



SLIM GLAZE



IMC Glass have invested in the design and manufacture of these specialist slim double glazed units that satisfy the requirements of a low sight line to be fitted in traditional timber frames and we are the **ONLY** fully certified manufacturer of heritage type double-glazed units in all of Ireland.

It is no longer necessary to expect people who live in old buildings not to optimise their insulation. This product provides the alternative to turning up the heating and allows people to live more comfortably in older properties. The Slim-glaze warm edge spacer technology consists of a poly metric tape that has a desiccant embedded in its structure. It is physically smaller than a contemporary spacer bar and more attractive. It allows the perimeter margin to be kept to a minimum so it can be glazed in traditional glazing rebates.

The double glazing has a perimeter seal from edge of glass to inside of spacer bar of 7mm + or - 1mm. Units can also range from 11mm to 16mm in overall thickness. Large panes up to 1m² only can be manufactured using 4mm spacer, for panes over 1m² please increase the cavity to 6m or 8m depending upon the size of the unit required.

OUR SLIM GLAZE UNITS ARE FILLED WITH PURE KRYPTON OR XENON GAS



Unlike other inferior products on the market, we only use pure krypton or xenon, not a krypton/argon mix, which is less efficient. We also use a sealant that has been specially designed for double glazing. It produces smaller, more discreet seals and is considered the best on the market.

JUST HOW SLIM ARE OUR SLIM GLAZE UNITS?

Our Slim Glaze units start at just 11mm overall thickness... about the diameter of a Biro.



IMC GLASS AWARD WINNERS



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BENEFITS OF SLIM GLAZE DOUBLE GLAZING



THERMAL EFFICIENCY

The thermal efficiency benefits of IMC Glass Slim Glaze double glazing can now be even better than standard double glazing, achieving U-values (the term used to measure thermal efficiency) of as low as 1.2 on a 6mm cavity and 1.1 on a 8-cavity, depending on the type of gas fill used in the cavity. The reduction of heat lost through the glass is up to 77% as when compared against single glazing and it is possible on some windows to use Slim- Glaze units to achieve the Part L- building regulations for thermal efficiency.

INERT HEAVY GAS

The thermal conductivity properties of krypton and xenon are much lower than air, meaning they are much more efficient insulators and are excellent at reducing U-values in sealed double glazed units. All our slim glazing uses these two gases exclusively, meaning you get excellent insulation against both cold and noise.

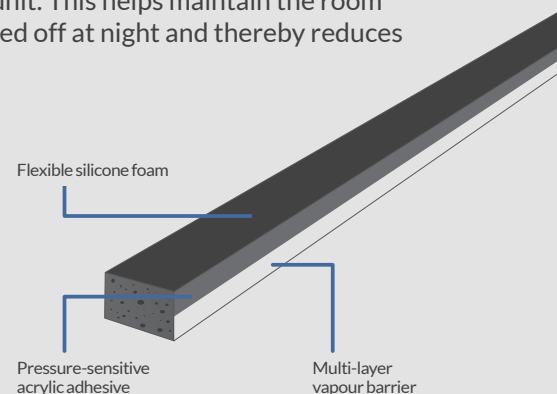


MINIMISE CONDENSATION

Continual condensation can seriously deteriorate the lower sections of a timber frames. Slim Glaze double glazed units will slow down the dew point being reached. The inner pane of the double glazed unit is warmer than the outside pane and our warm edge 'super spacer' bar acts as a thermal break, stopping the cold reaching the inner pane of the unit. This helps maintain the room temperature when the heating is switched off at night and thereby reduces condensation and heat loss.

SLIM GLAZE SPACERS

- High performance
- Blend with any frame finish
- 4mm, 6mm or 8mm unit cavity
- Just 3mm in depth
- Ruler straight edges
- Sharp 90° corners



ALL SLIM GLAZE DOUBLE GLAZED UNITS CARRY A 5 YEAR WARRANTY AND A COPY CAN BE SUPPLIED ON REQUEST.

