

# 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](mailto:info@sashglass.co.uk)

## slimlite Double Glazed Units

### slimlite Plus

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

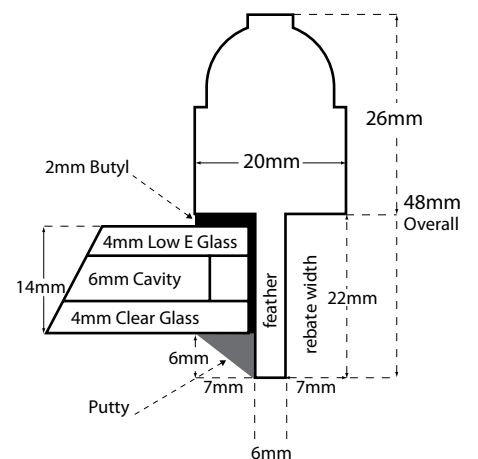
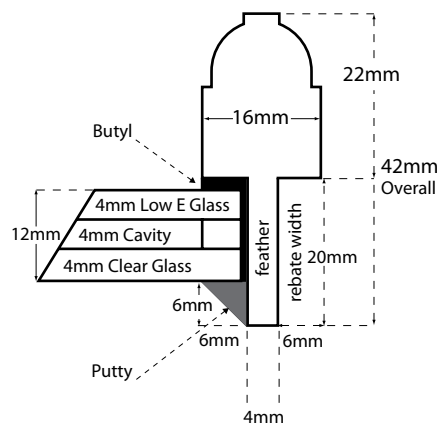
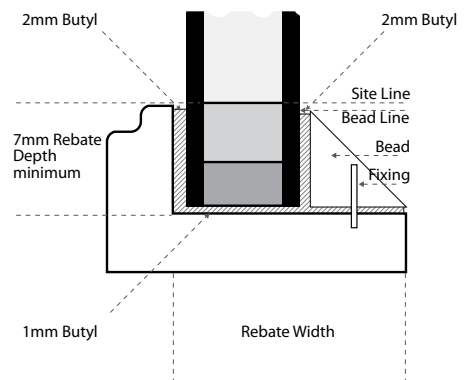
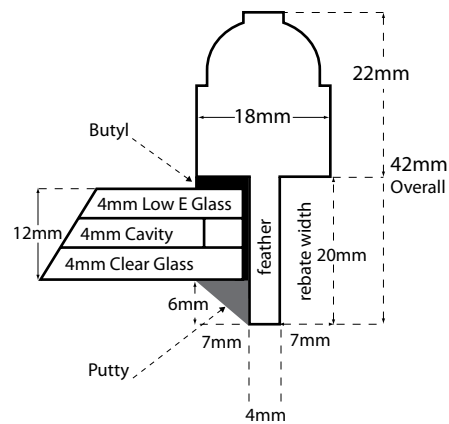
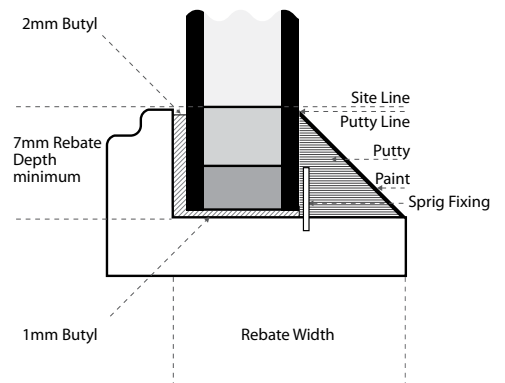
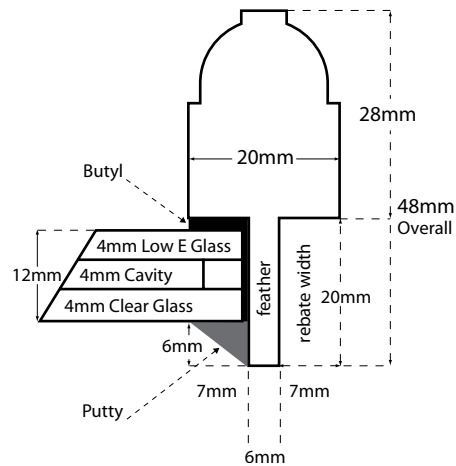
### slimlite Super

- 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 (UValues)

Copies available to all purchasers

Single Glazing UValue 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.

