

Window and Door Guidance

Heritage Advice for proposed works to Windows and Doors



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Introduction

This guidance has been prepared to assist homeowners of listed buildings and those living in conservation areas to recognise the importance of doors and windows to their properties, and what to consider when planning to repair or replace them.

Windows and doors can form an important part of the character and appearance of the property. Poorly maintained or unsuitable or unsympathetic windows and doors can have a detrimental impact on the character of the conservation area or the appearance of the listed building.

Listed buildings tend to require more maintenance than modern buildings due to the type of materials used and the construction methods. Some maintenance, such as clearing of gutters, painting of timber windows, etc., should be undertaken to any building, regardless of age. Undertaking regular maintenance will ensure that your building remains weather and watertight, and offers you the best conditions to live in. A good starting point is the IHBC's 'Stitch in Time' guidance - <https://ihbc.org.uk/stitch/Stitch%20in%20Time.pdf> or <https://ihbconline.co.uk/caring/> and Historic England's guidance - <https://historicengland.org.uk/advice/technical-advice/buildings/maintenance-and-repair-of-older-buildings/>.

There is a presumption with modern materials that they do not need maintenance, and that these are preferred to save the homeowner time and money. Undertaking maintenance and keeping your building in good condition is the responsibility of the owner. The proposed replacement of elements to reduce maintenance needs, such as installing powder coated or UPVc windows and doors are not encouraged as these change the appearance of the doors and windows and will have a negative impact on the character and appearance of the property. This will be explained further within the guidance.

Having well maintained windows and doors improves the energy efficiency of the building, and additional measures can be undertaken to improve energy efficiency without replacing them. Energy efficiency will be highlighted within the guidance, but a holistic, whole building approach should be undertaken, considering the existing construction methods and materials of the building. Further details can be found on the Historic England website - <https://historicengland.org.uk/advice/technical-advice/retrofit-and-energy-efficiency-in-historic-buildings/>

1. Windows

Introduction

This section provides guidance to owners on how to look after their windows and what we, as Conservation Officers, would expect to see if an application were submitted. This is not intended to give full answers, but allows for initial guidance, and where to find further information.

Windows are often the first consideration for heat loss, and it is often thought that installing double glazed windows is the best solution. The production of the glass and UPVc uses large amounts of energy and does not consider the heritage of the windows or the embodied energy they have.

Replacing windows is not cheap and will often result in a loss of original fabric. As part of considering energy efficiency, a whole house approach needs to be undertaken. A one fit solution is not possible, and separate guidance is available.

The starting point for any windows will be good maintenance, which Historic England has created a helpful step by step guide, available here - <https://historicengland.org.uk/images-books/publications/traditional-windows-care-repair-upgrading/> and <https://historicengland.org.uk/advice/technical-advice/retrofit-and-energy-efficiency-in-historic-buildings/modifying-historic-windows-as-part-of-retrofitting-energy-saving-measures/>

1.1.1. Options to improve thermal efficiency

In most cases, windows do not need to be drafty. Maintenance is key for looking after windows, reducing drafts, and ensuring they are operational. Minor repairs and routine maintenance can be undertaken without listed building consent. Major overhauling or replacement of sections usually requires listed building consent. A good overhaul, and possibly the insertion of draft-excluders, the drafts can be reduced or removed, and the windows retained.

If undertaking repairs yourself, it is worth noting that within the older paint layers there may be lead paint, and it is recommended that you test your windows for lead with a simple test kit available at most hardware stores or online. Originally window frames were not painted, but lead paint was introduced to protect the wood from the weather, and this extended the life of the window, and the role of paint continues to this day.

A cheap solution to improve thermal efficiency (after maintenance) is to install good quality curtains and use existing shutters where they have been installed.

The next step is to consider installing secondary glazing. This retains the existing fabric of the window, as well as reducing the energy required to produce new windows as it only requires one sheet of glass. The gap created between the existing window and the secondary glazing is often bigger than the standard 24mm double glazing, so will offer a better thermal performance and improved acoustic protection. Secondary glazing can be fitted to most window types, and comes in a wide range of solutions, from simple magnetic systems to more comprehensive openable solutions.