HOW IMC SLIM-GLAZE UNITS WORK

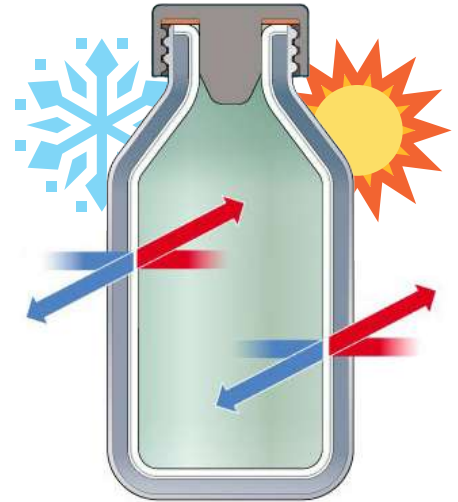
INVISIBLE COATING ON GLASS COMBINED WITH KRYPTON OR XENON GAS WORK THE SAME WAY A SILVER LINING WORKS IN A THERMOS BOTTLE

When a hot liquid is placed inside a silver lined thermos, the heat from that liquid tries to escape the thermos. The silver lining reflects the heat back inside, helping to maintain the liquid's temperature.

With a cold liquid, the lining serves to repel the heat from the outside. The air space between the silver lining and the exterior of the thermos adds to the insulating value of the lining.

IMC Slim-Glaze coating work in the same way. These microscopically thin, invisible coating reflect the sun's infrared light back outside to maintain comfortable temperature in the room and they increase the insulating value of the window.

With the cavity width inbetween the glass filled with Krypton or Xenon gas and using warm edge spacer which will slow down the dew point being reached and will act as a thermal break, stopping cold reaching inside.