	UValue	Overall Thickness
Constructed 3 or 4mm Low E/6.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	UValue 1.4	12mm, 13mm, 14mm
Constructed 3 or 4mm Low E/8.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	UValue 1.3	14mm, 15mm, 16mm
Constructed 3 or 4mm Low E/10.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	UValue 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.

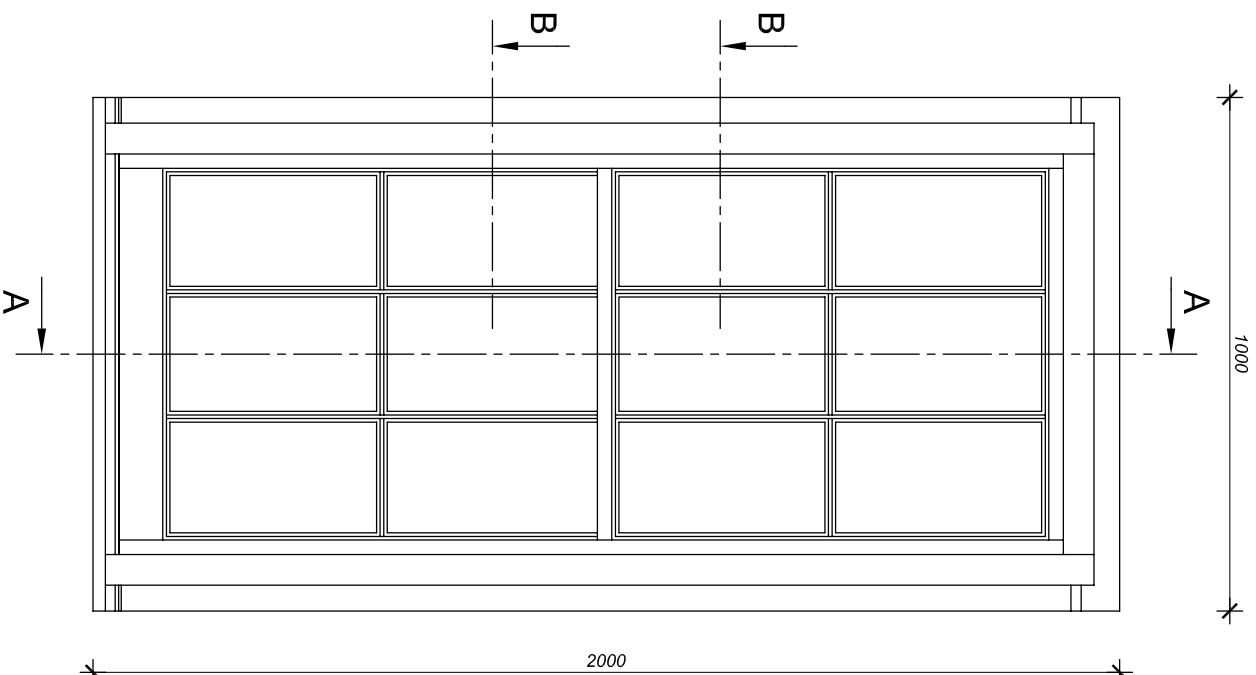
	UValue	Overall Thickness
Constructed 3 or 4mm Low E/3.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	UValue 2.1	9mm, 10mm, 11mm
Constructed 3 or 4mm Low E/4.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	UValue 1.9	10mm, 11mm, 12mm
Constructed 3 or 4mm Low E/5.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	UValue 1.7	11mm, 12mm, 13mm
Constructed 3 or 4mm Low E/6.0mm Cavity, gas/3 or 4mm clear float or Reproduction Crown	UValue 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 ( $U_w$ ) in accordance with EN ISO 10077-1:2006 is: **1.6 W/m<sup>2</sup>K**

