

## Secondary Glazing Benefits for Period, Heritage and Listed Buildings

### Instruction

Rising energy bills and concerns about carbon emissions have led to a variety of methods of energy conservation from thermal insulation to energy efficient appliances. Some commercial and residential buildings have even been augmented by wind turbines and solar panels to generate their own 'green' energy. Unfortunately, many of these innovations are not open to owners of period buildings because of their listed status. This leads to a situation in which some of the least efficient buildings are also some of the ones most difficult to improve.

When assessing which measures to take in making a period building more energy efficient it is important to remember that there is no 'one size fits all' solution. Before considering making any structural changes you should consider the hygrophytic behaviour of the building. Has the orientation and exposure of the building been considered? Are some windows or doors losing more heat than others? Can conventional methods such as heavy curtains or draft excluders be employed? Is the heating regime of the building designed to maximize efficiency?

Even if changes to the windows need to be made, it is important to consider all factors to effectively reduce the environmental and financial impact of the building.

### Double Glazing

Double glazing (sometimes known as insulated glazing) is a system by which an insulating space between two glass panes reduces heat transfer. It also effects the transmission of sound through vibration and will offer an additional barrier to deter intruders.

### Do I Need Double Glazing?

In some cases, it may be possible to replace old windows with more energy efficient new ones. English Heritage write that double glazing improves thermal insulation but notes that "*the replacement of existing windows with double glazed units can in many cases lead to a change in appearance, particularly the flatness of new glass and the need for thicker timber sections and glazing bars.*" They also note that older windows are more durable whilst new softwood windows may only last 20 years whilst "*traditional timber and metal windows can almost always be repaired, even when in very poor condition and normally at significantly less cost than complete replacement.*"<sup>1</sup> Many Georgian and Victorian windows are still in place today.

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<sup>1</sup> *Energy Efficiency in Historic Buildings*, English Heritage, Swindon, 2010.

Much of the comfort benefit associated with double glazing comes from the reduction of draft. The same results may be achievable by the fitting of new frames and/or integral draft proofing. English Heritage suggest draft proofing can reduce air leakage by up to 50%<sup>2</sup>.

A qualified window specialist should be consulted to see if replacement is possible and whether or not window replacement will satisfy the owner/occupant requirements. Windows should be replaced with high quality units with effective draft proofing.

If replacement and or damp proofing will not fulfil the owner/occupier's requirements or if additional insulation is required then double or secondary glazing should be considered. Even if some benefit can be attained by damp proofing and replacing frames single pain windows will never provide as good insulation as double or secondary glazed windows. Double and secondary will also provide the best solution for noise problems.

### **Drawbacks of Double Glazing?**

For most period buildings, double glazing will not be an option because of the significant change it will cause to the buildings appearance. However even where double glazing is a possibility, secondary glazing may still provide a better solution. The Historical England report on Energy Efficiency and Historic Buildings states that *'the benefits of double glazing over other methods of window upgrading are often overestimated'* and that it *'may even be possible for the performance of secondary glazed windows to exceed that of new double glazing'*<sup>3</sup>. With regard to noise reduction the report goes on to highlight that *'the important criteria is that the windows are well fitted and draughtproofed. Secondary glazing, with its larger gap between the panes, is a better sound insulator'*<sup>4</sup>.

### **What is Secondary Glazing?**

A secondary glazing solution allows the original windows to remain unaltered while a second pain of glass is installed on the inside side of the window. This second pain can be openable either by employing hinges or sash style sliding pains (vertical or horizontal) as appropriate (see <http://www.windowrestorations.co.uk/secondary-glazing.html> for examples). The maximum insulation from both cold and noise is achieved by ensuring that the gap between pains is optimal taking into the specifications of the original window. Secondary glazing is available in many colours and can be used on almost any shaped window.

### **The Benefits of Secondary Glazing**

- Reduces heat loss due to conduction and radiation by over 60%<sup>5</sup>.
- Frames do not distort (which would cause gaps to form).
- Greater comfort for occupants due to reduction in drafts.
- Reduces External Noise.

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<sup>2</sup> *Energy Efficiency in Historic Buildings, Draught-Proofing Windows and Doors*, English Heritage, 2012.

<sup>3</sup> *Energy Efficiency and Historic Buildings – Secondary Glazing for Windows*, Historical England, London 2016.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

- Reduces surface and interstitial condensation.
- Little or no change to external appearance.
- Minimum change to internal appearance.
- Uses modern damp proofed frames as standard.
- Can be installed without listed building consent.
- Can be removed completely without effecting the overall appearance of the building.
- Provides additional security by creating a second barrier of entry.

For more information on insulating historic buildings you may wish to visit the English Heritage and Historical England websites at [www.english-heritage.org.uk](http://www.english-heritage.org.uk) and [www.historicengland.org.uk](http://www.historicengland.org.uk)

If you would like to speak to someone regarding secondary glazing or window restoration more generally please contact Brocklehurst Property Maintenance on 01629 814667 or by email at [admin@brocklehurstproperty.co.uk](mailto:admin@brocklehurstproperty.co.uk)

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Brocklehurst Property Maintenance and Window Restoration Brocklehurst enjoy an unrivalled reputation for quality joinery solutions providing for discerning clients in both the residential and commercial property sectors. Specialists in conservation and renovation of historic buildings Brocklehurst are particularly proud of our bespoke window restoration, secondary glazing and window renovation services which combine traditional carpentry skills and cutting edge technology to preserve and restore valued period features.

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