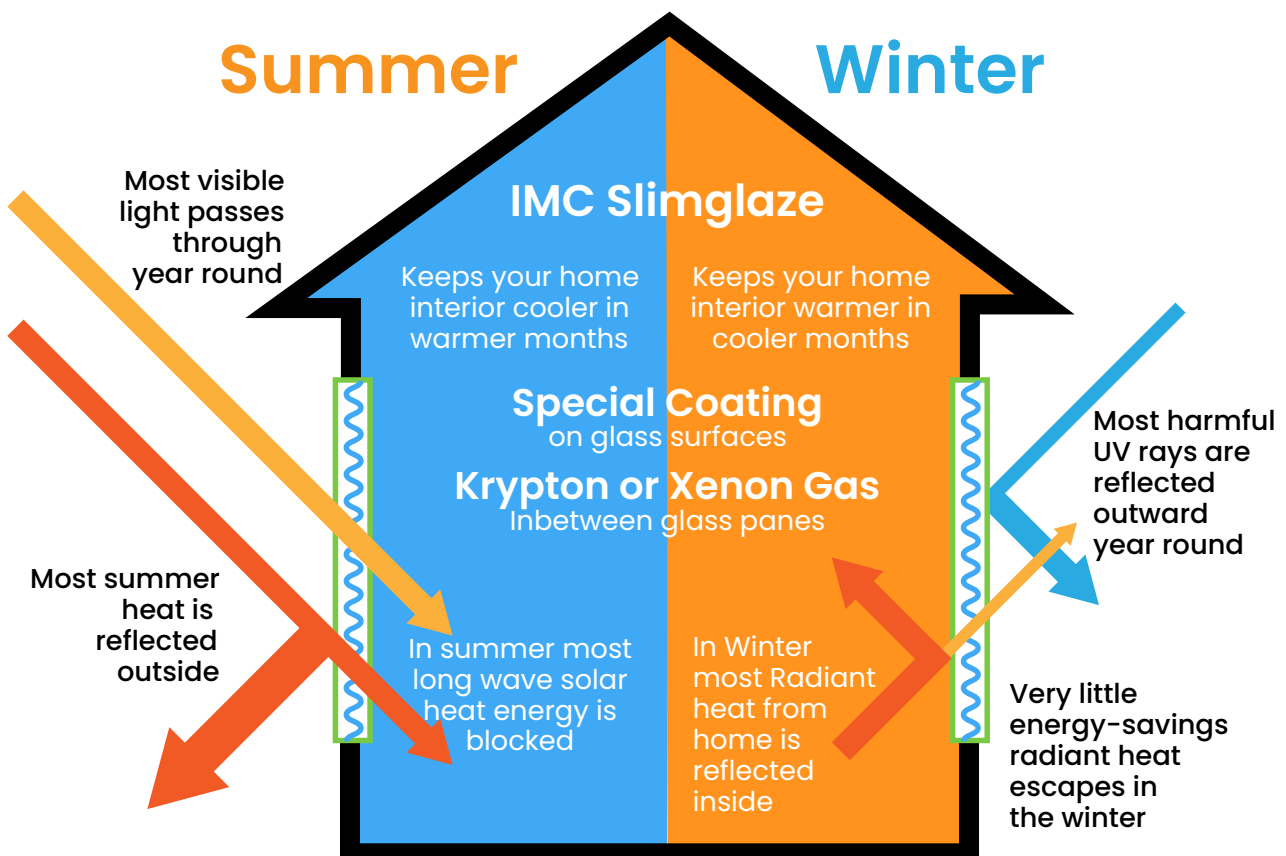
STAY COOL IN SUMMER, WARM IN WINTER

IMC Slim-Glaze double glazing is designed to keep you cool in the summer and warm in the winter.

Many older double-glazed units do not contain low-emissivity (low-e) glass or inert gases like Krypton gas which means they are poor at retaining energy and leads

to major heat loss within the home and therefore are not energy efficient.

IMC Slim-Glaze is designed to dramatically reduces the heat transfer and reflects exterior heat back into the home and keep cold out.



NEED GREATER TRANSPARENCY?

When the sun shines through a window the room heats up and this is referred to as Solar Factor or Gain, which will provide a measure of free winter heating. This extra Solar benefit also increases the Window Energy Ratings.

Slim Glaze Super Clear incorporates the leading glass in this market, Pilkington Optiwhite. It has a high Light Transmission of 85% and therefore a high Solar Factor of 79% which means cheaper heating bills in the winter.



The reason why Pilkington Optiwhite is such an excellent choice for Slim Glaze Super Clear is the sheer variety of solar factor benefits it can offer. It is practically colourless, and the green cast inherent to other glasses is not present. It is therefore ideal for use where glass edges are visible or where a neutral colour is desired. As its light transmission is higher than clear float glass, it is perfect for applications where high transparency is important.

Low-iron glass like Pilkington Optiwhite is made using carefully selected raw materials with a naturally low iron content. The melting process is tightly controlled to ensure that the product properties remain consistent, using along with a Low-E coated glass, Warm Edge and Krypton Gas can greatly enhance the Window Energy Rating.

NEED BETTER SOUND REDUCTION?

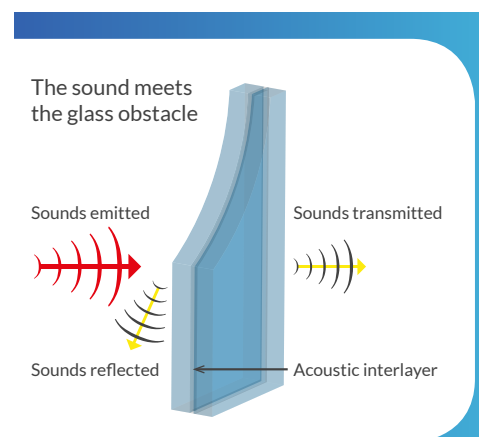
No matter where it originates, from railways, aircraft or factories, noise is all around. Future trend research suggests that traffic and noise in general will only get worse.

The careful and considered selection of glass can be crucial in helping to reduce noise level and meet noise requirements.

Pilkington Optiphon™ is a high quality acoustic laminated glass that offers excellent noise reduction without compromising on light transmittance or impact performance. The desired acoustic performance can be achieved through combining various thicknesses of glass with a special PVB (polyvinylbutyral) interlayer. With a large variety of product combinations, Pilkington Optiphon™ offers the opportunity to achieve specific noise reduction requirements.

PRODUCT FEATURES AND BENEFITS:

- Provides a range of noise control levels
- A thin and lightweight solution to noise problems
- Achieves safety class 1(B)1 (EN 12600) and is available to meet security glass classifications in accordance with EN 356
- In case of breakage remains intact, minimising the risk of injury



The highest noise insulation is achieved using an acoustic laminated glass. Glass controls noise by

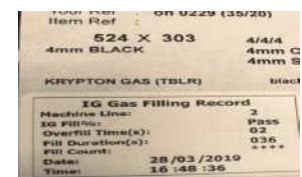
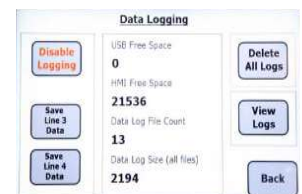
- **reflecting** the noise back towards the source, and
- **absorbing** the energy within the glass