1.1.2. Replacement Windows

Where windows have failed beyond repair, then they should be replaced on a like-for-like basis, especially where they are historic or of significance to the property. Like for like means the same materials, opening types and single glazing. Windows are often considered to be the eyes of the building as they form an important part of the character and appearance of the property. Installing inappropriate windows, either through design or material choice, can have a negative impact on the appearance of the property or the character of a conservation area. On the other side, replacing inappropriate windows with more suitable windows can have a benefit to the appearance of the property or the character of a conservation area.



Figure 1 - the residential properties above the shops offer different style windows that work with the architecture

It is not usually consented to replace with double glazing (including slimlite/ slim profile) as this can change the appearance of the window due to the increase in the depth and profile of the frame to take the thicker glass unit.



Figure 2 – original, single glazed sash windows, with casement windows to the dormers, contribute positively to the appearance of the property and the character of the conservation area.



Figure 3 - whilst this was a commercial building, the windows are an important design feature of this 1930s building, with the glazing bars emphasising the vertical and horizontal emphasis of the design.

Where the windows are not in a traditional form, then replacing them with an appropriate style would be considered to be a heritage benefit. In this case, or where being installed within a modern extension, it may be possible to install slimlite double-glazing (max. 12mm) with integrity glazing bars. This will be considered on a case for case basis.

There has been discussion about the quality and longevity of slim-profile glazing, but further research and improvements have resolved the earlier failings. We will not consider the installation of standard (24mm) double glazing due to the visual impact of the glazing and the increased size of the frame required.



Figure 4 – whilst timber and single glazed, this is a modern storm window, with fanlight, within a listed building. These windows could be improved with flush casement windows without the fanlight.

1.1.3. Life cycle and age

It is important to remember the life cycle of materials, from the obtaining of the materials, manufacturer of the windows, transport, installation, the expected life of the product and the recyclability/ reuse of the window when it has come to the end of its natural life. UPVc windows have a general life expectancy of c.15 years, whereas timber is 50+ years when maintained. In many of our listed or older buildings, many of the window's date from the at least the 1800s, with some much older. It is not just the window frame that is of age and significance, but also the glass and the ironmongery. However, some windows produced in the in 1980s/ 90s were formed of poor-quality timber and are failing. It would be acceptable to replace these with new timber windows.

1.1.4. Application

Within listed buildings we will not accept UPVc windows as they cause harm to the appearance and significance of the property. Where there is a building regulation requirement to protect life, and

timber windows are not available, an alternative approach may be undertaken, such as the use of metal frame. This will be considered on a case-by-case basis.

Any listed building consent application will require a **Window Schedule** providing details of the proposed works. It is beneficial for photos of the windows to be included, with a simple plan showing where the windows are. This will enable us to fully assess the windows (materials, type & position with the house) as part of the listed building consent application. Ideally, the schedule will include comments on condition of the windows, and any proposed repairs, or information on why repairs cannot be undertaken.

As part of the Listed Building Consent application, existing details (1:1 or 1:5), together with proposed details (1:1 or 1:5) are required. Photographs can also assist with understanding the reason for replacement.

We have seen the argument that installing double glazed windows would be a public benefit as it protects the environment. However, in recent Planning Appeals, the installation of double glazing was considered as a personal benefit, not of public benefit.

1.1.5. Security

Security is not a new concern, it has been around since the late 1600's, however, the technology and means of securing windows has changed and developed. There is a host of security features that can be added to most windows. These can be limiters, so prevent the window being opened to allow access (or egress), with some allowing a simple over-ride system (which can only be operated internally) to allow for safe egress in the event of an emergency.

Other systems include a locking device, and these will vary between a simple turn catch on a sash window to a full locking device where a key is required.

Prior to installing a system, it is important to consider the level of risk, and if a means of escape (in the event of fire, etc) is needed. Many upper floors do not need a higher security system as access externally will not be easy and installing lockable could create further panic in an emergency.

Guidance should be sought by a specialist lock smith (<https://www.locksmiths.co.uk/>).

1.1.6. Cost

The cost difference between the cost of timber and UPVc is recognised, but we do not consider the cost as part of the process with listed buildings. We do acknowledge that timber is more expensive,

but in the long term, it can work out cheaper, and if good windows are installed, they will last at least 100 years or longer, and they can be maintained and repaired.

