

achieve significant thermal and acoustic improvements without replacing your windows

# secondary glazing



*Incarnation*  
secondary glazing

bespoke, single glazed  
internal windows  
fabricated in slim line  
aluminium profiles



## introduction

Secondary glazing is not a new idea. First used back in the 19th century, it remains as popular and as innovative today as ever.

Part of its enduring appeal—in the age of modern replacement double glazing—is its versatility.

Secondary glazing is suitable for almost any situ, within buildings new or old.

From homes to hotels, churches to cafés, offices to operating theatres. Incarnation secondary glazing covers them all.



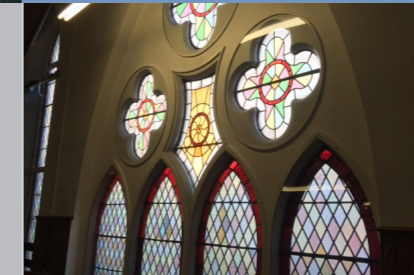
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Secondary glazing units are lightweight aluminium windows fitted from the inside, into your existing primary window aperture.

Offering a sensitively designed range of styles, fabricated from a subtle selection of profiles, the units are tailor made for your needs. Secondary glazing is made to mirror your existing sightlines, while paying careful consideration to the opening configuration of your existing windows.

Virtually invisible from the outside, secondary glazing offers a discrete way to cut energy bills- whilst preserving the visual charm of your property.

Recommended by both English Heritage and The Listed Property Owners Club, the benefits are outstanding.

Put simply, 'subtle style, dramatic difference!'



## environmentally sound

Installing secondary glazing within your project is often the soundest environmental choice. Here are some of the reasons why...

- Aluminium consumes low levels of fossil fuel in its production. Known as the 'green' metal, did you know that aluminium takes just 5% of the energy used in its recycling that it would take to refine a raw metal from scratch? It can be recycled over and over again without degrading in quality and without losing any of its integrity.

- Improved thermal efficiency. After correct installation and especially with the premium glass options, secondary glazing can significantly reduce heat loss – helping to bring improvement to your homes' Energy Performance Certificate (EPC.)
- Repair and re-use! Why condemn your old windows to the landfill site when you can extend their life by installing secondary glazing. Again, the low corrosion properties

of aluminium will mean your secondary units will look great year in, year out.

Utilized by responsible homeowners to project managers in conservation areas alike, from bursars in schools and hospitals to directors of listed public buildings- secondary glazing is the educated choice in making an environmentally wise improvement to your project.

## thermal benefits

The thermal benefits of secondary glazing are often underestimated. Much of the improved energy efficiency brought to you by replacing old windows with new double glazing derives from draught exclusion. These benefits are also felt through the installation of secondary glazing.

Windows are a key area for heat loss in a building. Heat escaping from a room through a window is a complex matter, as three basic mechanisms come into play:

- Heat lost by Convection and Conduction. **Conduction** occurs as a result of heat transfer passing directly through materials- in windows this is mainly lost through the framework and glass. **Convection** is heat energy forfeited by the buoyant, warm air particles in your room coming into contact with colder, externally affected surfaces - such as the glass and frame.

- Heat lost by infra-red radiation. This specifically occurs when warmer internal room air clashes with the colder temperature of the glass surface. At this point, emissivity levels are compromised and more heat is lost.
- Heat lost by uncontrolled air leakage. Drafts are a huge factor in making a room feel colder.

**Secondary glazing assists in preventing of all of the above**

### But how can we know this?

The way we measure how effective materials are as insulators when combined is recorded as a U-value. The lower the U-value, the better the insulation in your room.