All profile and PSI calculations are in accordance with BS EN ISO 10077-2:2003

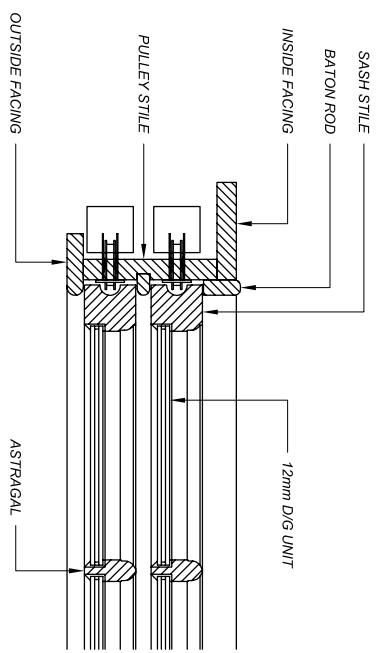
Authorisation

Issued by:

Name: Richard Bate

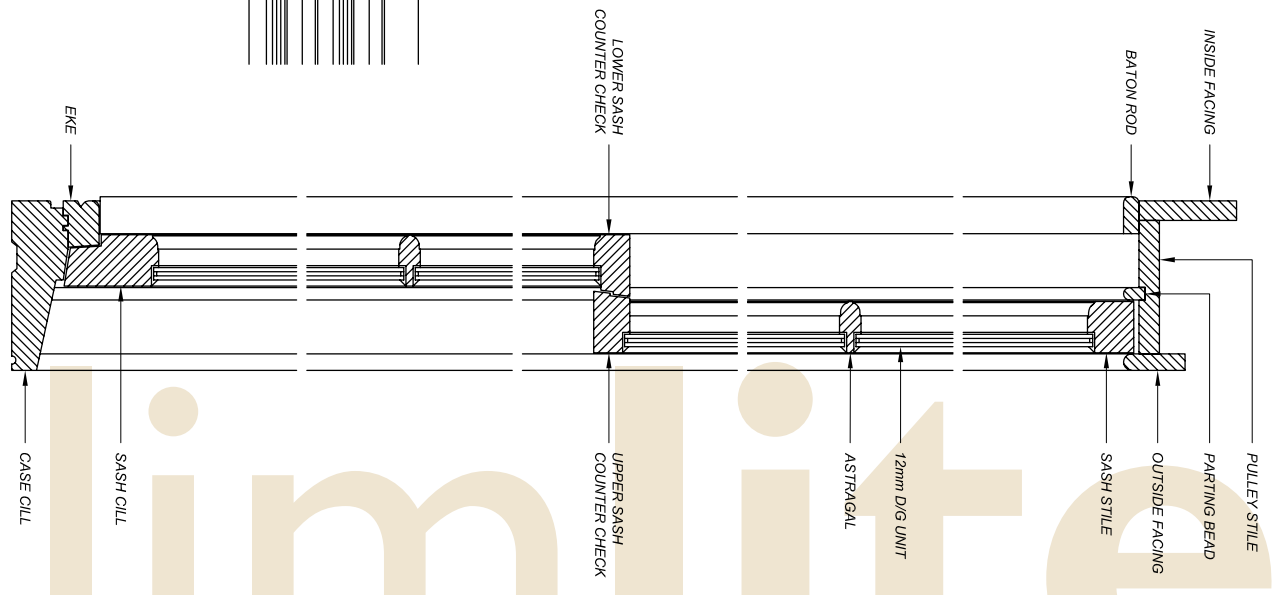
Title: Technical Director

Signature: *Richard Bate*

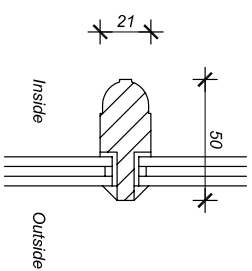
