

MIDA

Development Management
Brighton & Hove City Council
Hove Town Hall
Norton Road
Hove
BN33BQ

11 December 2023

Re: 62 - 63 East Street, Brighton, BN1 1HQ

Application for approval of details reserved by condition

Discharge of Condition 3 (noise mitigation measures) of the prior approval granted for the change of use of second and third floors from commercial/business/service (Class E) to residential (Class C3) to form 7no flats. (BH2022/03686)

Prior Approval was granted under Class MA of the Town and Country Planning (General Permitted Development) Order (GPDO) (2015) as amended by Brighton & Hove City Council on 30 January 2023 for the following description of development:

"Prior approval for change of use of second and third floors from commercial/business/service (Class E) to residential (Class C3) to form 7no flats."

This approval of details reserved by condition application seeks to discharge Condition 3 attached to the Decision Notice:

Pre-occupation Condition 3 (noise mitigation measures).

"Details of noise mitigation measures to achieve acceptable internal noise levels within the dwellings hereby permitted shall be submitted to the Local Planning Authority for approval in writing. The approved noise mitigation measures shall be implemented in full prior to first occupation of the development and shall thereafter be retained as such.

Reason: To safeguard the amenities of future residents or occupiers of the site and so that the application complies with Condition MA.2.(2)(g) of Schedule 2, Part 3, Class MA of the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended).

Noise Mitigation Details

A Noise Assessment report, prepared by NRG Consulting was submitted alongside the Prior Approval application and accompanies this application.

The Noise Assessment confirms the need for two different types of glazing solutions to ensure that appropriate internal noise levels can be achieved when the windows are closed, thus providing necessary mitigation against noise disturbances related to the location of the building:

1. For the windows on the second and third floors facing East Street, glazing with an acoustic rating of Rw 42 dB is required.
2. For the windows on the second and third floors facing Avenue and Old Steine, glazing with an acoustic rating of Rw 30 dB is required.

The windows facing East Street will be fully replaced with Slimlite double glazed windows to match existing. In addition, secondary glazing will be installed 200mm away from the inside reveal of the windows. The specified secondary glazing is Selectaglaze S80 6.8mm. For further details, please refer to the accompanying specification document.

MIDA

For the windows facing Avenue and Old Steine, these windows will be fully replaced with Slim-lite double glazed windows to match existing. For further details, please refer to the accompanying specification document.

The submitted documents include;

- Application Form
- Noise Assessment prepared by NRG Consulting (NA/ESOSB/20221014-RK)
- Proposed Window Details and Plans

The noise mitigation measures outlined above align with the recommendations provided in NRG Consulting's Noise Assessment and comply with BRE guidance and BS EN 17037:2018.

Sincerely,



David Mimran RIBA

slimlite Double Glazed Units BS EN 1279 Certificate

Double Glazed Units
Slimlite



Timber Georgian Sash and Case with Super Slimlite Double Glazed Units with 6mm, 8mm or 10mm cavity will comply with Document L for total overall window U Value 1.6 (See section detail).

Building Regulations Document L 2010 England.
Effective 1 October 2010

Section 6 (Energy) 2010 Scotland.
Effective 1 October 2010

Timber New Build or Replacement windows are required to have an overall total window U Value not exceeding 1.6.

Listed Buildings are exempt from this provision.

City Of Edinburgh - Listed Buildings

Edinburgh City Council, Historic Scotland and Edinburgh World Heritage have approved the use of Slimlite Double Glazed Units for A Listed and B Listed Buildings in Edinburgh which has the largest stock of Listed Buildings of any City in the UK except London.



It is not often that I get completely blown away by a building product, but I find this absolutely extraordinary, looks like a single pane of glass



Granted UK Patent Slimlite®

Kevin McCloud - Grand Designs 2009. TV

SashGlass Ltd

1, Royal Buildings, The Strand, Deal Kent CT14 7HD
Tel 01304 369 988 Fax 01304 379 881 Email. info@sashglass.co.uk

slimlite Double Glazed Units

slimlite Plus

- Standard Cavity Widths: 3.0mm - 4.0mm - 5.0mm - 6.0mm

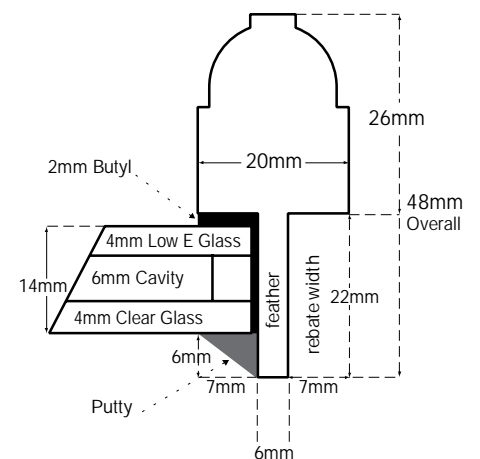
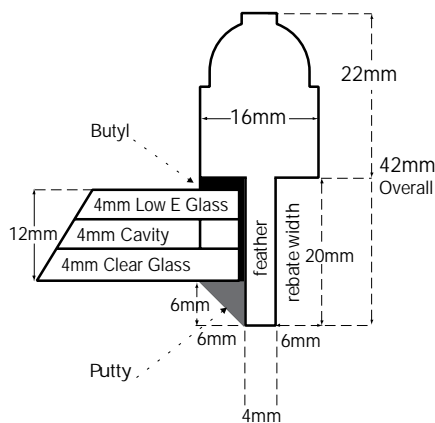
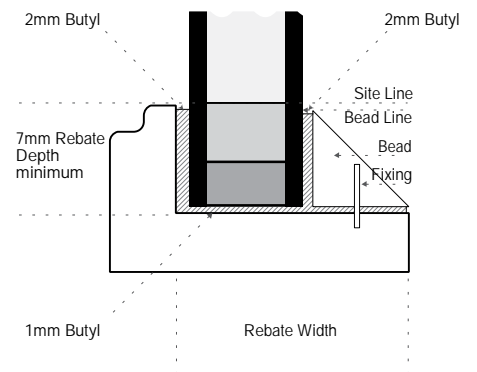
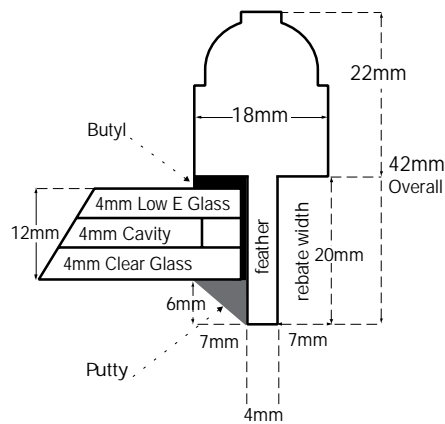
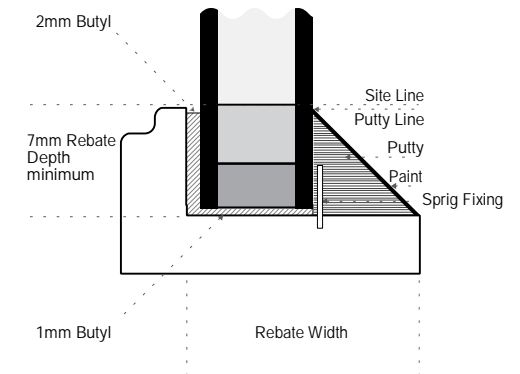
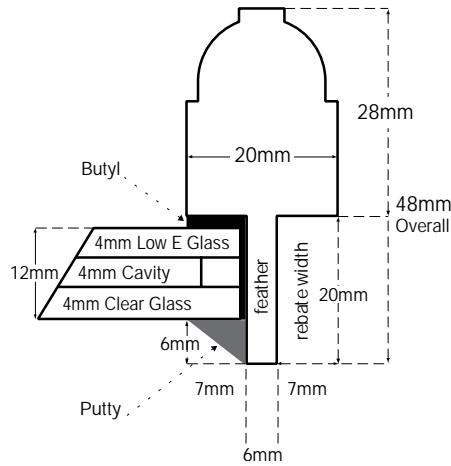
slimlite Super

- Standard Cavity Widths: 6.0mm - 8.0mm - 10.0mm

- Standard overall Perimeter Seal Depth - 5.0mm (overall tolerances + or - 1mm)

- Minimum timber rebate depth - 7.0mm

Section Standard astragal or glazing bars with Slimlite (not to scale)



Overall window U Value 1.6

Note

Glazing sizes should be less 2mm from height and 2mm from width. Allowance should be made where frame sizes are irregular.

Building Regulations

DOCUMENT L ENGLAND 2010
SECTION 6 (ENERGY) SCOTLAND 2010

New or replacement windows including timber frame and glazing require U Value not exceeding 1.6/Wm²K. this restriction does not apply to Listed Buildings which are exempt.

Certificate BSEN1279 (Manufacturing Requirement)

Certificate UKAS (U Values)

Copies available to all purchasers

Single Glazing U Value 5.8 (Wm²k)

Thermal insulation/U Value comparisons

Nominal Cavities 6.0mm, 8.0mm, 10.00mm (overall tolerances + or - 1mm)

U Values determined by BSEN673 and BSEN8990. All U Values UKAS Certified.

slimlite Super (Low Emissivity)

Suitable for compliance with Document L England and Section 6 (Energy) Scotland for new or replacement timber windows with total overall U Value not exceeding 1.6 (window frame and glazing). Certificated.