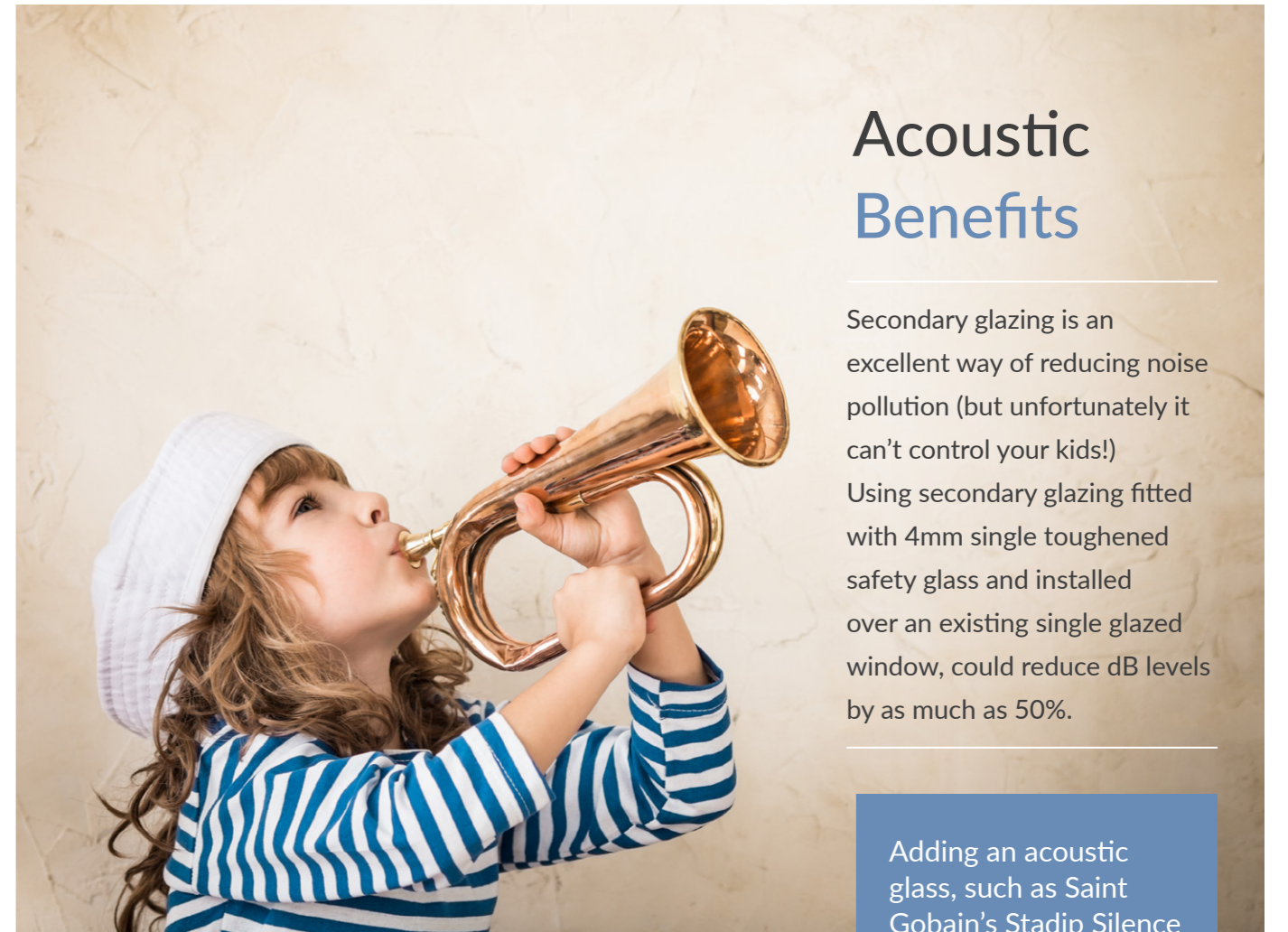
By utilizing the thermally effective combination of metal, timber and glass you can expect to half the amount of heat lost in your rooms

**"With continual improvements in the performance of secondary glazing it may even be possible for the performance of secondary glazed windows to exceed that of new double glazing" – Historic England**

by improving your average U-Value from around 4-5 W/m<sup>2</sup>K to 2 W/m<sup>2</sup>K or better.\*

By using the industry leading Pilkington's K Glass™ in your secondary glazing, you can expect to reduce U-values to around 1.8 W/m<sup>2</sup>K\* or lower. All with significantly less mess, fuss, disruption and cost.