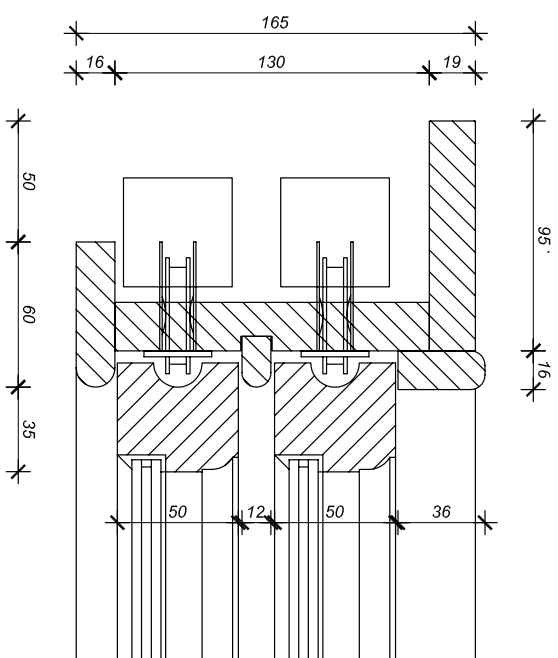
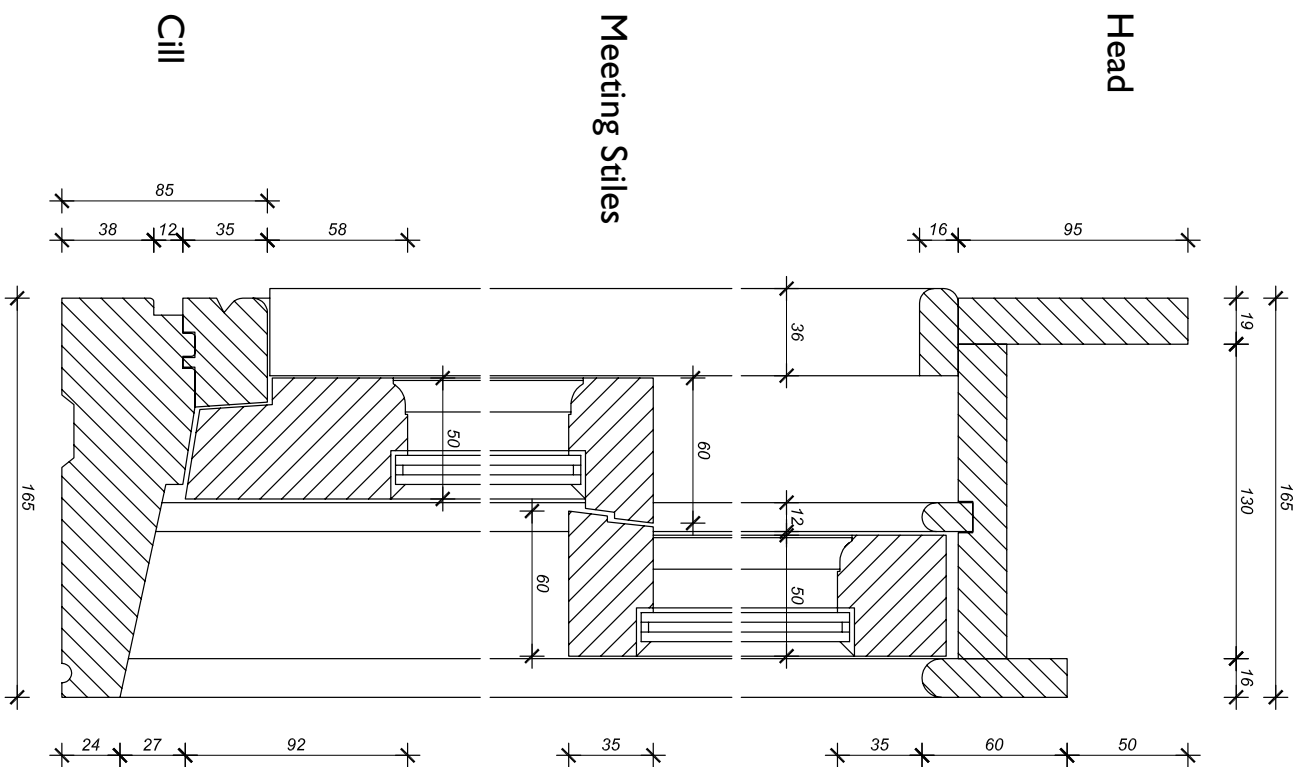


Section B-B

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



Section A-A



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# 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<sub>tr</sub> = 27 Decibels

