliding sash window – local example

Sashes can be easily removed from their frames by removing the staff beads on the inside. Sashcords can easily be replaced, access being gained to the sash weights via the removable pockets at the bottom of the pulley stiles. Replacement cords can be in jute, cotton or nylon. The styles of sashes should not be painted but lubricated with

wax, and not eased after a building has remained empty for some time as heat and ventilation can often do the trick.

The appropriate finish for historic windows after the 17th Century is generally paint, most often white, and certainly not a modern stain. For complete authenticity on a Grade I or II* Listed Building, permission can be obtained to use a traditional lead based paint.

5 Window Surrounds

When renovating a window by repair it is important to remedy at the same time any defects in the surrounding fabric that may have initiated the original decay in the window. In this way the repaired material can be guaranteed a longer life. It is thus important to detail the surrounds to replacement or repaired windows properly.

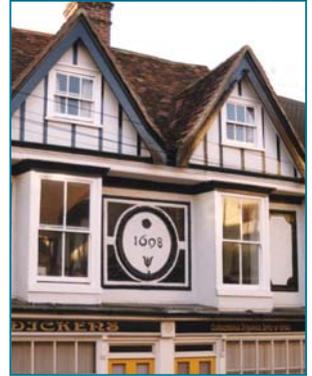
On rendered walls a lay board is often fixed above the window head to throw off the rain and give a pleasing shadow line. Moulded surrounds should be carefully repaired or reinstated using the original as a pattern.

Sill details are also important to maintain their projection varying with different window types. Timber sills are particularly vulnerable to rot and if replaced should be of oak or other durable native hardwood.

6 A History of Window Types

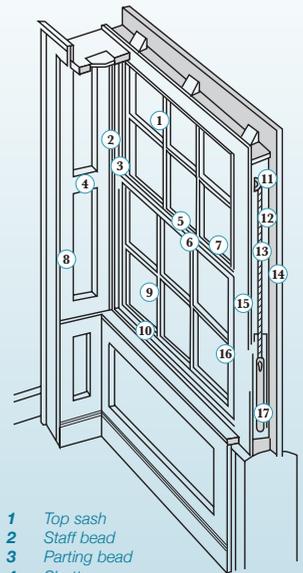
a). Windows originated in timber-framed houses as openings within the frame provided to let light in : the diamond or square cross section mullions of early windows generally followed the lines of the building's timber framing. They were originally unglazed and usually had an internal timber sliding or hinged shutter, the grooves for this being the only remaining clue to their former existence.

b). In the 16th Century. Along with the ceiling of rooms and the provision of floors and chimneys to former open halls windows began to be glazed. Small diamond shaped panes of glass, known as quarries were set in lead cames in fixed or opening iron casement frames within the overall mullioned framework. These usually had ovolo mouldings providing a ledge for fixing the lights using nails.



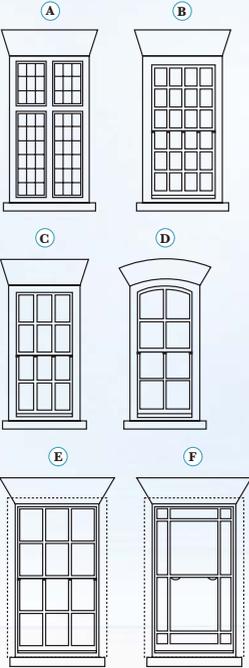
Church Street, Harwich

Sash window construction



- 1 Top sash
- 2 Staff bead
- 3 Parting bead
- 4 Shutter
- 5 Fastener
- 6 Bottom meeting rail
- 7 Top meeting rail
- 8 Shutter box
- 9 Bottom rail
- 10 Pulley
- 11 Pulley stile
- 12 Sash cord
- 13 Outer lining
- 14 Inner lining
- 15 Sash stile
- 16 Pocket
- 17 Sash weight

- A** Late 17th Century cross window with leaded lights
- B** Late 17th century eight over eight sash
- C** Early 18th century sash
- D** Early 18th century sash with segmental headed arch
- E** Late 18th century six over six sash
- F** Regency window with margin lights



c). In the 17th Century the mullion and transom type of window was developed. Usually in oak with leaded light glazing it represents a transitional type towards more vertically oriented windows. The basic pattern was still in use in the nineteenth century but in painted softwood with nine large panes of glass.

d). In the 18th Century, with the greater availability of softwood and larger panes of glass, the side hung timber casement developed from mullioned windows as a cheaper form of construction. Usually with two lights it was less suitable for classical buildings but was commonly used in domestic and gothic style buildings where a central mullion was acceptable.

e). Another more domestic type of window form is the “Yorkshire sash”, a horizontally sliding version of the norm, which did not require the elaborate counterweight system of vertical sashes. This, as its name suggests, was more prevalent in the North of England but there some examples in Tending (See page 3).