1.2. History

Windows have a dual purpose, letting in light and providing ventilation. Originally windows were openings within the wall, with timber mullions to provide some security and a sliding timber shutter to protect against the worst of the weather. Some evidence of this evidence can still be seen in our older timber framed buildings. It was not until the 9th century that glass was started to be developed for the use of windows. By the 11th century, monasteries were making glass for their top ecclesiastical buildings, cathedrals, but realised that as glass was solid, the main building needed details to protect the glass and the building from the problem of water ingress. This introduced hoods and other details to the exterior of the building as this projected the water away from the window. By the late 16th century, glass was beginning to be used in houses, and during the 17th century, and into the Industrial Revolution techniques improved allowing for large planes of glass to be manufactured.

By the late 17th century, windows were installed in most houses in the form of fixed windows and opening casements. These windows were often metal framed, as Figure 5, or sometimes timber. It was about the same time that vertical sliding sash windows that we associate with Georgian buildings we know today were introduced. As technology improved, it allowed for larger sizes of sheet glass to get bigger, and therefore resulted in a reduction of the number of glazing bars (or lead 'came').



Figure 5 – metal framed, casement windows, with external hinges to the first floor and leaded windows. The ground floor window has been reduced in size.

Casement windows offered limited security and when opened could be drafty (due to the limited technology of the stays) rather than allow for ventilation. The sash window changed this, allowing for ventilation, and could remain open at night with the shutters closed, which offered security. In addition, the construction of the sash in oak and Baltic pine offered an extremely long-life span, and many of these windows are still in use. In addition to security, the shutters also prevented heat loss, which with heavy curtains can offer an exceptionally high thermal efficiency, and in some cases higher than triple glazed windows.

1.3. Window Types & Styles

1.3.1. Window Styles

The style of the frame varies, but within conservation there are two basic styles that we would expect to see with listed and traditional buildings – sash and casement.

A sash window is formed generally of a box frame, with two moving, or sliding vertical sashes. You can get horizontal sashes, but these are not very common in the south. Introduced from the mid 1600's, by the late 1700's/early 1800's they were the window of choice. During the Georgian period, there were a large number of buildings modernised, often referred to as 'gentrification' with either a

new façade and windows, or new windows inserted into an older building, replacing the old-fashioned casement windows with the fashionable sash windows.



Figure 6 – whilst poorly maintained, this sash window has delicate glazing bars and mid-rails, showing that this is C18th.

The earliest sash windows were quite chunky, but by the early 1800's, the glazing bars and the sashes became extremely delicate, as shown in Figure 7. The glazing bars help create shadow and movement throughout the day. When the manufacture of glass improved, and larger panes could be formed, there was a reduction in the number of glazing bars and then the sash window was a single pane of glass. The loss of the glazing bars resulted in the delicate sash frame twisting, so the frame was altered to create horns which prevented this twist.



Figure 7 – horn to a sash window. These come in different styles.



Figure 8 – different sash windows are shown here as the building has evolved.

A [casement](#) usually has side hung opening casements, and sometimes a fixed central pane in a tripartite window, these are typical of our vernacular rural houses. Like the sash windows, they can have glazing bars, either creating a Georgian style, or a single horizontal bar, as shown in Figure 10. The use of the bars allowed for smaller panes of glass to be used.



Figure 9 – sash windows to the cottage to the left, and casement windows to the cottage on the right.

1.3.2. Materials

Frames come in wood, UPVc and metal – which is not just for commercial buildings, or those built in the 1930s, but can be found in farmhouses, cottages, and C16 & C17 buildings, often with metal casements set into a stone or wood frame. Full metal frames are often referred to as ‘Crittall windows’, this is a cover all term, just like a Hoover and vacuum cleaner.

For listed buildings, we do not accept double glazed UPVc window frames or doors. The reason for this is the appearance of the material, the bulkiness of the frame when compared to timber or metal and the reflective nature of the double-glazed unit. The frame itself needs to be bigger to provide the structural strength required to support the double or triple glazing.