4mm Low E/4mm Cavity, gas/4mm clear	31 Decibels,	Traffic 27 Decibels,	U-Value 1.9
4mm Low E/5mm Cavity, gas/4mm clear	31 Decibels,	Traffic 27 Decibels,	U-Value 1.7
4mm Low E/6mm Cavity, gas/4mm clear	31 Decibels,	Traffic 27 Decibels,	U-Value 1.5
4mm Low E/8mm Cavity, gas/4mm clear	31 Decibels,	Traffic 27 Decibels,	U-Value 1.3

## Other Constructions - Sound Reduction

**Constructed:**

6mm Low E/4mm Cavity, gas/4mm clear	33 Decibels,	Traffic 30 Decibels,	U-Value 1.9
4mm Low E/4mm Cavity, gas/6.8 Optiphon	35 Decibels,	Traffic 31 Decibels,	U-Value 1.9
4mm Low E/4mm Cavity, gas/10.8 Optiphon	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 m<sup>2</sup>

Mass per unit: 18 kg/m<sup>2</sup>

Temperature [°C]: 21.9

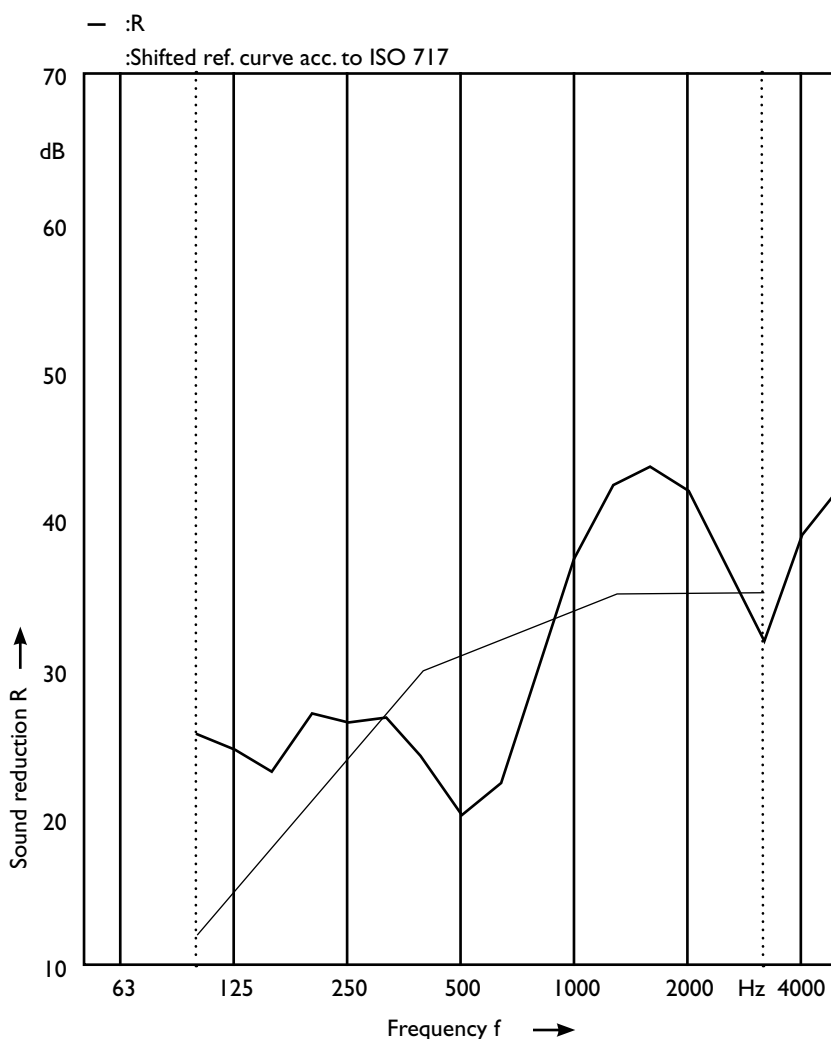
Humidity [%]: 50.4

Source room Volume: 136 m<sup>3</sup>

Receiving room Volume: 220m<sup>3</sup>

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

$R_w(C, C_{tr}) = 31 (-2; -4) \text{ dB}$

$C_{50-3150}$

$C_{50-5000}$

$C_{100-5000} -1 \text{ dB}$

$C_{tr50-3150}$

$C_{tr50-5000}$

$C_{tr100-5000} -4 \text{ dB}$

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. Eltrid*

## 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 Slimlite 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 Slimlite, 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 Slimlite 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 Slimlite double Glazing. However a good quality draught proof system should reduce the draughts by around 80%.