Right: 15th Century former farmhouse, The Moot Hall, Clacton with square leaded mullion and transom windows

Below: Ancient House, Ardleigh



f). From the late 17th Century the double hung vertical sliding sash was increasingly used, usually in painted softwood. This presented a more vertically orientated opening in keeping with the fashionable classical proportions being adopted for buildings. Early examples have quite thick ovolo moulded glazing bars and exposed sash boxes containing the counterweights, set flush with the outer face of the wall. Sometimes only one of the sashes was hung.



Early mullion window originally unglazed

g). The London Building Acts of 1709 and 1774 required firstly that sashes be set back 4 inches from the wall face and secondly rebated behind the wall face as a fire precaution. These styles of sash boxes both spread as fashions to the provinces some 20 years later. Gradually through the 18th Century panes of glass became bigger and glazing bars thinner, using lamb's tongue or ogee mouldings. By the end of the 18th century sash windows were also produced with rounded or gothic heads, whilst by the 1830's the margin lights became fashionable.



The Library, Frinton-on-Sea displaying varying window styles

h). In the 19th Century sash windows generally had fewer but larger panes, as a consequence of improved methods of manufacture, together with even thinner glazing bars. This left the sash frame vulnerable to stress and rot particularly at the corners, and resulted in the introduction of horned sashes (*see right*) with a stronger through tenon joint from mid-century onwards.



Ringed - Horned Sashes

i). Late Victorian / Edwardian (Early 20th Century)
In the late Victorian and Edwardian period the Arts and Crafts style properties produced sash windows with segmental heads, flush sash boxes, and sometimes Art Nouveau style leaded glazing in the upper sashes. They illustrate the influence of the Queen Anne revival at that time. Also during this period there is considerable evidence of a revival of the flat frame casement window.



The Grand - Clacton (1897)

The insertion of factory made standard windows of all kinds is almost always damaging to the character and appearance of historic buildings



Church Street, Harwich

j). Metal framed windows - 1930's

During the 1930's Modern Movement or Art Deco buildings were constructed with mild steel windows. The largest surviving group of such buildings in Tendring District can be found in Frinton where at present three examples are listed. The retention of the original steel framed windows is an important factor in the conservation of these buildings but where replacement is considered necessary exact copies of the originals must be sought.

7 Glazing Bars

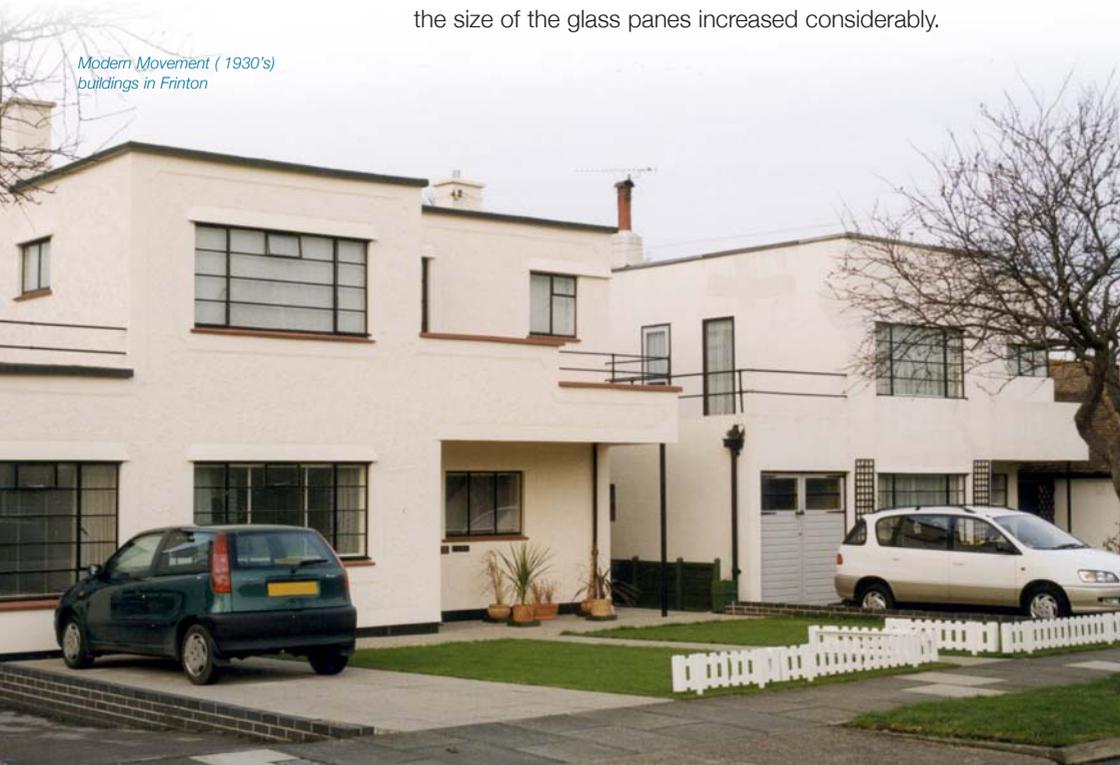


Impressive Listed Building group in Harwich with various window styles

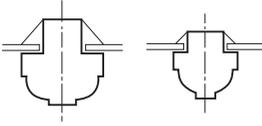
The earliest glazing bars of both sash and casement windows were numerous and thick. On the inside they were moulded to deflect light and reduce glare. On the outside they were rebated to take the glass pane, held in place by putty as they are to this day.

Over the years the cross-sectional area of glazing bars gradually reduced, eventually reaching a point in the late 18th and early 19th Century when width was as little as 13mm (half an inch). As a result these narrow bars were often made of hardwood or even metal. At the same time the size of the glass panes increased considerably.

Modern Movement (1930's) buildings in Frinton



Glazing Bars



Source

Hampton Court

Cupola of Eagle House, Mitchem

Date

1689-94

1705

Width

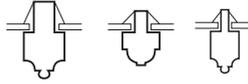
40mm

30mm

Depth

42mm

33mm



Source

Berners London

The Barons Reigate

Beford Square London

Date

c1750

1721

1775-86

Width

22mm

19mm

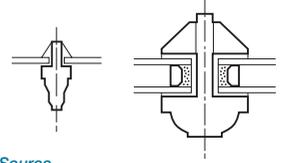
15mm

Depth

44mm

32mm

40mm



Source

Typical Victorian 'lamb's tongue (repo)

Typical modern double glazing bar

Width

15mm

45mm

Depth

35mm

64mm

8 New Windows

The complete replacement of windows should only be a last resort and in a Listed Building this will require consent. If this is done, particular attention should be paid to the use of original mouldings and accurate setting out to the original pattern. With replacement casements the inclusion of additional night vents unbalances a window's elevation and is inappropriate. Most historic windows have already survived periods measured in hundreds of years, although only constructed of deal, a slow grown pine. If properly repaired and reasonably maintained they can be expected to last at least as long again.



Six over six Sash Window, Harwich

Additional or redesigned windows in a listed building, or extension to it should always follow the design criteria already mentioned and be based on authentic precedents.

Applications for Listed Building Consent and Planning Permission for replacement windows must be supported by sufficiently detailed scaled plans at least 1:20 scale. Such plans must depict not only the overall window opening but also the constituent parts of the frame, including the opening lights. The proportions and widths of the glazing bars must be shown which is best done by a combination of detailed elevation and large scale section through the frame.