	U Value	Overall Thickness
Constructed 3 or 4mm Low E/6.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	U Value 1.4	12mm, 13mm, 14mm
Constructed 3 or 4mm Low E/8.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	U Value 1.3	14mm, 15mm, 16mm
Constructed 3 or 4mm Low E/10.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	U Value 1.2	16mm, 17mm, 18mm

slimlite Plus (Low Emissivity)

Suitable for reglazing into any existing single glazed windows including Listed Buildings and new or replacement windows in Listed Buildings.

Nominal Cavities. 3.0mm, 4.0mm, 5.0mm, 6.0mm (overall tolerances + or 1mm). U Values determined by BSEN673 and BSEN8990. All U Values UKAS certified.

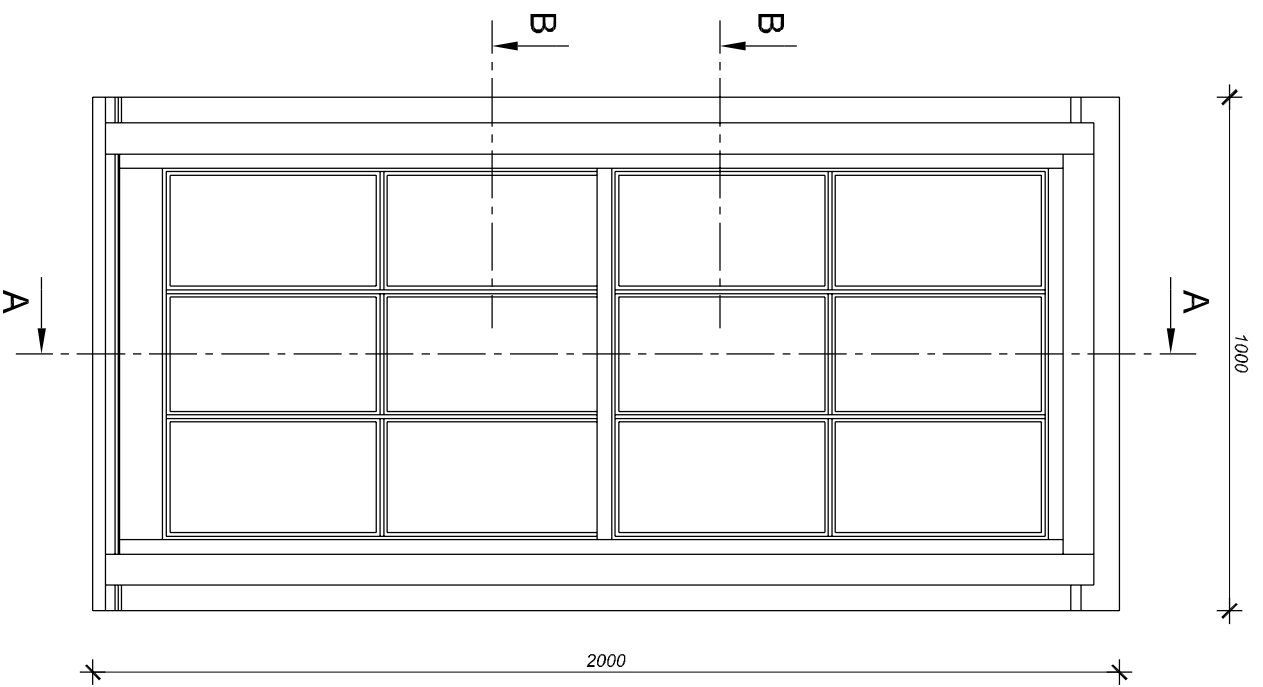
	U Value	Overall Thickness
Constructed 3 or 4mm Low E/3.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	U Value 2.1	9mm, 10mm, 11mm
Constructed 3 or 4mm Low E/4.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	U Value 1.9	10mm, 11mm, 12mm
Constructed 3 or 4mm Low E/5.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	U Value 1.7	11mm, 12mm, 13mm
Constructed 3 or 4mm Low E/6.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	U Value 1.5	12mm, 13mm, 14mm

Warm Edge spacer. It is generally considered that warm edge spacer used in Slimlite Construction will improve current stated U Values by 0.1 - 0.2.

Thickness of glass has little or no effect on insulation values.

Electronic Gas Testing

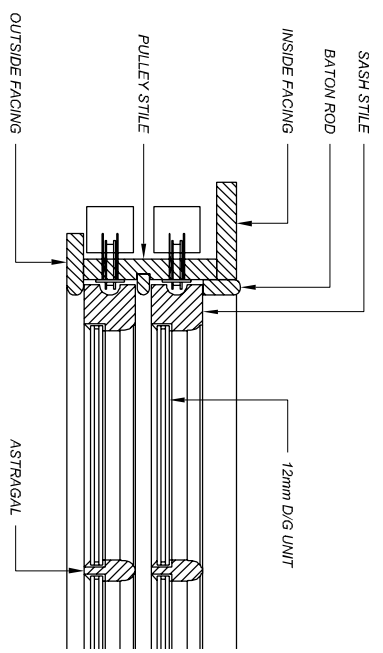
Slimlite Double Glazed Units are tested on completion by SPARKLIKE electronically for absolute accuracy of gas content.



Elevation

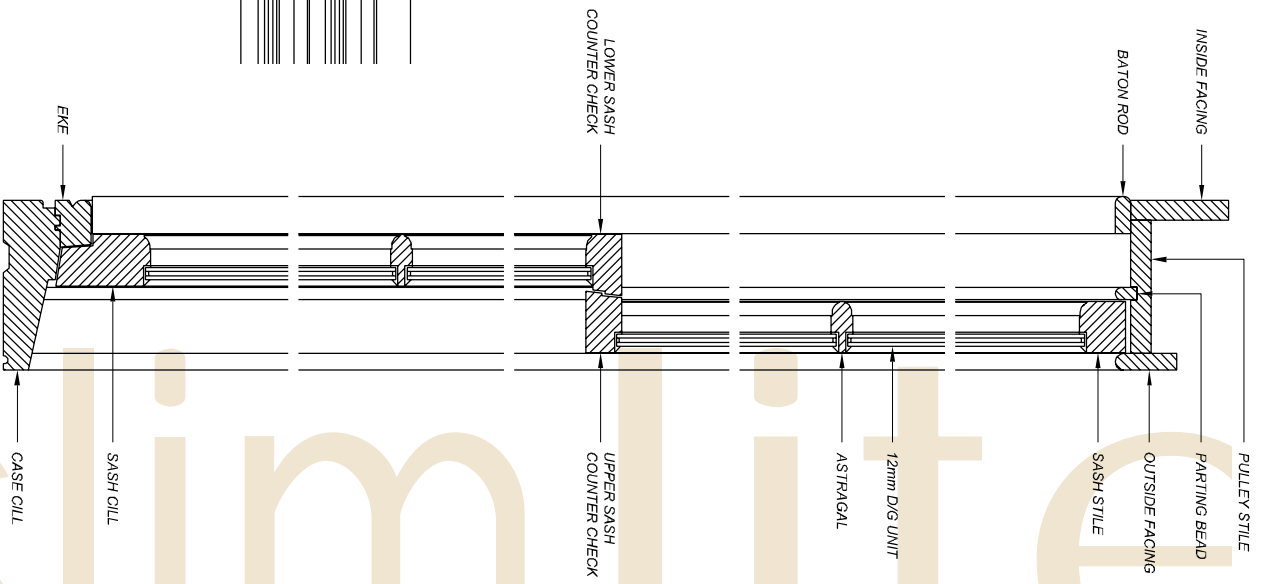
U-Value. Buildcheck
 The thermal performance of the window (Uw) in accordance with EN ISO 10077-1:2006 is: **1.6 W/m²K**
 All profile and PSJ calculations are in accordance with BS EN ISO 10077-2:2003

Authorisation
 Issued by: Richard Baile
 Name: Richard Baile
 Title: Technical Director
 Signature: *Richard Baile*