Wood is the first choice in most heritage settings, though sometimes metal, usually steel, can be used. Wood should be a hard wood as this is more durable, but soft wood (pine) has been used within listed buildings, such as cottages. A composite timber is a laminated timber created with gluing layers of timber together. Composite timber is not acceptable within listed buildings due to the nature of the product.

Timber windows should be painted by hand, to give a suitable appearance. Powder coated finish gives a very smooth, even finish, which whilst it is ideal for industrial or modern buildings, it does not provide a suitable finish for a rural cottage.

In some rural places, metal windows were installed as a cheap alternative, or as part of a later extension. These can add to the understanding and significance of the building, so a caution that sometimes not everything was, or should be timber.

1.4. So why does it matter?

Windows reflect the development, gentrification, up-dating or modernising of a building, it shows status, or a fashionable choice using the latest styles or motifs or could showcase knowledge of advanced technology. Windows higher up the building were often smaller, and in some cases were a casement window rather than a sash as these were cheaper to make, so ideal for the garrets or lower status areas. This is particular true in late Georgian and Victorian buildings where social status and position was important within society.

Windows can also respond to the architecture and layout of the house. A timber framed Wealden Hall House will often have a large, double height window (though this may have been replaced when the floor was inserted) which shows the high end of the hall. A Georgian town house may have larger windows to the first floor which shows that this was the grand floor, known as the *piano noble*. If designing an extension, or looking to alter windows, it is important to consider not just the frame style, but also the relationship of the size of the opening with the building to each floor.

1.4.1. Details

Aside from the more obvious window type and materials, we also look at the details. These include the number and style of **glazing bars** which will depend on the buildings age and the window style. The detail of the glazing bars will also vary on age of the window and the property, and this is the reason why we request existing and proposed details.

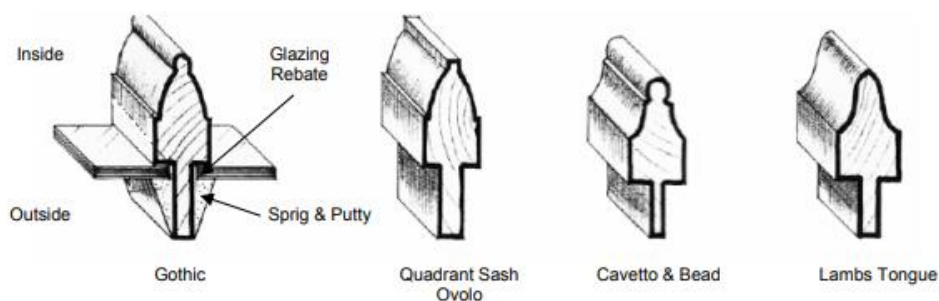


Figure 10 – examples of different glazing bar details. The style and size varies with the age of the window.

All glazing bars should be integrated, i.e., form part of the frame, not internal within the double glazing or glued on. Another reason why we do not recommend the use of UPVc double glazed windows are that the glazing bars are glued onto the glass, and over a relatively short period of time they tend to fall off. Glass and UPVc expand with the heat and contract with the cold weather, referred to as thermal expansion. As these are different materials, they expand and contract at different rates, which contracts differently to the glue. As the glue ages, together with the movement, it results in the bars falling off. This was resolved by putting the glazing bars between the two panes. Visually this gives a very flat surface as the glazing bars do not create shadow on the glass, and due to the proportions, can often create odd rectangles.



Figure 11 – large frames with inset glazing bars creates oblong details and flat finish.

With sash windows, if you have glazing bars, you do not need horns on sash windows, as the horns were developed to stop the frame/ sash twisting once the glazing bars were removed to allow for a larger pane to be fitted.

The type of **glass** can be a consideration. Older glass was Crown Glass which gives an imperfect ‘wobbly’ appearance, unlike modern float glass. Some glass was slightly greener in colour due to the lower quality of the materials and was used in lower status areas. Original glass was much thinner, or over time has moved to create a thicker bottom and thin at the top. The thin glass allowed for the fine, delicate glazing bars of the sashes to be formed. Where there is old glass within a window, it will be encouraged to reuse if the casements/sashes or windows are replaced.

Ironmongery is often the un-sung hero of windows. Early windows had simple, external hinges formed by a simple upright pin set into the mullion which allowed the casement to be hooked onto. An external bar prevent the window from swinging open. The development of hinges allowed them to be installed discreetly and changed from being hand made to machine made. Catches changed,

from a simple turn catch to the later monkey tail catches, to handles and latches. Where casements/sashes or windows are replaced, it is encouraged to reuse existing ironmongery.



Figure 12 – early catches for casement windows.

2. Doors

External doors are as important as windows and come in an even wider choice of styles and sizes. As with windows, we look for repair and maintenance over replacement as this retains historic fabric. Where a replacement is needed, we generally look for timber doors that suit the style and status of the property.

Doors do not need to be drafty, and draft excluders, or simple modifications can be undertaken to prevent the drafts. Door curtains can also help increase thermal efficiency within the home.

The use of glass in doors and side panels has raised security and privacy concerns, but it does provide natural light into the internal spaces. A balance needs to be undertaken when considering a new style door to work with the architecture of the building, security, and privacy. Installing the incorrect style door can have vast impact on the appearance of the property.

2.1. Door Types and Styles

The style of front door varies from solid timber doors of many timber-framed Medieval houses, often with cast iron rivets holding the timber panels together, to 6-panel doors with glazed fanlights, typical of Georgian buildings and half-glazed doors with beading common in both Victorian and early 1900s buildings, each responding to technology and the architecture of the main house.

With Gentrification, some windows and doors were replaced in the 'latest fashion', to suit the new fashionable new façade. However, door openings were limited, and this can sometimes result in a smaller door than expected, or an unusual size. The size of the door also responded to the status of

the house. A small opening and door was cheaper to form and allowed for more wall to offer protection from the weather. A large door created a grand status. It was not until recent years that the door became a 'standard size'. The size of the door opening, and the door itself can provide a lot of information about the property, first appearances certainly counted.

As technology advanced, the use of glass was introduced, allowing light to penetrate into the dwelling and show off the wealth of the owner. Georgian and early glass was very thin and delicate, and the closing of the door would risk the breaking of the expensive product. Due to the high ceilings, it allowed for fanlights, the windows above the doors, to be formed. Again, how ornate these were responded to the wealth and status of the owner. By the Victorian period, glass was affordable to many, and fanlights were common. House numbers or names were painted or etched on the fanlight, often with coloured glass which helped protect the interior from day light. Victorians were cautious of the damage that sunlight did, both to the skin but to the rich decorations and furnishings, so the coloured glass and the use of heavy curtains and voiles were used.

Rear or side doors were also of a different style, generally smaller and simpler, especially if these allowed access into working spaces, or rear of house spaces. The style of the door reflected this and formed an important distinction especially in Georgian and Victorian houses. Whilst we do not consider this separation and distinction in our modern world, it does form part of the significance of the listed building. Changing other external doors need to consider this distinction.



Figure 13 – an eight-panel door with a simple fanlight above.

2.2. Position of the doors

Whilst usually on the front elevation, the position of the front entrance door can provide a lot of hidden information about the house, such as the internal layout, the possible age of the property and its social status. In a few cases where a house has been altered and developed, the current front door may not be in the original position or within the original front elevation.

If major works or extensions are proposed, it is often tempting to form a new main entrance to the property. It is preferred that the main front door is retained, even if a new, everyday entrance is formed elsewhere. The new entrance should be subservient to the main entrance door.

2.3. Materials

As previously mentioned, timber would be our preferred choice of door material for listed buildings, and dwellings within conservation areas.

Alternative materials such as UPVc and composite doors provide a different appearance. UPVc doors, like the windows, offer a shiny, solid appearance and are generally bright white. White doors are not common within listed buildings, which generally waxed, varnished, or painted. The colour does vary and is a personal choice unless you form part of an estate for a mansion, where a standard estate colour was used to show that you were part of the same ownership.

Composite doors offer high security features, but as they are pre-painted metal doors, they have the similar concerns as a UPVc door, with a solid colour. These will not be supported within listed buildings.

Some modern doors are aluminium which are also usually powder coated, a finish that provides a solid colour finish. Like UPVc and composite doors, these are generally unsuited to listed buildings due to their appearance.