SLIM GLAZE DGU SPECIFICATIONS

Overall Thickness	Glass Thickness	Internal Gas Space	Gas	U Value
11mm	3mm	4mm	Xenon	1.4
11mm	3mm	4mm	Krypton	1.9
12mm	4mm	4mm	Xenon	1.4
12mm	4mm	4mm	Krypton	1.9
14mm	4mm	6mm	Xenon	1.2
14mm	4mm	6mm	Krypton	1.5
16mm	4mm	8mm	Xenon	1.1
16mm	4mm	8mm	Krypton	1.3

SLIM-GLAZE GAS FILLING

All slim-glaze units are gas filled using the Inagas advanced smartfill data log machine with this machine customers will have peace of mind and be assured that each and every unit manufactured by us will come with a unique label not only showing the time and date the unit was manufactured but also the gas filling percentage and fill cycle duration all information on the unit label can be used as an integral part of any quality control system as well as providing additional reassurance to any chain of command during project's.



BEFORE AND AFTER ST COMGALLS SCHOOL, BELFAST



HISTORICAL GLASS

CYLINDER GLASS

It's ideal for properties which have a Georgian and early Victorian style. This type of glass is the most difficult to date, as both drawn glass and crown glass (made by blowing a spherical opening one end and spinning it flat) were made alongside each other for a considerable time. Cylinder glass dominated until the late 1700s, after which it was pushed out of the market by drawn glass.

DRAWN GLASS

Drawn glass was first produced in the early 20th Century, so it's suitable for British period properties dating from 1915 to around 1950. Even beyond the Victorian era, the age of a property determines the most authentic glass type to use in replacement glazing. Drawn glass is made using the Fourcault principle, developed in the early 1900s in Belgium by Emile Fourcault. It uses a vertical 'draw', aided by gravity, to form the glass.

The process involves glass being drawn directly from the tank at the working end of the furnace. A boat-shaped slotted block, made of refractory material, is pushed down into the molten glass. As the hot extruded glass rises through the slot, it is grasped by an iron bait.



ASTRAGAL BARS

The placement of your astragal bars (also known as Duplex bar, Back to Back bar) is represented by the type of period look you wish to achieve. Georgian-style windows typically place their astragal bars onto the pane in such a way that it creates the illusion of six individual sections, resulting in a grid-like pattern. Georgian style sash windows feature this design on both the top and bottom glass panes of the window.

In a similar manner, Victorian-style sash windows feature only one astragal bar across each pane of glass, dividing both into two sections. Finally, an Edwardian-style window features a mixture of the two grid options. Offering homeowners the best of both worlds, an Edwardian sash window features a single astragal bar on the lower glass pane, with the grid design on the upper.

To the untrained eye all sash windows might look the same, in reality however every sash window can be customised to look different in order to loosely resemble the appearance of most eras. Georgian, Victorian or Edwardian-style windows are the perfect solution for anyone looking for a traditional appearance without multiple window panes.

IMC Slim Glaze can also offer a number of different options when it comes to not just the traditional styles but also the shapes and bends of gothic style windows, whatever your style we can manufacture to any need.



SOME PROJECTS THAT HAVE OUR SLIM-GLAZE RANGE INSTALLED





Cashel Palace, Tipperary



British Ambassador Residence, Dublin



Kildare Village Shopping Outlet



Griffith Barracks Multidenominational School, Dublin



Hillsborough Castle Grounds



Department of Education, Dublin



Royal College of Surgeons, Dublin



Clayton Hotel, Dublin



Clongowes Wood College, Kildare



ESB Building, Dublin



Primark, Belfast

IMC GLASS CERTIFICATION

IMC Glass work closely with BSI and have independent testing on our products carried out twice a year as per BSEN1279 part 6 Annex B Audit test.

Our quality management/production systems are also independently audited by the notified body (BSI) to ensure the on-going quality of our products.

These are the certificates we hold:

- Certificate **BSEN1279 Part 2** BSI 262/4677672 (Production Quality)
- Certificate **BSEN1279 Part 3** BSI 371/7758378 (Gas Leakage)
- Certificate **BSEN1279 Part 6** SDG0703/11870B Annex B Audit Test, Declaration Of Performance Number 68603
- Certificate **BSEN673 UKAS** Certified U-Value (Insulation)

Certification CE and BSEN1279 Approved

To manufacture double glazed units, certification is required for **BSEN1279 Part 2**, production quality and **BSEN1279 Part 3**, which relates to gas leakage at less than 1% per annum. Certification is your guarantee of quality and reliability.