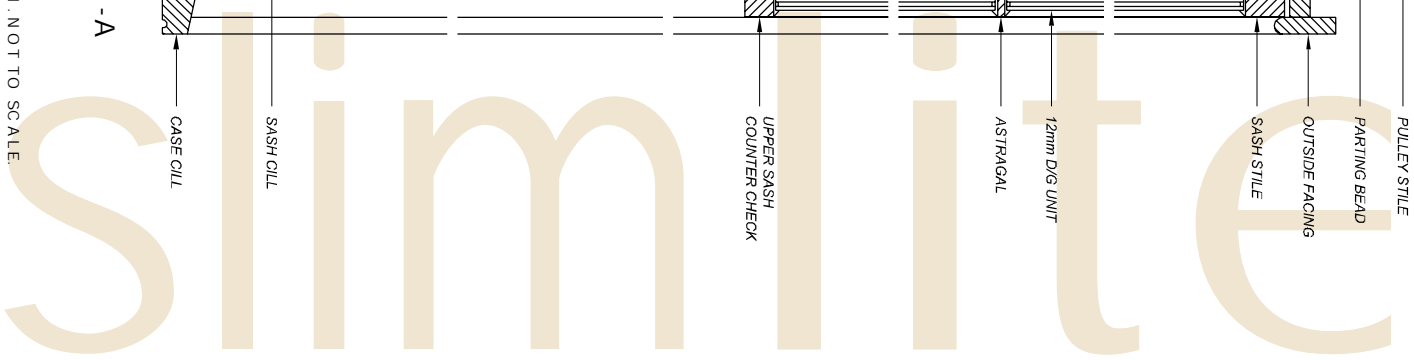


Section B-B

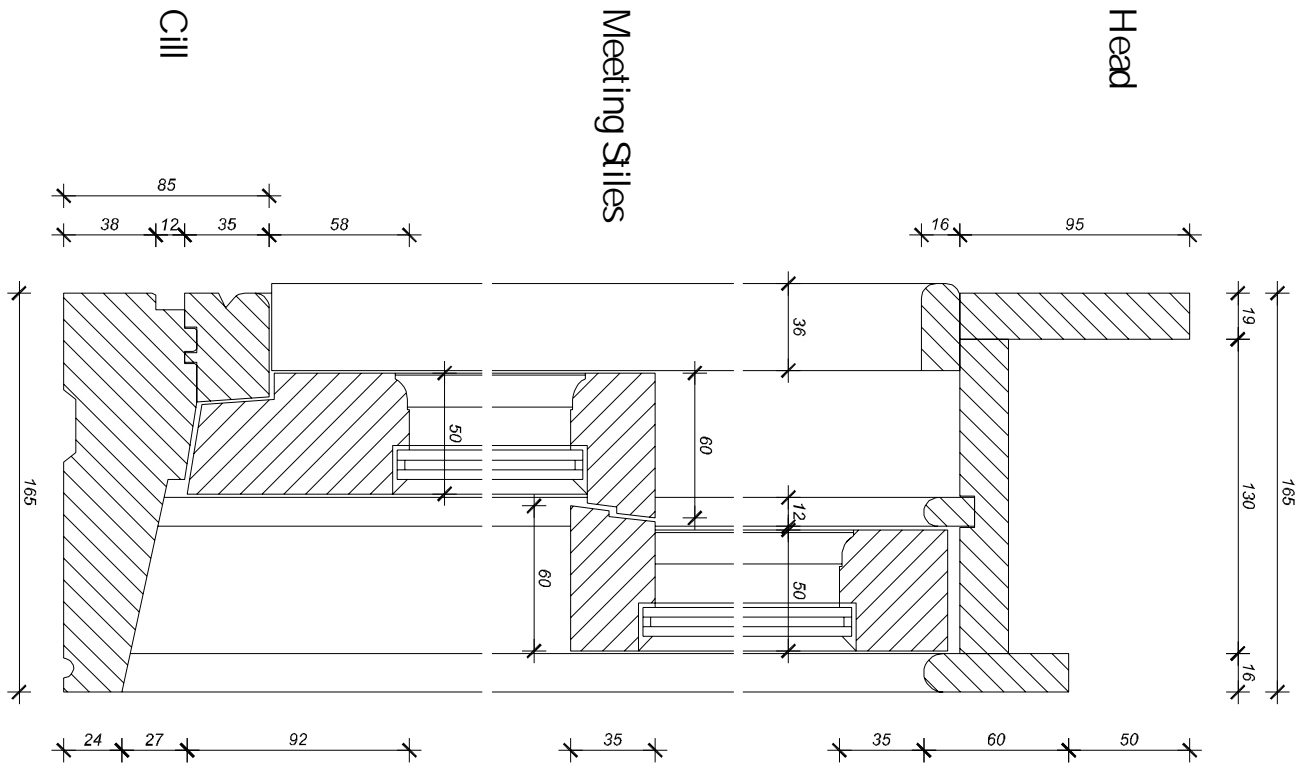
Complies with Document L 1st October 2010.
 Suitable for new or replacement windows.



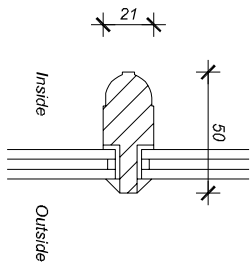
Section A-A



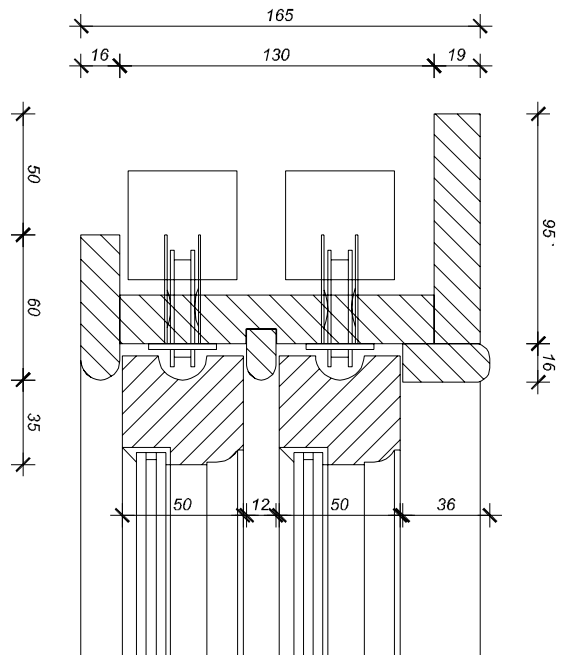
THIS DRAWING IS THE PROPERTY OF SLIMLITE DOUBLE GLAZING CO. LTD. AND ANY UNAUTHORIZED DISTRIBUTION TO A THIRD PARTY IS STRICTLY FORBIDDEN. NOT TO SCALE.



Astragal



Jamb



Double Glazed Units

Sound Reduction and U-Values

Sound reduction with double glazed units is an increasing concern for clients and specifiers to improve habitations where noise is a problem, generally in heavily populated areas.

Slimlite Double Glazed Unit cavities are filled with a mixture of Krypton and Xenon inert gases which are much heavier than the standard Argon and therefore provide much better sound reduction than standard units. The widths of cavities has little or no effect on sound reduction. Therefore each cavity will have the same effect.

Sound reduction in standard double glazed units 2 panes of 4mm glass with Air Cavity - 25 Decibels.

Slimlite Double Glazed Units - Sound Reduction (Acoustic Insulation)

Constructed:

Example: Normal noise reduction RW = 31 Decibels - Traffic C_{tr} = 27 Decibels

4mm Low E/4mm Cavity, gas/4mm clear
4mm Low E/5mm Cavity, gas/4mm clear
4mm Low E/6mm Cavity, gas/4mm clear
4mm Low E/8mm Cavity, gas/4mm clear

31 Decibels,	Traffic 27 Decibels,	U-Value 1.9
31 Decibels,	Traffic 27 Decibels,	U-Value 1.7
31 Decibels,	Traffic 27 Decibels,	U-Value 1.5
31 Decibels,	Traffic 27 Decibels,	U-Value 1.3

Other Constructions - Sound Reduction

Constructed:

6mm Low E/4mm Cavity, gas/4mm clear
4mm Low E/4mm Cavity, gas/6.8 Optiphon
4mm Low E/4mm Cavity, gas/10.8 Optiphon

33 Decibels,	Traffic 30 Decibels,	U-Value 1.9
35 Decibels,	Traffic 31 Decibels,	U-Value 1.9
38 Decibels,	Traffic 34 Decibels,	U-Value 1.9

Sound is measured over a range of frequencies and sound reduction is shown in Decibels, and a 3 Decibel reduction in sound will be very noticeable.

The higher decibel figure reflects increased sound reduction.



Sound Insulation ISO 717 (1982)