Late 19th Century windows, Church Street, Harwich



Impressive three storey bay windows in Grade II Listed Building, Harwich*

9 Retaining and Improving Existing Windows

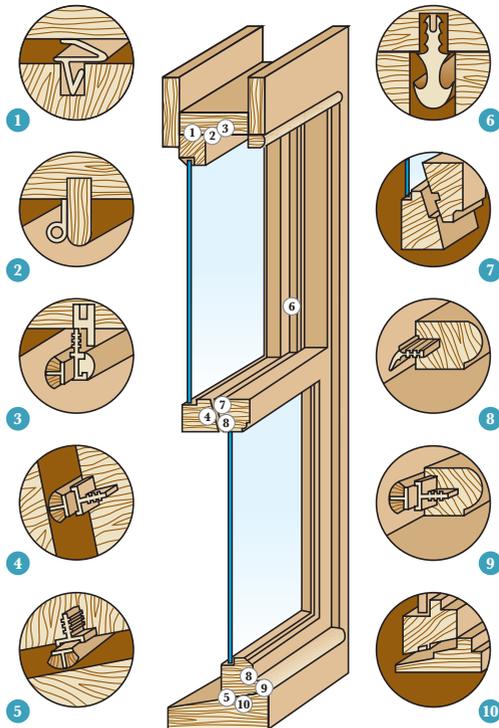
Where original examples exist they should be repaired wherever possible rather than be replaced. If replacement is unavoidable then the new windows should be be historically accurate.

Modern, usually double glazed replacements in metal or plastic frames are definitely not appropriate in historic buildings. The relative improvement of comfort with double-glazing is very little in an older building where the walls can account for the major proportion of heat loss.

Whilst still maintaining the existing windows, the improved performance of modern windows can be achieved in a number of different ways which have less impact on the historic fabric. These include the use of draught strips, secondary glazing and the refurbishment of original shutters. Further information is shown in the English Heritage publication "Energy conservation in traditional buildings." 2008.

Diagram of different window insulation

- 1 Plastic or sprung V or Z -strip
- 2 Glued or painted silicone rubber tubing
- 3 Parting bead (Ventrola)
- 4 Meeting rail brush (Ventrola)
- 5 Bottom sash or sill brush (Ventrola)
- 6 Parting bead weatherstrip (Mighton)
- 7 Brush for meeting rails (Draughtseal)
- 8 Standard weatherstrip (Mighton)
- 9 Staff bead or button rod (Ventrola)
- 10 Silicone seal (Draughtseal)



10 Listed Buildings - Applications for Consent

Applications for Listed Building Consent do not attract a fee which is a recognition that there is a cost incurred in preparing the necessary quality of plans required to accompany such applications. The Council strongly advises the owners of Listed Buildings to engage properly qualified and experienced professionals to prepare such applications.

Such professionals can also provide advice on methods of repair. Wherever possible the Council expects owners of Listed Buildings to explore repair of historic fabric rather than seek to replace it with modern materials.

The advice in this series of leaflets draws on a variety of specialist publications prepared by other organisations including Essex County Council, English Heritage, S.P.A.B. Links to these publications and/or the organisations' websites are given at the end of each leaflet.

11 Further information

The Georgian Group Guides No. 1 Windows

SPAB Technical Pamphlet 13:
The Repair of Wood Windows

English Heritage Listed Building Guidance Leaflet:
Sash Windows

English Heritage Listed Building Guidance Leaflet:
Dormer Windows

English Heritage Window Comparisons Framing Opinions
Leaflet 5

English Heritage Energy Conservation in Traditional
Building 2008

Essex County Council:
The Conservation and Renewal of Timber Windows 2000

Windows: History, Repair and Conservation. Donhead 2007.

Other useful sources of information?

There are various national organisations providing design advice and guidance in relation to Window and Window Details. These include the following:

English Heritage
www.english-heritage.org.uk

Historic Environment Local Management - HELM
www.helm.org.uk

Society for the Protection of Ancient Buildings - SPAB
www.spab.org.uk

The Victorian Society
www.victorian-society.org.uk

The Georgian Group
www.georgiangroup.org.uk

The Twentieth Century Society
www.c20society.demon.co.uk

Institute of Historic Building Conservation
www.ihbc.org.uk

Historic Towns Forum
www.historictownsforum.org.uk

Essex County Council
www.essex.gov.uk

Communities and Local Government
www.communities.gov.uk

Note; Tendring District Council is not responsible for the content of any external websites.

Windows & Window Details

For more information write to:

Planning Services

Tendring District Council
Council Offices
Weeley
Clacton-On-Sea
Essex CO16 9AJ

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