It is a legal requirement that all double glazed units must have CE mark in accordance with construction products Regulation declaration of performance.



SAFETY GLASS STANDARDS

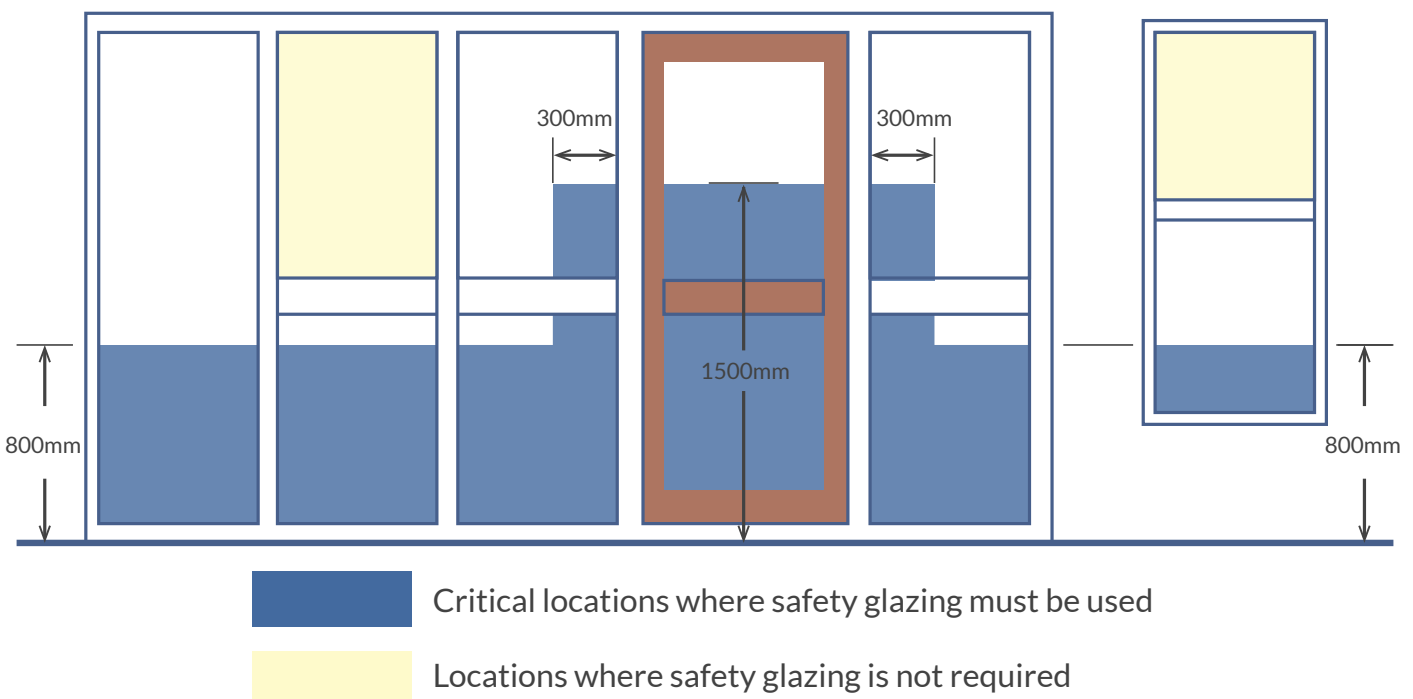
Safety glass required for all door and sidelights and any glass in a window below 800mm from the floor and can be toughened or laminated glass. Laminated glass has less breaking resistance than toughened glass. Laminated glass will provide protection to internal furnishings as Ultra Violet radiation is reduced by 98/99% and a slightly better acoustic rating.

All Double Glazed Units can be constructed with any type of glass or thickness. The width of the cavities determine the insulation or U Value, the thickness of glass has no effect on U Values.

All simulations of U-values can be available on request.