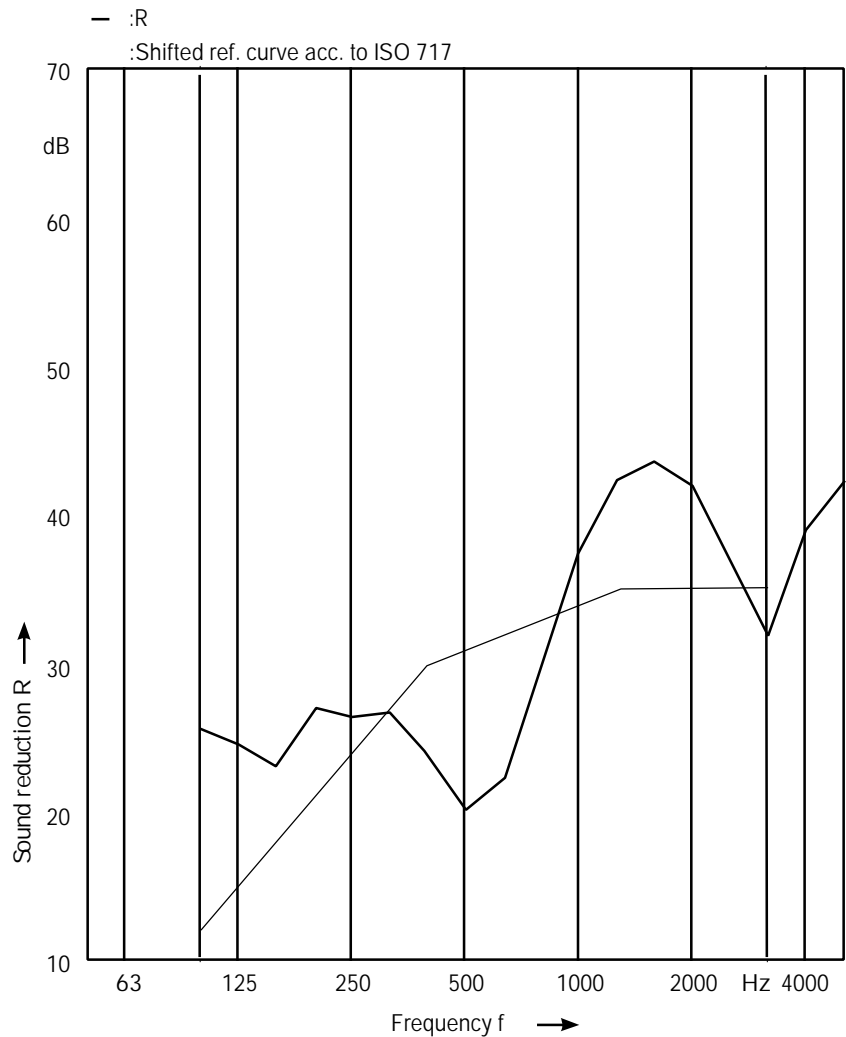
Client: Slimlite Double Glazing
 Test specimen mounted by: client
 Description of the specimen:
 4mm/4mm, cavity gas/4mm

Product identification: Double Glazed Unit
 Test room identification: Small Reverberation Room / Large Reverberation
 Date of test: 08-07-09

Size: 0.589 m²
 Mass per unit: 18 kg/m²
 Temperature [°C]: 21.9
 Humidity [%]: 50.4
 Source room Volume: 136 m³
 Receiving room Volume: 220m³

Frequency [Hz]	R 1/3 oct. [dB]
50	--
63	--
80	--
100	25.7
125	24.6
160	23.1
200	27.1
250	26.5
315	26.7
400	24.0
500	20.1
630	22.4
800	30.7
1000	37.9
1250	42.3
1600	43.7
2000	41.9
2500	37.3
3150	32.2
4000	39.1
5000	42.2

FREQUENCIES 50, 63 & 80 Hz ARE NOT UKAS ACCREDITED



Rating according to ISO 717-1	$C_{50-3150}$ -	$C_{50-5000}$ -	$C_{100-5000}$: -1dB
$R_w(C, C_{tr}) = 31$ (-2; -4) dB	$C_{tr50-3150}$ -	$C_{tr50-5000}$ -	$C_{tr100-5000}$: -4 dB
Evaluation based on laboratory measurement results obtained by an engineering method			

University of Salford School of Computing Science & Engineering

No. of test report: ac-09-140-03
 Salford, 8.07.2009

Signature:

A. Ultras

Construction Materials of Slimlite Double Glazed Units

Slimlite is probably the most innovative product to arrive in the Double Glazing Industry for many years and was achieved by utilising the very latest technology and best products available.

Glass

There are two types of emissivity glass referred to as (Low E), soft coat and hard coat. Soft coat is applied to one face of the glass often manufactured by vacuum deposit. The other hard coat is applied to the glass during manufacture and forms part of the glass. Hard coat is the selected Low Emissivity glass for Slimlite and should provide long term stability.

Spacer

Super Spacer is a North American, structural foam spacer with integral drying agent and is referred to as warm edge technology. This ensures there is no significant thermal difference around perimeter edge of unit, with significant advantages over other spacers, and is considered to reduce the calculated U Value by 0.1-0.2.

Sealant

D2000, a North American product which is the best Reactive Butyl Hot Melt system, with superior strength at high temperatures and importantly the lowest vapour transmission of any sealant on the market today.

Inert Gases

Krypton and Xenon are the best inert gases on the market, particularly for small cavities. They are also heavy gases, which is reflected in the superior sound reduction figures for Slimlite and additionally provide very good thermal insulation but are more expensive than Argon used in standard units.

Most manufacturers use Argon, a very light inexpensive gas which has little or no effect on sound reduction.

Solar Gain

Everyone knows that when the sun shines through a window, the room heats up from solar gain. This solar gain now forms part of the energy calculations to improve window energy ratings. There is therefore a desire to improve the solar gain through a double glazed unit by using glass with good solar gain, to increase the overall window rating.

However double glazed units in general are now providing much better insulation which substantially reduces heat loss and therefore any lengthy exposure to solar gain from large areas of double glazing can cause a room to become extremely hot as evidenced in conservatories requiring blinds, as heat cannot escape fast enough. A very important factor when choosing double glazing.

Slim
Double



General Information on Heat Loss in Glazed Timber Sash & Case Windows

Single glazed timber sash and case windows are very poor at conserving energy. The heat loss through single glazing which has a U-Value of 5.8 is around 70%.

This is caused by the single pane of glass which will be at approximately the same temperature as it is outside. In colder conditions in a room at around 20 degrees centigrade, the warm air will contact the cold single glazing and drop downwards at a rate exceeding two metres per second, sometimes mistakenly considered as a draught through window construction joints.

This causes a constant convection in a room where the air is being heated and then cooled by the cold single glazing, resulting in an expensive, continual 70% heat loss, through the glass.

Low E Double Glazing such as Slim**lite** reduces this heat loss by at least 50%, due in part to the Low E glass which reflects the long wave radiation or heat back into the room, combined with the insulating inert gases contained in the cavity of Slim**lite**, Krypton and Xenon, which are the most effective inert gas insulators.

The insulating effect keeps the inside pane, normally the Low E glass much warmer than the outside temperature, thereby considerably slowing down the convection mentioned above and reducing heat loss by around 50%.

Recent figures estimate that Low E double glazing such as Slim**lite** because of the escalating costs of energy will provide a pay back term of 3 to 5 years, depending on the insulation value.

Replacement of one square meter of single glazing by Low E double glazing will provide a saving of approximately 90Kg of carbon dioxide emissions per year.

The very design of sash and case windows permit the ingress of air which does not affect the thermal performance of Slim**lite** double Glazing. However a good quality draught proof system should reduce the draughts by around 80%.

Document L England - Section 6 Scotland

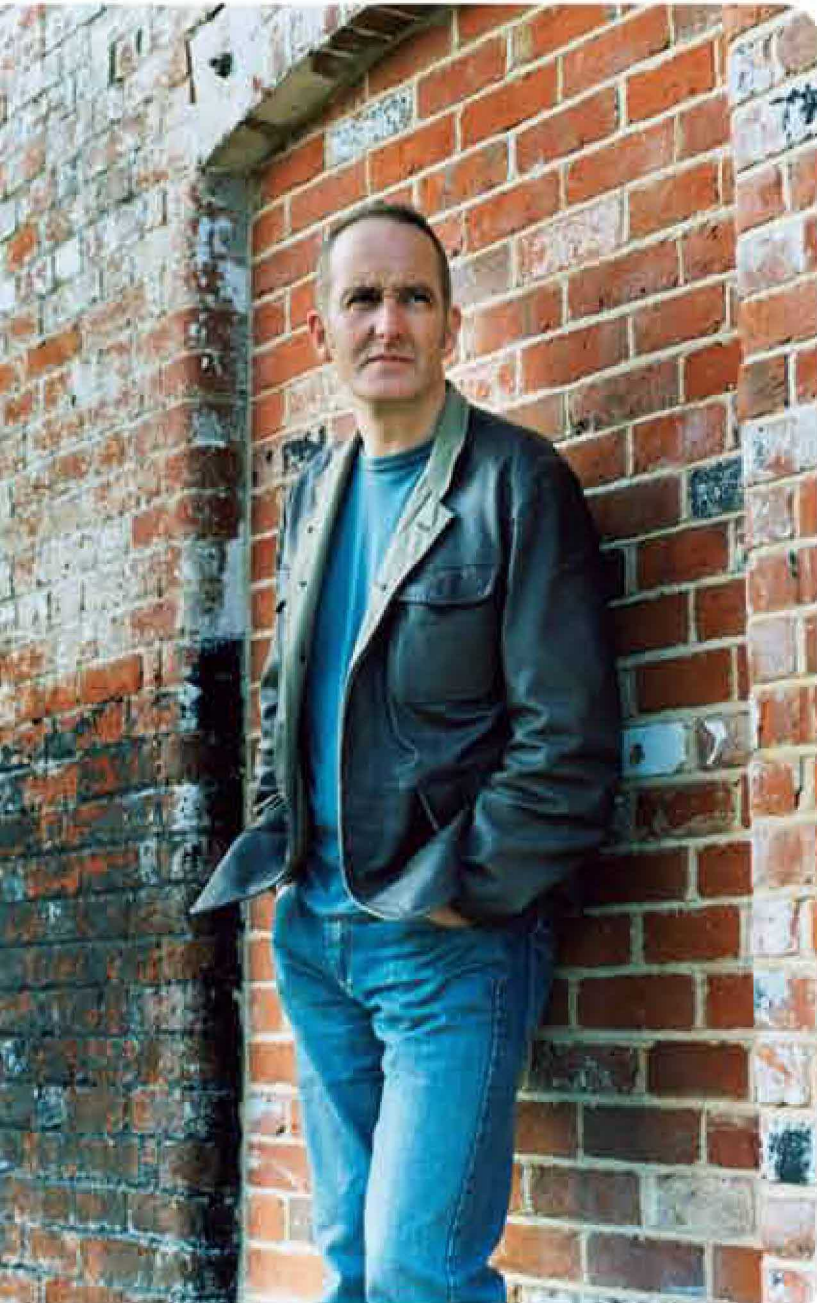
These new insulation requirements for windows are a result of the Kyoto Agreement to reduce carbon emissions and bring to an end the poor insulation of single glazed windows except for Listed Buildings. However Edinburgh have recently made a major policy change allowing replacement double glazing such as Slim**lite** to A and B Listed Buildings. As Edinburgh has more Listed Buildings than any other City in the UK except London, other City Authorities may well consider their current policies.



lite Glazed Units

Period drama

Continuing his new series on building materials, **Kevin McCloud** looks at ultra-thin double-glazing that's perfect for historic windows



Without glass we would be either extremely cold or stumbling around at home in the dark bumping into each other. Glass is the great revealer of light and shade in our buildings; without it there would be no interior design. Think about it - decorative wallpaper depends on an amorphous solid formed by melting then cooling sand.

The invention, not just of glass, but of framing systems, double glazing, special metal oxide coatings to reflect heat, gas-filled voids and silicone sealant have, in the past fifty years, been responsible for one of the most insidious conditions of the modern age: an addiction to light. Anybody building an office block, hotel or house instructs their architect that their building must be 'flooded' with light. Or 'inundated', or 'pooled'. Glass allows us to wash our architecture clean in the light of the sun and scour our souls. Forget brick, harbinger of gloom.

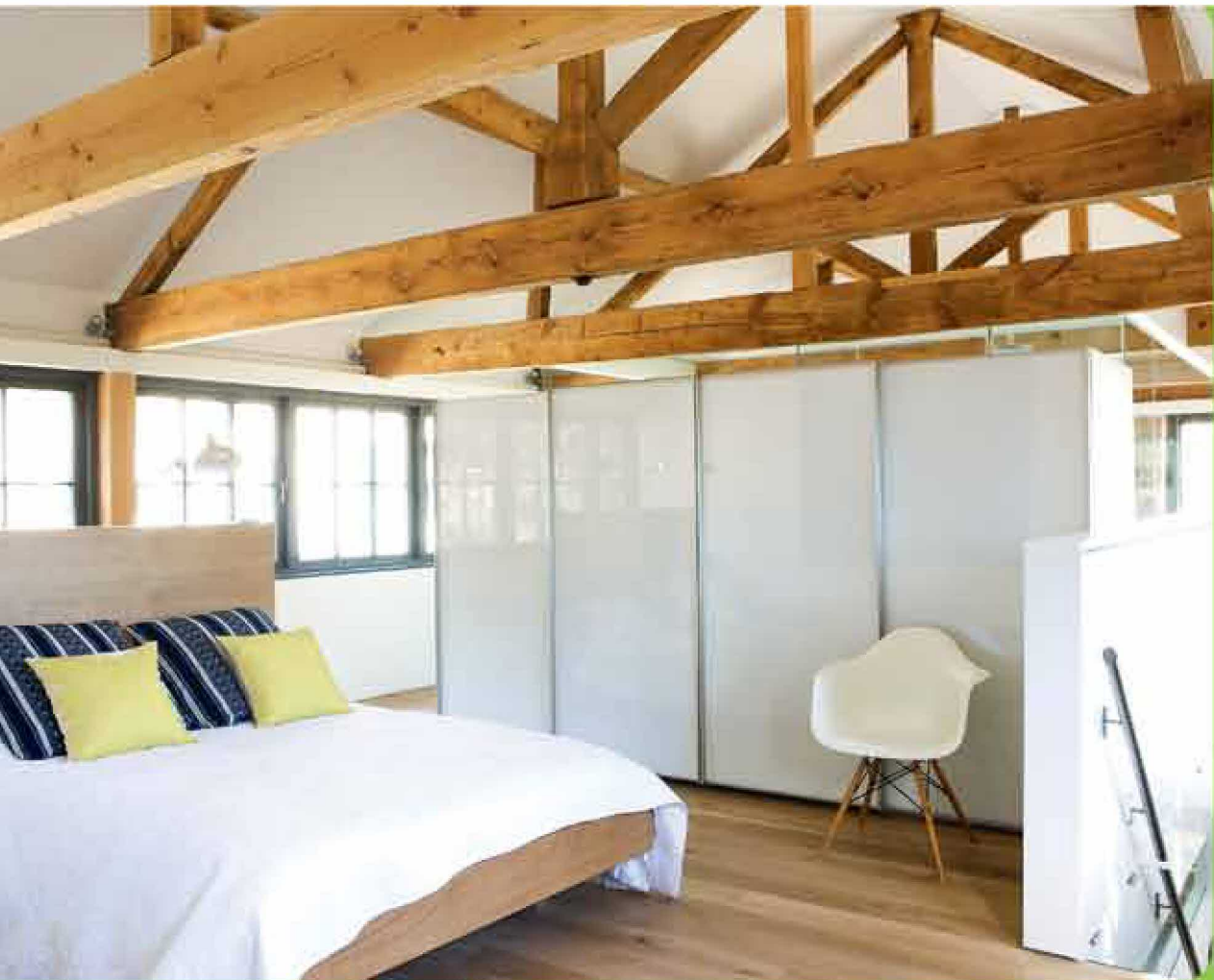
Unless you live in a listed building, of course. Or in a conservation area. Or in one of the several million Georgian, Victorian and Edwardian homes in Britain with modestly sized windows. Traditional homes are often gloomy in parts, not least because we hang curtains, fit shutters and put up blinds, partly for privacy, but partly in an attempt to keep the heat in the building. My own house has tiny windows set into stone walls half a metre thick. This has resulted in an addiction to gloom.

To make matters worse, the conservation culture that pervades Britain is so violently opposed to fitting energy-efficient double glazing to our listed buildings that we're all forced to hang curtains made from old duvets and candlewick bedspreads.

I do have a lot of sympathy for the conservation viewpoint, however. One of the principles underlying conservation theory in this country is that of minimal intervention: replace only the essential. A properly maintained Victorian terraced house with its original front door, cast-iron rainwater goods and fine sash windows is a handsome thing. A rare breed these days in your average street full of bastardised mutant houses. Moreover, if you've ever stood in a period house that's been fitted with uPVC double glazing, you'll know that the frames often leak and that the plastic is so weak and flimsy the only way the window stays in place is by beefing up all the sections of it so that the bit of glass ends up being half the size of the original. When they say 'replacement double glazing' they mean they're going to replace your glass with some thick white plastic that creaks.

So you would think that conservation officers across the land would rejoice at the news that it is now possible, after decades of research, to replace a cracked single pane of glass with a highly efficient panel of super-micro double glazing. A panel so finely detailed and slim (at 10 or 12mm thick) that it can be puttied into a Victorian sash or a finely carved Georgian lamb's-tongue glazing bar and not be noticed. A panel that can be heat-treated to give a subtle warp to the surface to mimic the hand-blown crown or cylinder glass of yesteryear. A panel so brilliantly made that it turns a cold, inefficient period window into one that is condensation-free and that meets current building regulations - with a U-value of just 1.8.





Trade secrets

Radar

Kevin McCloud

Report

Building blocks

Ask our architect

Green guide

Expert advice

Self-build planner

Insider guide

On the market

left Ian and Sophie Cooper used Slimlite double-glazing units to restore the windows of their former mill storehouse in Somerset

A wall's average U-value is 0.3; single pane glazing has a miserable value of between 5 and 6. This new double-glazing system, invented by a man called Jim in Edinburgh and sold by his company, Slimlite, matches the performance of standard double glazing thanks to its metal coated surface and a mixture of krypton and xenon gases in the tiny gap. In larger spaces these gases start to form convection currents, breaking down their insulating usefulness, but in a small void they're highly efficient.

But such carbon-conscious information has no appeal for conservation officers and the likes of English Heritage inspectors. There is currently a wall of rejection of this new technology in this country as the conservationists hide behind the duvet curtains. I agree that wherever possible the original fabric of a building needs to be conserved and retained. But globally we face climatic changes in the next hundred years that will affect both how and whether we value our historic environment, and threaten the structural integrity of many of our old buildings. Better to intervene now and make them more energy efficient by draughtproofing, insulating and double glazing them with this system, than allow them to contribute to global meltdown. Edinburgh has taken a lead in allowing the retrofitting of Slimlite to historic buildings; Bath Council has approved it for Ian and Sophie Cooper's historic industrial building (featured on *Grand Designs*, see page 66), but that's not enough.

Two per cent of our housing stock is listed. Piffing, you might say. But every time a conservation officer works with a homeowner to make a historic home more energy

Slimlite double glazing

Advantages

- ◆ Slimlite's double-glazed units are just 10-12mm thick, which allows them to be fitted to most existing single-glazing openings
- ◆ The units offer excellent insulation due to the thermally efficient inert gas (xenon or krypton) sandwiched between the two panes of glass
- ◆ Low-emissivity glass used for the inner pane reflects heat back into the room
- ◆ Replacing one square metre of single glazing with low-E double

glazing will give you a saving of approximately 50kg of carbon dioxide emissions per year by cutting down on heat loss, which will, of course, save you money on energy bills

Disadvantages

- ◆ They are not yet widely accepted by conservation officers for use in period buildings
- ◆ The cost may put you off - Slimlite double glazing costs around 60-70 per cent more than standard units. Prices start at £34 for a small (0.3sqm) window

efficient it informs local practice. In fact nearly 20 per cent of all our homes were built before 1918; 38 per cent were built before 1944. And when you realise that the vast bulk of the homes we'll be living in in 2050 are already built, you'll understand why we need to think creatively about adapting our homes to low carbon use. Which is why *Grand Designs Magazine* is launching the Great British Refurb campaign, working with the UK Green Building Council, the Energy Savings Trust

Slimlite Double Glazing Co
(Freephone 08450 666 123; slimliteglass.co.uk)

Visit:
www.granddesignsmagazine.com

Advantages of Slimlite Double Glazed Units

- Will Comply with Building Regulations Section 6 Scotland and Document L England for improved thermal insulation.
- 5mm perimeter seal of Slimlite Double Glazed Units enables them to be glazed into 7mm deep glazing rebates.
- The smaller cavities between the glass reduces the required glazing width rebates and enables slimmer sections to be used.
- The only double glazed unit that can be glazed into most standard astragals or glazing bars.
- Can be glazed into most existing single glazing glass rebates.

Crown Glass

This glass was manufactured in the early Nineteenth Century by spinning molten glass to a circular flat shape, cooling and cutting.

Our Reproduction Crown is created by a heating process to form ripples and distortion similar to that evidenced in the old crown glass. However, by ensuring that the perimeter edges are flat, it can be incorporated in a Slimlite Double Glazed Unit, normally on the outer pane to produce the desired visual appeal preferred by Heritage and Historic Associations.

Carbon Dioxide

In the 2004 Kyoto Protocol the EU pledged to reduce carbon dioxide emissions by 8% period 2008-2012, compared with the 1990 level. Estimated total residential emissions in the UK in 2005 was approximately 85 million tonnes. It is estimated that 27% of total carbon emissions are from property in the UK. Nearly all double glazing is now manufactured incorporating one pane of Low Emissivity (Low E) glass, which reflects the long wave radiation or heat back into the room.

The replacement of **one square metre** of single glazing with Slimlite Low E double glazing creates a saving of approximately **90Kg of carbon dioxide emissions per year**.

The average small house with **15 square metres** of single glazing replaced by Low E double glazing would **reduce carbon dioxide emissions by around 1350Kg per year**.

Glazing

General note on Glazing (see website www.slimliteglass.co.uk for further detail)

It is important that all methods of glazing with Slimlite Double Glazed units should ensure that it is water tight. This will prevent ingress of water into the window rebate. Any ingress over a period will cause vapour moisture transmission to effect the unit over time and lead to unit break down and decay if in timber window.

Painting to timber windows glazed with putty or compound should not be painted for at least 7 days. Generally timber windows should be painted every 5 years and 3 years in coastal areas.

Acoustic performance

A well sealed secondary window, with a cavity of at least 100mm can provide noise reduction in excess of 45dB. Combined with double glazed windows, up to 56dB is achievable. The result is a more peaceful living or working environment.

Why improve?

Most traditional single glazed windows with poorly sealed frames offer little defence against unwelcome noise and double glazed windows fare little better against high sound levels.

Noise is unwanted sound and a form of pollution that can affect hearing.

A significant reduction in noise level will:

- create a quieter less stressful environment
- reduce sleep disturbance
- help improve concentration and productivity
- protect hearing

World Health Organisation 'Guidelines for Community Noise' and Part 223 set out guidelines for acceptable sound levels in a range of environments. An acceptable sound pressure level (SPL) is 30 to 35dBA for a bedroom, 35 to 40dBA for a meeting room and 45 to 50dBA for a typical open office. Traffic noise close to the façade of a building on fairly busy roads will be 70 to 80dBA and hence sound reductions in the range 30 to 50dBA are required.

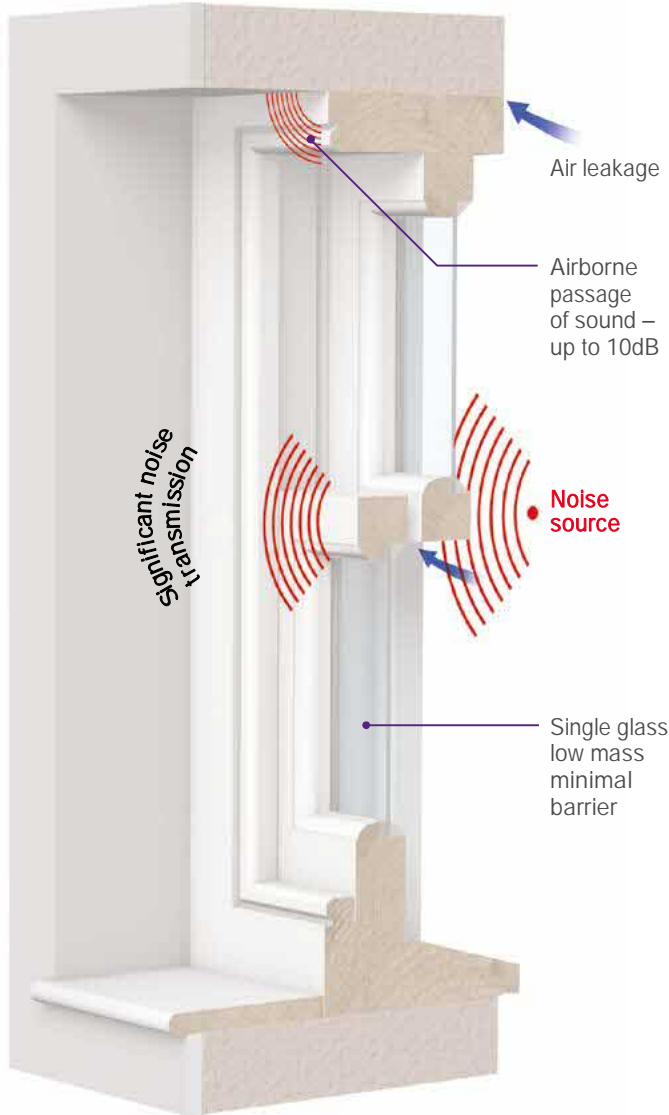
The Planning Policy Framework: 2012 assesses the impact of noise in new developments. Brownfield sites will often be located in areas with very challenging noise levels and window designs involving an additional secondary window to produce acoustic triple glazing can be pivotal in meeting acoustic requirements.

Building Bulletin 93, Acoustic Design of Schools Feb 2015 sets out standards for ambient noise levels in school rooms.

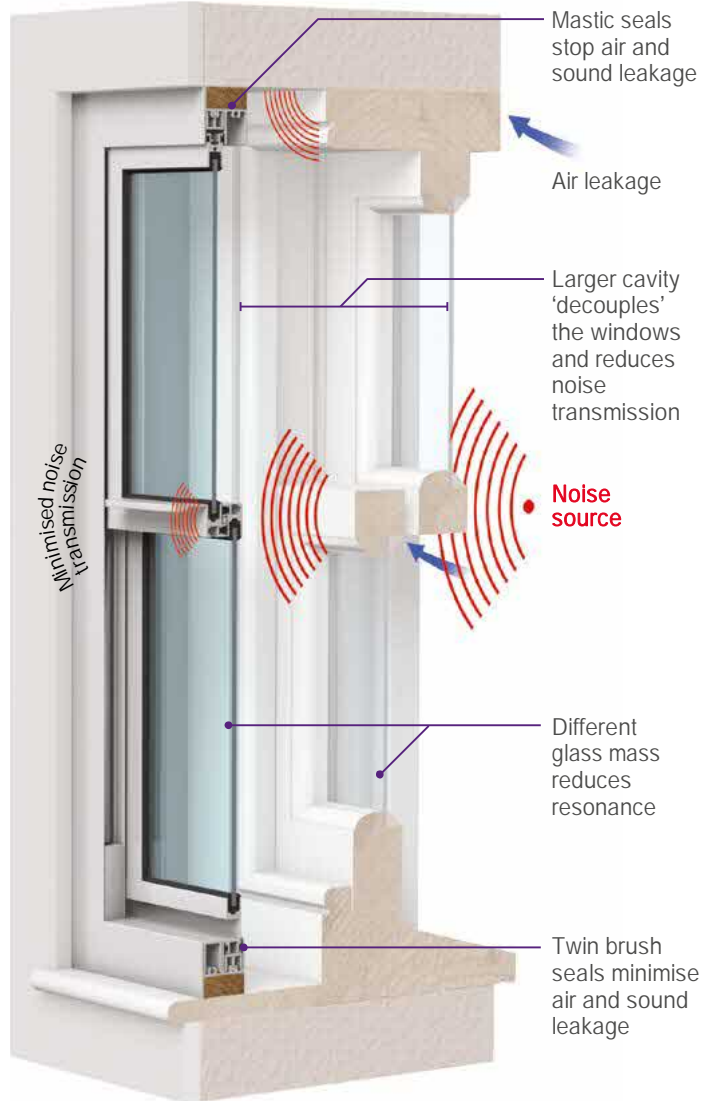


How secondary glazing improves acoustic performance

Original window...