\*figures are based on timber and crittal windows, are approximate and derived from controlled testing conditions.



## Acoustic Benefits

Secondary glazing is an excellent way of reducing noise pollution (but unfortunately it can't control your kids!) Using secondary glazing fitted with 4mm single toughened safety glass and installed over an existing single glazed window, could reduce dB levels by as much as 50%.

**Adding an acoustic glass, such as Saint Gobain's Stadip Silence Glass™ can increase the level of sound proofing by up to 70%...**

Many properties in the UK suffer from noise pollution in various forms. This could be generated from simple suburban traffic to the hustle and bustle of the city. Ever growing regions affected by expanding flight paths and proposed train developments are key areas for secondary glazing.



Living in noisy areas can often be unavoidable, however putting up with the noise isn't. By installing secondary glazing the acoustic results can dramatically change your environment. Truly in this case, hearing is believing!

**"Quiet people have the loudest minds."**  
Professor Stephen Hawking

Secondary glazing out performs almost any other product at blocking noise. This is because when it comes to windows the most significant factor, in reducing noise pollution, is the distance between the panes of glass.

Double glazing relies on mass manufactured sealed glass units, which typically are comprised of two pieces of glass set apart by a maximum spacer of 20mm.

Secondary glazing, installed at the optimum distance from the prime window of 70mm-100mm, will give a decibel reduction of around 40-45 decibels (dB). Using acoustic foam as a reveal liner or within the installation process also contributes to blocking out unwanted noise.

**...But keep that quiet. Shhhhhh**

To give you a rough idea on comfortable decibel levels, The World Health Organisation (WHO) recommend a standard of 30dB for sleeping environments and up to 40dB for all living room/working environments.



# secondary glazing

in the home



It is simple for homeowners to take advantage of the multiple benefits secondary glazing has to offer. Any home with the original timber, steel or aluminium windows and even residences fitted with early versions of uPVC double glazing can be transformed with the addition of the ultra slim secondary glazed units available within the Classic Collection.

Here are some of the key advantages you will achieve...

- Improved thermal efficiency. Energy is expensive, secondary glazing can cut your heating bills by up to 10%, often meaning it can pay for itself.

secondary glazing is not a replacement window, meaning that it is not subject to UK building regulations

- Great noise reduction. Dramatic improvements can be achieved particularly with specialist acoustic glass and a preferential 100mm gap between windows on installing.

- Added security. For extra peace of mind all secondary glazed units are available with security glass and locking hardware. So even if an intruder gets past the primary window, the secondary glazing is often enough to deter opportunists.
- Cleanliness. Not only will the secondary glazing form a protective but breathable barrier against dirt and dust, it also creates little mess and is relatively quick to install - meaning less disturbance to your daily routine.





# secondary glazing

for conservation areas



Any period building with original windows is ideal for a secondary glazing project. Your building may be listed or located within a conservation area; or you might simply not want to replace your windows. Whatever the reason there are many thousands of properties within the UK alone, where replacing original windows would be either forbidden or perhaps a little inappropriate.

Here are some of the considerations when looking at a conservation project...

- Secondary glazing, when coupled with effective period window renovation, allows you to

secondary glazing utilises main frame profiles that are only 38mm deep and wide

preserve the charm of your original windows –whilst helping you reap modern benefits.

- Subtle and versatile, secondary glazing can compliment a renovation project with ultra-slim sightlines - without compromising the operation of the original windows.

- The aluminium sections used in secondary glazing can be powder coated in any RAL colour to match your existing theme. From light oak wood grain effects to Chartwell green or indeed any heritage shade desired – anything is possible.
- Respectful appreciation of period styles mean that arches, rakes and almost anything bespoke can be fabricated by our expert technicians.