2.4. Security

In today's modern world, security needs to be considered and can form part of the consideration for insurance companies who often require a certain lock. Installing these into doors can be difficult, especially if it is a large solid timber door.

Deadbolts were often fitted and can still be fitted and used. These may not be suitable if the door is a formal fire escape.

Other features like spy glasses and security chains can be considered. Installing a spy glass into many doors would have a negative impact, but if there is a strong need, they may be able to be installed in alternative locations. A little consideration and thought would be needed. Security chains can be installed without listed building consent as they tend to be easily reversible and have no impact on significance.

2.5. Letter boxes and other accessories

These really vary with the type of door, and its age. The introduction of the postal system in the mid-1800's saw the development of letter boxes, with the older ones being relatively small (to reflect the size of letters and for the reduction of drafts), and they progressed in size until the current, more standard size. The materials vary from cast iron, bronze, silver, and gold, and again, reflected the property. Consideration for the placement of the letter box and its style/ material should be undertaken. In some cases, a separate letter box should be provided where the door is of significance.

Door knockers date back to Greek and Roman times, but were slowly introduced in England, and to domestic houses much later. Doorbells, in the form of a bell, or an external cast iron rod that pulled the bell within the house were common in Georgian times, and these were slowly replaced with electric doorbells from the mid-1800s, though not common until the start of the 1900s. Where

original bells, rods and pushes remain, these are of significance and should be retained. When installing new doorbells, consideration is needed to placement and type.

Modern technology, such as Ring doorbells or other video, smart and security devices are larger and bulkier than more traditional doorbells, and often need an electrical supply. Installing these systems can have a negative impact on the exterior of the property. Care and consideration is required for the installation of these systems, and the possible impact on the setting of the listed building or the character of the conservation area.

Whilst these devices are relatively small, the cumulative impact of them, plus satellite dishes, car charging points, etc., and UPVc doors and windows can have a negative impact the setting of a listed building, or the character of the conservation area.



Figure 14 – converted barn.

3. Conversions

This guidance is primarily focused on domestic dwellings and does not consider conversions.

However, the same principles and philosophy will be applied to existing and proposed conversions.

As with all applications, they will be assessed on an individual basis.

4. Summary

4.1. Listed Buildings

We always look for repair rather than replace. Any works that are deemed more than a repair, Listed Building Consent is required. Details on how to apply can be found in a separate guidance note.

Replacement windows and doors will only be considered if the existing windows and doors are of no significance (i.e. modern replacements) or beyond repair. Justification needs to be provided for the replacement in the form of a Window & Door Schedule, providing initial guidance of style, age, and defect. Replacements should be 'like-for-like', matching the materials, styles, and glazing, unless there is evidence of original/ different windows or doors (such as photographs or drawings, or previous applications) or where the current windows or doors are inappropriate, such as storm casement windows, with fanlights.

If you are looking to change the windows or doors, which includes installing double glazing (slimlite), or changing style, full details, justification, and evidence is required as part of the application.

Alternative methods of thermal improvement, such as curtains, shutters, and secondary glazing, together with a holistic approach to thermal efficiency should be the first consideration. These methods will always be the preferred choice, as these solutions allow for the retention of historic fabric (frame, glass and ironmongery), and often offer higher thermal efficiency than new double glazing. We consider the life cycle of the product, and not short-term personal gain.

UPVc windows and doors are not acceptable in Listed Buildings. In exceptional circumstances, alternative materials, such as steel or aluminium, could be considered, but not UPVc.

4.2. Conservation Areas

Historic windows and doors form part of the significance and appearance of the property and add to the character of the Conservation Area. The gradual loss of timber windows and doors in a Conservation Area has a detrimental impact on the character, sometimes causing as much harm as poor extensions and badly designed development. In some areas, Article 4 Directive have been implemented to remove the permitted development rights to replace windows within Conservation Area's without planning permission. This has been implemented to ensure that the uniqueness and character of the area is maintain. We encourage the same ethos as listed buildings, to protect these designated heritage assets.

Further information and guidance can be obtained via our pre-application process -

<https://maidstone.gov.uk/home/primary-services/planning-and-building/primary-areas/apply-for-planning-permission/primary-areas/pre-application-advice>