...with secondary glazing

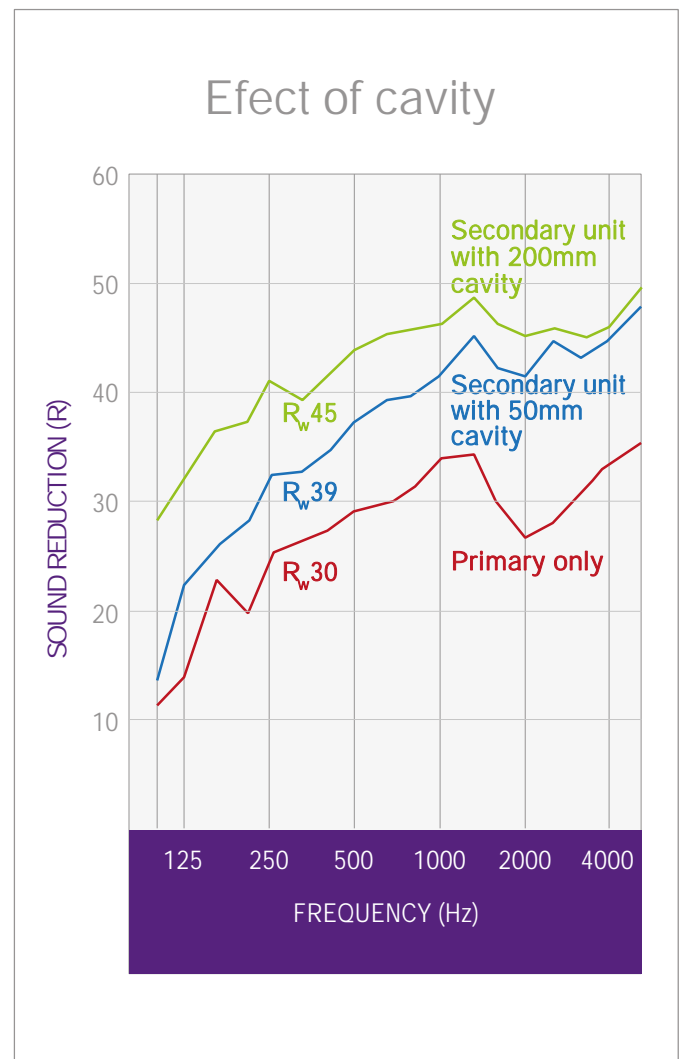
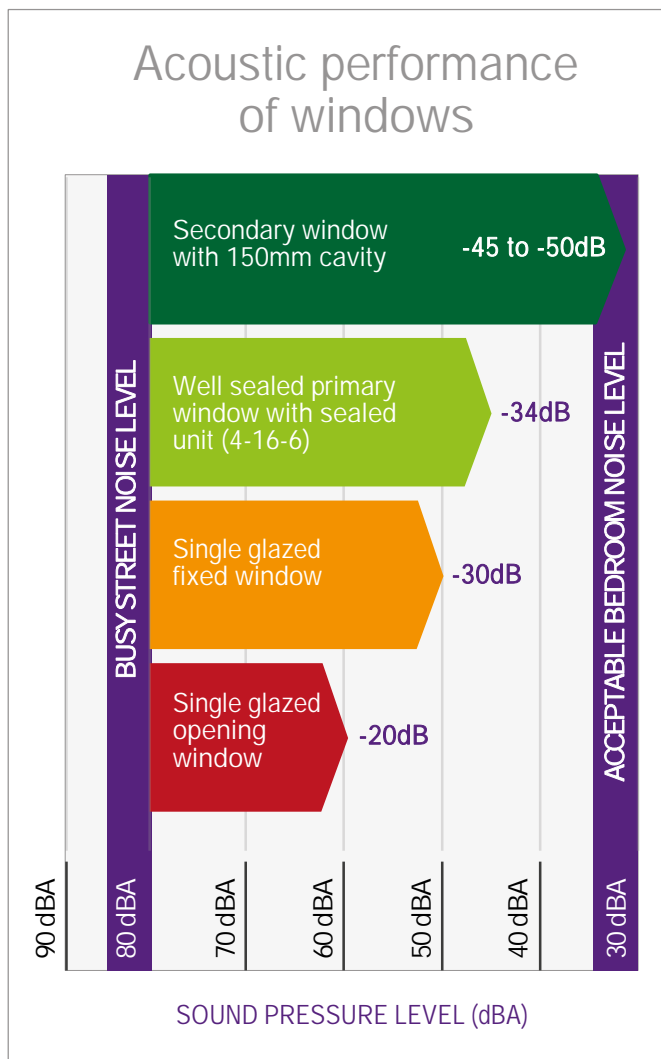


Sound is transmitted through a window by direct vibration of the glass. The larger air space created by secondary glazing decouples the movement of the inner and outer glass, which means they act as separate barriers, thereby reducing resonance.

By contrast, a typical sealed glass unit, where the two panes of glass are rigidly connected and have a minimal cavity, performs little better than a single pane.

Airborne sound is also a major problem with ill-fitting windows – a 1% gap in the total window area can reduce sound insulation by as much as 10dB. A purpose-made secondary window seals the whole of the external window with frames bedded on an acrylic sealant and opening panels fitted with high performance seals.

Optimising performance



Notes

Sound is measured as a pressure and expressed in dB (decibels) which is a logarithmic scale. 0dB represents the threshold of hearing and 120 dB the onset of pain. To the human ear a change of 3dB is just about noticeable whereas an increase of 10dB approximates to a doubling of loudness.

Cavity is the space between the existing primary windows and the secondary glazing. Performance improves as the cavity increases with an optimum of about 200mm.

Glass type and thickness have a direct impact on performance. Thicker glass has greater mass, so will provide better acoustic results. Ideally the secondary glass should be of different thickness to the primary window glass to avoid sympathetic resonance which will increase noise transmission. Acoustic laminate glass helps improve performance at higher frequencies.

Reveal linings are acoustic absorbent lining materials which can be fitted to the reveals, normally at the head and jambs. These raise insulation levels by 1 to 2dB and are used when external sound levels are very high.

Testing and certification

The product range has been tested against single glazed primary windows with 50mm, 100mm, 150mm and 200mm cavities. Testing was carried out by Taylor Woodrow Technology in accordance with Standard BS EN ISO 140-3: 1995 'Laboratory measurement of air-borne sound insulation of building elements'. Results were reviewed and interpolated by Hann Tucker Associates.

Please visit our website for performance figures. Summary tables are on page 50.

Case study: Ham Yard Hotel, London

Located in one of the most vibrant and bustling districts in Central London, lies the stunning Ham Yard Hotel.

Built on a plot that has been vacant for a number of years, the site has a creative past. During the 1920s Ham Yard was home to the Hambone Club for writers and musicians. During the 1940s it became a regular paid jazz club for London musicians called Club Eleven. During WWII the site saw serious damage through bombings and the area was never redeveloped.

Many plans were put forward over the years to develop the site, but all were rejected until, finally permission was granted for Firmdale Hotels to redevelop the area. They created 91 individually designed hotel bedrooms and 24 apartments, along with a 1950's style bowling alley, theatre and restaurant. However, building a hotel in the centre of an area with such vibrant night life does come with its drawbacks.

Although new double glazed windows were installed throughout, the hotel still suffered from high external noise levels. Firmdale Hotels approached Selectaglaze to help deliver a solution with their bespoke secondary glazing systems.