# secondary glazing

for commercial buildings

shops

hotels

schools

hospitals

churches

offices



Commercial buildings- offices, hotels, shops, hospitals and the like are all places where budgets can often be tight and noise pollution high. In older buildings especially, it can be a constant battle to balance comfortable working conditions with expensive energy consumption.

Secondary glazing can be a cost effective way of making your building more sustainable by both cutting floor to ceiling heating costs and reducing external noise.

For a relatively low initial outlay- especially compared with the expensive, disruptive installation of new double glazed or triple glazed windows - secondary glazing soon starts paying for itself, while your establishment continues to run fairly uninterrupted.

Another advantage to secondary glazing is the added layer of security it may bring. In many commercial buildings expensive equipment and stock can be at risk if windows are not secure.

By fitting thicker safety glass and secondary window locks, security can be greatly improved. Something your insurance company will definitely take notice of.

Finally, many commercial buildings have unusual window layouts. For example, long stretches of ribbon windows are difficult and expensive to replace with double glazing. No problem for secondary glazing.

Smart internal coupling and stacking bars allow different sizes and combinations of units to be joined together to make bespoke items to suit any style - almost anything is possible!

## IDEA

Any rooms within buildings that are used for more private spaces can also benefit from secondary glazing. Why not try bespoke room dividers and hatch windows?

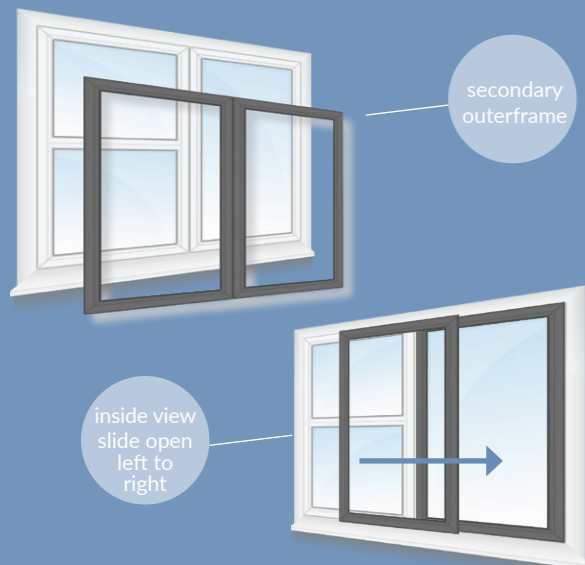


# considered design

The golden rule of secondary glazing is "keep things simple."

Instead of attempting to match every sightline on the original window with a patchwork of different units, it is often a better idea to simplify the design by using a single frame.

The diagram below may better explain the concept...



By selecting the right design (see opposite) for the right place, your secondary glazing will improve any primary window that it is fitted to, whilst being sympathetic on the eye.

In short, less is definitely more.....and often cheaper too!



# discrete end results

Secondary glazing is subtle and versatile. Designed to shadow or surround your existing window configuration, the panels and layouts are measured to compliment your existing transoms and mullions. Meaning that the secondary glazing isn't visibly noticeable from the outside (and is often difficult to see from the inside!)

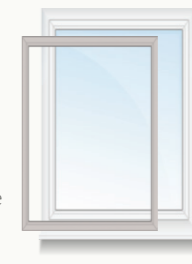
## window styles

Our secondary glazing is available in a wide range of styles, individually designed to enhance your existing windows (not interfere with them.)

**Fixed:** Perfect over windows that cannot/ do not need to be reached or opened. Face mounted with discrete fixings and usually finished with trim they offer a simple clean finish to your project.



**Lift Outs:** Simply lift the panel out from the fitted frame, allowing full access to the primary window for cleaning. They work especially well in bay corner segments where hinged units are tight on space for opening.