### Document L England - Section 6 Scotland

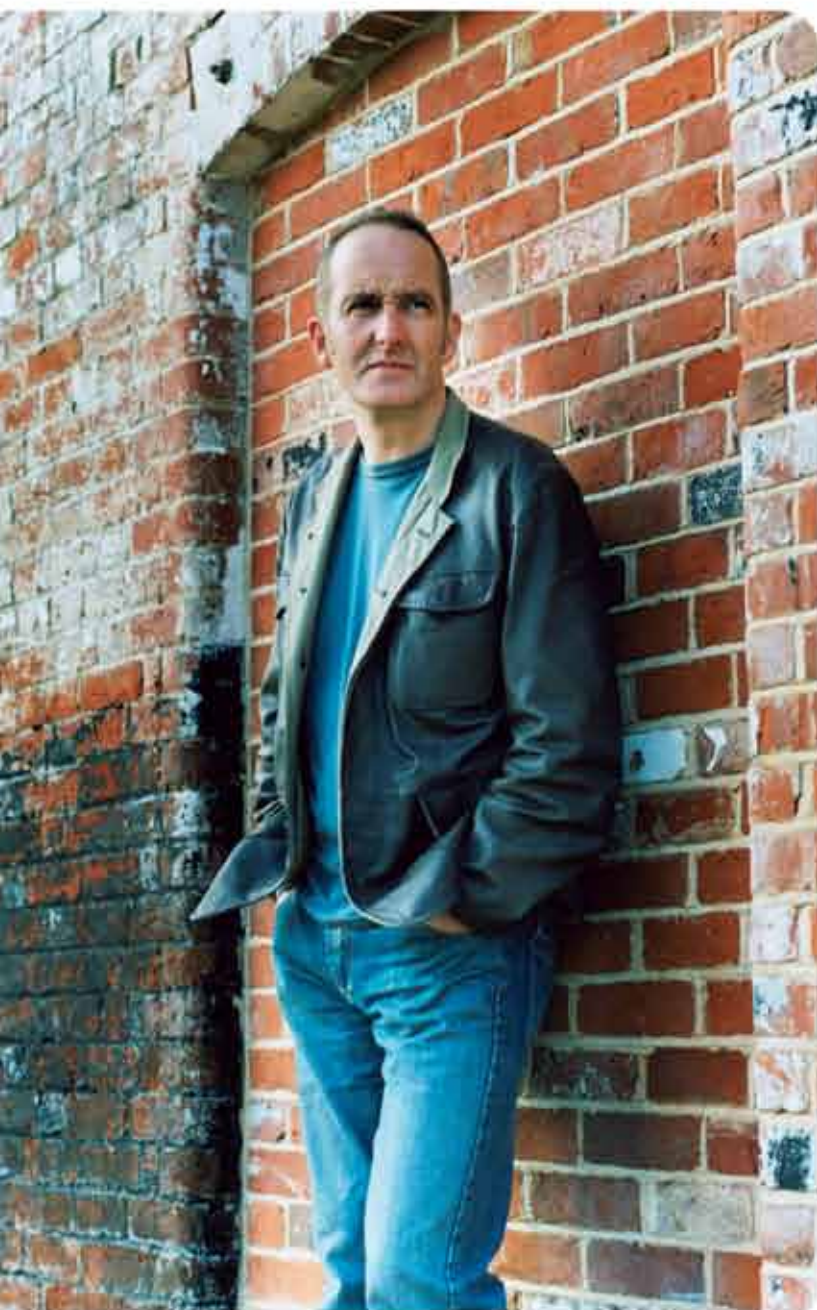
These new insulation requirements for windows are a result of the Kyoto Agreement to reduce carbon emissions and bring to an end the poor insulation of single glazed windows except for Listed Buildings. However Edinburgh have recently made a major policy change allowing replacement double glazing such as Slimlite 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 fittted 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. Piffling, 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](http://slimliteglass.co.uk))

Visit:  
[www.granddesignsmagazine.com](http://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](http://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.