Three different unit styles were used, one of which was the Series 80 horizontal slider, typically used for larger windows as it can hold up to 12mm thick glass. Acoustic laminated glass was used, which absorbed sound from outside, to

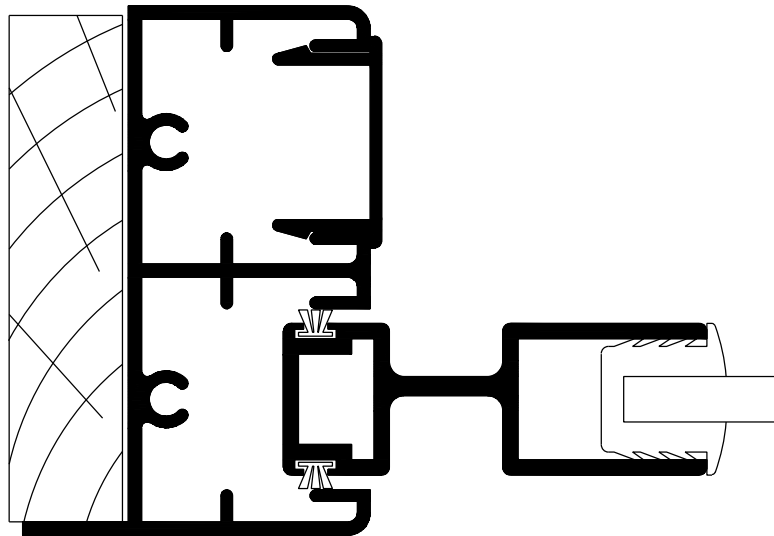
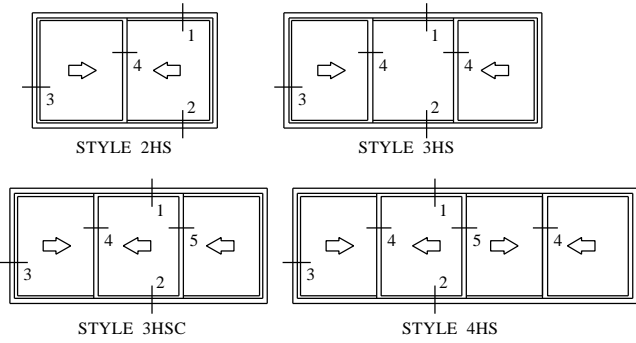


assist in creating a more peaceful and relaxing environment –as well as a good night's sleep.

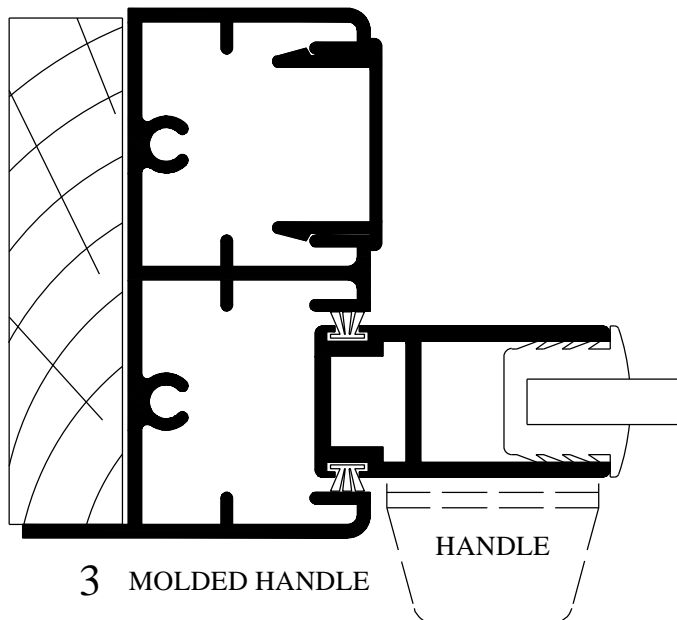
A total of 37 openings were treated with the secondary glazing being finished in a dark grey colour to match the existing primary windows, making them as inconspicuous as possible.

As testament to the detailed planning throughout the design and build phases, the hotel also gained a BREEAM 'Excellent' rating.

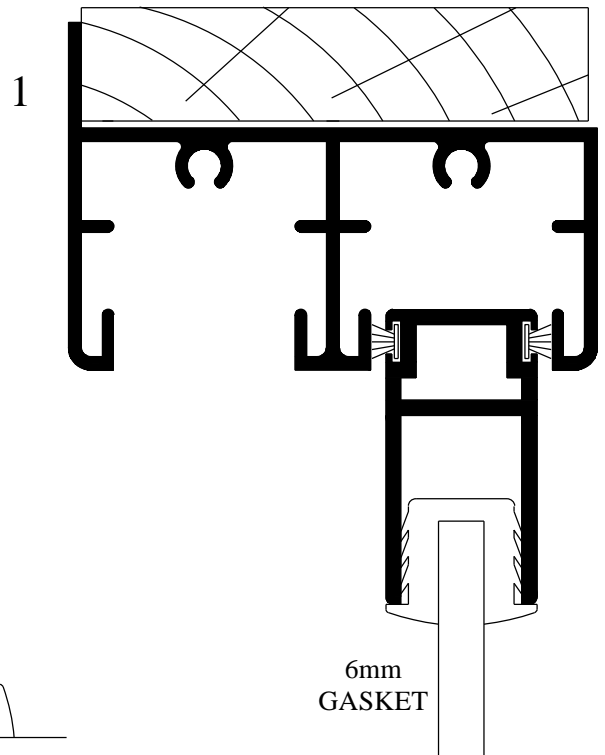




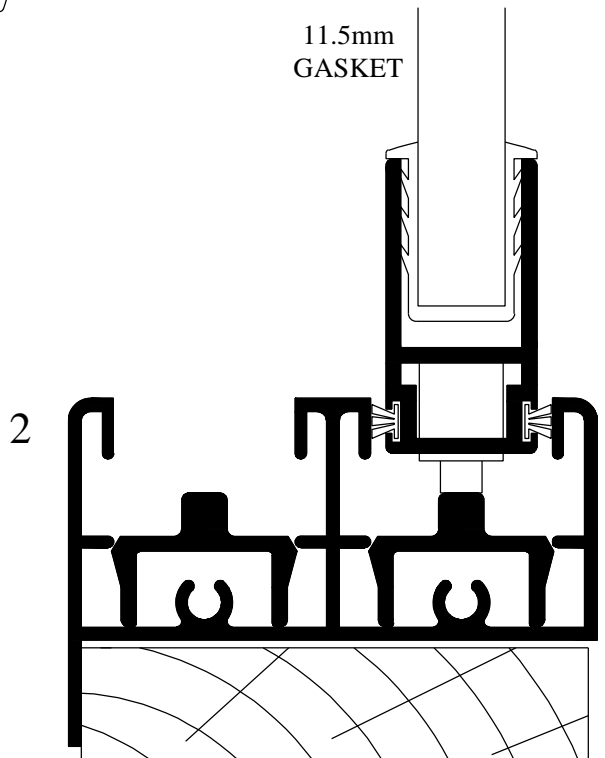
3 RECESSED HANDLE (OPTION)



3 MOLDED HANDLE



6mm GASKET

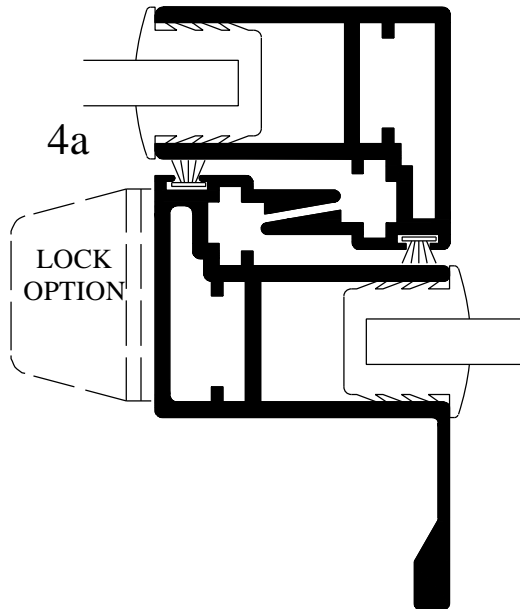
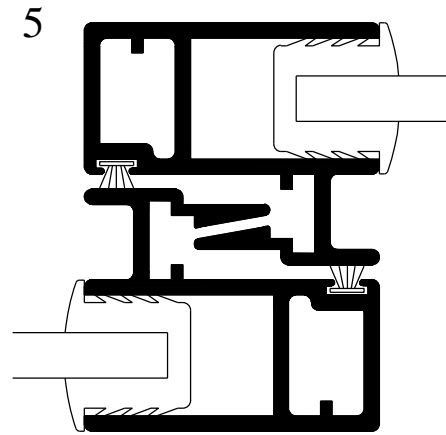
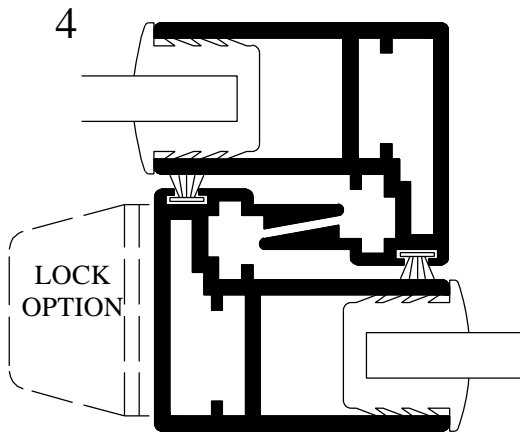


11.5mm GASKET

Drawings show standard 68 x 15mm softwood grounds without packing tolerance. Selectaglaze Ltd. reserves the right to alter any of the sections without prior notice.

SCALE 1:1
(print without scaling)

DRAWN	DATE	ISSUE	AA	AB	BA	BB	BC	BD
S. THOMPSON	06-10-06	C.N.	06/035	09/005	11/008	16-073	17-060	18-053
DESCRIPTION	SERIES 80 HEAVY DUTY HORIZONTAL SLIDING UNIT							
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			DATA SHEET NUMBER	DS-280			ISSUE BD	



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			DATA SHEET NUMBER	DS-280			ISSUE BD	