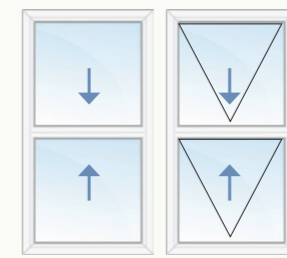


**Shaped Units:** Available as gothic or true arches, rakes, triangles and portholes are all possible. Often coupled or stacked in combination units, shaped units are usually cut from bespoke templates and are carefully fabricated accordingly.

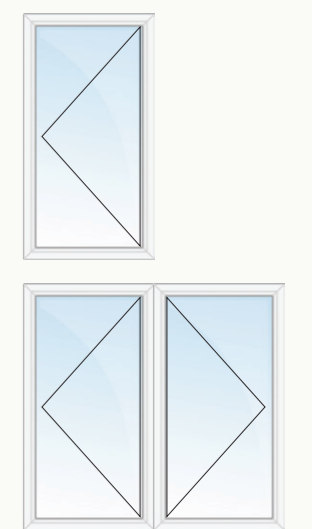


**Vertical Sliders:** Sliding up and down, just like a traditional sash window, all vertical sliders are pre-tensioned with counter balanced hardware so that operation is effortless and all sashes remain in whatever position you leave them.

**Tilt to Clean:** Models are available which allow the sashes to be suspended on their own weight at a 45° angle. Our Deluxe Tilt to Clean boasts the latest in secondary glazing developments- fully removable sashes; making them the perfect choice for any type of project large or small.



**Hinged:** Opening inwards, hinged units provide full access to the primary window. Single or double openers are available for both domestic and commercial sized windows. Hinged units are perfect for fire escapes and for French or Patio doors.



**Horizontal Sliders:** The most recognised and popular type of secondary glazing. Usually used on top of casement windows with multiple openers. Available in 2,3,4,5 or more segmented sections they are easily combined or 'coupled' with other units. They are widely used both in domestic and commercial projects.



# FAQ'S

## 1. Is secondary glazing safe around my home or place of work?

Yes. All of our secondary glazed units are supplied with 4mm toughened safety glass as standard, and are certified in accordance to BS EN 121 50 and for safety up to BS EN 12600 Class 1. All panels are easily removable or open fully in case of emergency.

## 2. Are other types of safety glass available? Can I get double glazed units in my secondary glazing, for example?

As well as toughened, safety glass options such as laminated and acoustic laminated are available in various thicknesses where required. We offer flyscreens as an option too.

## 3. Does secondary glazing stop condensation forming?

Yes, if installed correctly to allow for balanced, low level ventilation within the window aperture. Correct levels of air convection between the glass surfaces of the primary window and the secondary glazed panels will allow both internal and external air temperatures to moderate and, as a result, reduce the chances of condensation forming from extreme temperature variations. Please be aware that secondary glazing does not act as a de-humidifier in buildings where damp may be a problem through the masonry, nor will it rectify badly insulated primary windows!

## 4. What is the difference between reveal fixing and face fixing? Will my original windows be compromised?

*Face fixing* secondary glazed units is often the best method for saving space on a window cill, and allows for a small cavity between glass surfaces for increased thermal performance. Your local, trusted installer may choose to pack away from the primary window in timber surrounds first.

*Reveal fixing* is carried out by screwing sideways through the aluminium and timber subframe (where required) into the window reveal. This method is more commonly used for acoustic projects where an optimum gap of 70mm-100mm is preferential.

## 5. Is secondary glazing easy to install?

As an internal product secondary glazing can be surveyed, supplied and fitted all year round with minimal fuss. All units arrive assembled and can be levelled in, set and fixed in around half the time it would take to replace an existing window. Installation creates very little mess and can be finished off tidily with standard or premium trims.

## 6. Are all products tested and guaranteed?

Yes, all of our products are tested for energy and acoustic performance. Frame and panel sections are guaranteed for 10 years -with moving hardware covered for 2 years.





# secondaryglazing

Your preferred installer of secondary glazing is:

