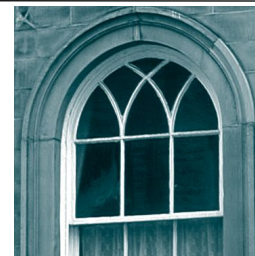


1g

Maintenance, Repair and Restoration

Windows & Doors



The Conservation Value of Traditional Windows and Doors

The earliest windows in the district's conservation areas are small lead or metal framed windows with small panes of glass held in place by a lead framework or lattice, and opened on side hinges. Later versions of these windows, called side-hung casements were in timber, with a timber frame dividing slightly larger panes of glass. Timber sliding sash windows became used in the district over the course of the 18th century. However, until the late 18th century it was still common for humble buildings such as cottages to have timber side hung casement windows. In early windows (both sash and casement) the glazing bars were thick to support the fragile glass, but as glass making technology improved and glass became thicker, glazing bars became thinner. By the mid-19th century the popularity and cheapness of plate glass meant that sash windows with a single pane of glass in each sash could be made. One-over-one or two-over-two pane sash windows are common Victorian details. Sash windows remained popular well into the 20th century, with some sash windows from the early 20th century having many small panes of glass in the upper sash as a decoration.



The doors of the earliest buildings in the district's conservation areas were typically vertical timber board doors. Panelled doors, particularly four panelled doors, became commonly used from the 1830s. This said, some joiners would use their own arrangement of panels, while higher status houses might have specially designed panel doors, sometimes incorporating glazing. In the 20th century panel doors often incorporated glazing with leaded and stained glass and doors of this style continued to be used until the Second World War.

Often seen in the modern day as an ephemeral part of a house requiring periodic replacement, timber windows and doors are valuable period details which make an important contribution to the historic character and appearance of individual buildings and the streets of conservation areas. If properly maintained timber windows and doors can last for 200 or even 250 years if not longer. Modern uPVC and aluminium windows appear to be a maintenance free solution, but have a limited lifespan, as they cannot be easily repaired or renewed. These modern types of windows do not replicate the visual qualities of traditional sash or casement windows and appear at odds with historic buildings, harming the overall character of conservation areas.



It is of great importance to old houses and conservation areas that their windows and doors conform to the appropriate type and style, as it is these features which can have a significant bearing on the character and appearance of a house or area.



A Comparison of Materials Used for Windows and Doors

| | Retain original or traditional timber window or door | Replace with new timber window or door | Replace with uPVC window or door | Replace with aluminium window or door |
|--|--|--|--|--|
| Historical Use | Used for doors since at least the middle ages and commonly for windows from the late 1600's onwards. | Used for doors since at least the middle ages and commonly for windows from the late 1600's onwards. | uPVC invented in 1977. Used for doors and windows from 1980s onwards. | Replacement aluminium doors and window frames came onto the market in the 1960s. |
| Conservation Value | Traditional or original timber windows and doors are an important part of the historic fabric of conservation areas. They are antiques in their own right. | Replacement timber windows and doors of an appropriate design and finish make a positive contribution to conservation areas. | uPVC windows and doors are inappropriate in historic buildings. uPVC frames are chunkier than timber and have a noticeably different finish. | Aluminium windows and doors are inappropriate in historic buildings as it is a modern material with a shiny finish and modern proportions. |
| Life Expectancy | 200 years or longer if well maintained. | 40 years or longer if well maintained. | 20-25 years. | 35-40 years. |
| Maintenance | Requires regular re-painting (typically every 5-7 years). | Requires regular re-painting (typically every 5-7 years). | Clean every 6 months to stop discolouration by dirt. Painted uPVC requires regular re-painting. | None |
| Ease of Repair | Easy to repair. Individual elements can be replaced or new timber spliced in. | Easy to repair. Individual elements can be replaced or new timber spliced in. | Difficult to repair. Damaged or defective units usually require complete replacement. | Difficult to repair. Damaged or defective units usually require complete replacement. |
| Is Double Glazing Possible? | Not possible, but draught-proofing and / or secondary glazing are as effective as double glazing at reducing draughts and noise. | Yes, double glazed timber windows can be made to measure, including sash windows. | Yes, double glazed uPVC windows can be made to measure, including sash windows. | Yes, double glazed aluminium windows can be made to measure, including sash windows. |
| Thermal Performance (U value*) | 4.5 (single glazed) c.2.7 or lower with secondary glazing | 4.5 single glazed 2.7 doubled glazed | 5.3 single glazed 3.0 double glazed | c.5.5 single glazed c.3.2 double glazed |
| Cost Per Square Metre of Window † | Nothing (secondary glazing £140 - £190) | £185-£245 (preserved softwood) £300-£370 (hardwood) | £480-£550 | Over £550 |
| Impact on Property Market Value | Traditional and period features are becoming increasingly sought after by homeowners. | The reinstatement of traditional style timber windows and doors adds value to a house. | uPVC can lower the value of old houses. | Aluminium can lower the value of old houses. |
| Environmental Impact | Re-use of existing windows and doors is the most environmentally friendly option, especially if they are draft proofed. | Timber from renewable sources is recommended. Timber is biodegradable and easy to recycle. | Mainly made up of non-renewable resources: natural gas and petroleum. Contains 6 of the 15 most serious industrial pollutants - dioxins, furans, cadmium, lead, mercury and organic tin. | Manufacture requires a lot of energy and produces large amounts of carbon dioxide which causes global warming and acidic sulphur dioxide which causes acid rain. |

* The U-value measures the rate at which heat passes from inside a building to outside. The lower the U-value, the less heat is lost outside.

† Prices obtained from WWFUK (2005) *Window of Opportunity*

Re-painting of Traditional Timber Windows and Doors - Best Practice

DO...

- 4 Inspect windows and doors regularly for cracked, loose or flaking paint.
- 4 Remove paint from the timber with wet abrasive paper.
- 4 Use repainting as an opportunity to renew any defective or deteriorating putty around the glass of a window. Defective putty can be cut out and if necessary pre-softened using an alkali paint stripper. Coat the timber with linseed oil thinned with turpentine before applying the new linseed oil putty.
- 4 Use repainting as an opportunity to renew any defective or deteriorating mastic around the outer edge of the frame of a door or window. Defective mastic can be cut out. Pack the joint (with dampened rolled newspaper or a modern expanding foam), then seal with lime mortar which is made waterproof by finishing with a layer of burnt sand and boiled linseed oil mastic.



- 4 Prime the timber and then apply a minimum of one undercoat and one finish coat. Use natural paint and primer derived from plants and minerals if possible, or high-solids alkyd or waterborne alkyd. These types of paint are least harmful to the environment and human health and are micro-porous (allowing the timber to 'breathe' rather than sealing it). Dark colours of paint were traditionally used, as were creams and off-white colours. Brilliant white paint for timber was not invented until the 1930s.

DO NOT...



- 6 Ignore deteriorating paintwork on windows and doors. Defective paint will let moisture into the timber, causing wet rot and the replacement of defective timber which is much more costly than repainting.

- 6 Use caustic soda, or other chemical dips or baths to remove paint. This will deform the timber and weaken the joints. Hot air strippers should not be used for windows or near any glass in doors, as the heat can cause the glass to crack.

- 6 Simply paint windows without attending to damaged or defective window putty or mastic around the window or door frame. Defective putty or mastic will allow water penetration into the timber, causing wet rot and the eventual replacement of the rotten timber.

- 6 Paint over mastic. This will cause the mastic to lose its flexing properties more quickly, accelerating its deterioration.

- 6 Use inappropriate, inelastic primers and paint. These will deteriorate much more quickly than more elastic, alkyd-based paints which are less prone to cracking. Oil based alkyd paint is environmentally harmful and can impact human health.

- 6 Paint the sills, lintels, mullions or any other stonework around the window. Paint should be applied to the timber only, and any stone left bare, as this is the traditional detail.



Draught-proofing and Secondary Glazing in Traditional Windows - Best Practice

DO...

- 4 Retain original or traditional windows and upgrade their insulation. This will help your property to maintain its original character.



- 4 Ensure roofs, floors and walls are well insulated before upgrading windows. 80% of lost heat escapes through

poorly insulated roofs, walls and floors. Insulating these parts of the house often pays for itself soonest.

- 4 Draught-proof sash windows to make rooms warmer and more comfortable. A small number of nationwide firms manufacture strips, rods and brushes which can be inserted to draught-proof any part of a sash window. Some of the firms will install these for you, or local joiners who specialise in sash windows may be able to do this for you. Draught-proofing of this sort is often not visible when the window is closed and therefore does not impact the appearance of old houses. Draught-proofing can pay for itself via lower energy bills in as little as 5 years (or 1 or 2 years if installed by the homeowner).

- 4 Reduce draughts and noise by installing secondary glazing. This can be of timber or metal and the further it is set back from the window panes, the more thermally efficient it is. Local joiners of specialist firms can supply made to measure secondary glazing.

- 4 Ensure that the frames and glazing bars of secondary glazing line up with those of the original window, otherwise the frame of the secondary glazing will be visible from outside.

DO NOT...

- 6 Replace perfectly sound windows with double glazed replacements. As well as potentially altering the historic character and appearance of the house, it has been estimated that it can take as long as 60 years for the money saved in energy bills to cover the cost of buying and installing double glazing in place of single glazing.

The Repair of Traditional Timber Windows and Doors - Best Practice

DO...

- 4 Always hire an experienced joiner who has can provide local examples of work with historic windows and doors.

- 4 Try to retain as much of the original joinery as possible and remove as little of the original timber as is practical in repairs. New pieces of timber or joints can be spliced into existing windows and doors by a skilled joiner. The technical pamphlet *"The Repair of Wood Windows"* is available from the Society for the Protection of Ancient Buildings (SPAB) for £3 and shows how new timber can be spliced into old sash and casement windows (see www.spab.org.uk).



- 4 Use well seasoned timber which as closely matches the line, grain (number of growth rings) and density of the existing timber as possible.

- 4 Use fixings such as timber pegs/dowels, or non-ferrous screws/pins to link splice repairs to the window, as well as glue. This will ensure that the splice will remain tightly fixed.

- 4 Mark and record the components of a window before dismantling it for repair, especially if there are several windows to be repaired. Similarly number the glass panes before removal.



- 4 Ensure that repairs are well painted and that glass is set in putty and that frames are properly set in mastic.

The Repair of Traditional Timber Windows and Doors - Best Practice continued

DO NOT...

- 6 Follow the advice of joiners you do not have complete confidence in, or be swayed by the 'advice' offered by replacement window salesmen.
- 6 Use a new timber which is a different species to the old timber. A window or door made up of different sorts of timber will fall apart as the different types of wood expand and contract at different rates due to heat and moisture.

- 6 Use timber with shakes, fissures, warping, sapwood (the well spaced outer rings of the trunk) or numerous or large knots.
- 6 Replace rotten parts of windows or doors without also tackling the cause of the rot. This could be because of defective rainwater goods (see Section 1d of this guide), defective pointing (see Section 1e of this guide), the way water runs on the cill or the levels of moisture condensing inside the window.

Repairs To Glass - Best Practice

DO...

4 Retain as much sound old glass as possible, particularly leaded and stained glass. Even plate glass made a century or so ago has imperfections which add character to a house.



4 Ensure that replacement glass in a sash window is the same thickness (and therefore weight) as the original glass, so that it is balanced by the sash weights.

4 Hire specialists who are experienced in dealing with old glass. In addition, there are local firms who manufacture stained and leaded glass.

DO NOT...

6 Replace sound glass or glass with small hairline cracks. Modern replacement glass will appear noticeably different to the old glass and can detract from the character of the house.



6 Replace leaded and stained glass with plain glass. Such glass is often a historic detail and in many cases is an important decorative feature.



Replacement Doors and Windows

In the rare cases that traditional doors and windows are beyond repair, and in the more likely cases that modern windows and doors require replacement, the following guidance should be adhered to:

DO...

- 4 Use timber replacement doors and windows, including treated softwood or hardwood. Always use locally grown timber from sustainably managed forests or if this is not possible, Forestry Stewardship Commission (FSC) approved timber. Your joiner will know the difference.



4 Only install windows and doors which are appropriate to the building in terms of style, and in the case of windows, method of opening. Openings which were designed for sash windows and openings designed of side hung casement windows should contain side hung casement windows. Some similar houses in the conservation area might retain the original window or door detail and these should be replicated as far as is practical by the replacement. The Conservation Team is happy to provide advice on what type and style of window is appropriate to a particular house, and can provide detailed drawings of four panel doors, one- and two-pane sash windows and double glazed sash windows free of charge.

4 Ensure that new doors and windows are properly recessed into the opening. This is a traditional detail that also ensures that the window or door and its frame are better protected from the elements.



DO NOT...

- 6 Use uPVC or aluminium replacement windows and doors. These will negatively impact the appearance of a historic house and can devalue it.



- 6 Install modern style casement windows (such as top opening windows or windows with several hinged openings) as these will look out of place on a historic house and will harm its appearance. Many mass produced modern timber doors are similarly inappropriate for historic houses.

- 6 Install historic style windows which are based on windows from a different era to when your house was built. For example, late Victorian houses never had multi-pane Georgian style sash windows; 17th and 18th century houses never had windows made from a single pane of glass. There is some leeway with replicating later eras to when the house was built (such as a terraced house from the 1850s having early 20th century style windows and doors with leaded and stained decoration), but generally the style of windows and doors of a house should relate to when it was built.