Our Safety Glass Standards

- Toughened glass, Class 1 BSEN 12150
- Laminated glass, Class 2 BSEN 14449



GLAZING INSTALLATION RECOMMENDATIONS

Glazing Materials

- **Hodgson Silfix U9 Low moisture Neutral-cure silicon which cures to form a flexible rubber.**
- **Hodgson flexistrip a security glazing strip for double-glazing units and laminated glass.**
- **Hodgson colour glaze putty**
- **Hodgson multi- purpose putty**
- **Hodgson butyl 66**

Dry seal mp manufactured by repaircare a non-linseed based product manufactured by repair-care which is a durable alternative to putty.

Face-Pointed Frames

Slim Glaze units to be bedded in back rebate with approximately 2mm of butyl (non-hardening compound) or with flexistrip and centred in rebate with spacers or packers, (the latter not required if using flexistrip) to keep the unit raised from the rebate platform completely fill the void area with silfix silicone and allow to completely cure. The units can then be putty fronted using one of the above product's making sure there is full adhesion to the frame and glass and no areas for water to enter the glazing system.

Beaded Frames

Treat in the same way as above up to the point of putty-fronting. Timber beads to be secured against glass using nails or screws and sealed with Silfix U9 low moisture Silicone to completely seal any residual voids between glass and rebate and glass and bead. Finish with paint application making contact with glass both inside and outside. It is very important that regular maintenance of the frames and glazing system is undertaken to prevent the access of water into the glazing system.

Moisture Attack

The major enemy of insulated glass units is water. If water is trapped in contact with the seal of the unit for a period of time, the unit will fail. All glazing systems must protect the edge of the insulated glass unit, either by preventing access of water or by proper drainage and ventilation.

WARNING

SOME SILICONES ARE NOT SUITABLE FOR USE WITH SEALED UNITS. A SILICONE COMPONENT (PLASTICIZER) CAN MIGRATE TO THE PRIMARY SEAL CAUSING CATASTROPHIC FAILURE OF THE UNIT, IF IN DOUBT PLEASE CONTACT YOUR SUPPLIER BEFORE INSTALLING.



GLAZING MAINTENANCE RECOMMENDATIONS

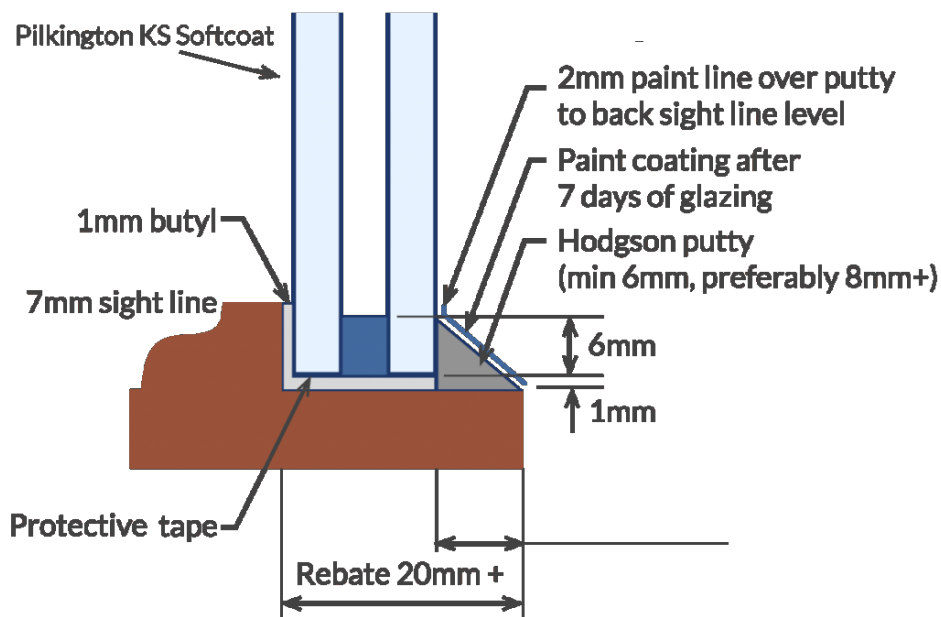
To obtain maximum life expectancy for sealed units, it is essential that water is prevented from leaking round the glazing putty / gasket into the frame and lodging there. Glazing and maintenance recommendations must therefore be carried out in accordance with the unit maker's instructions. The schedules of maintenance detailed below refer to commonly used and accepted glazing systems are approved by the Glass and Glazing Federation for houses and low rise buildings. Where other systems have been used the unit maker should be consulted for advice on maintenance. Glazing should be inspected at least annually and treated as necessary.

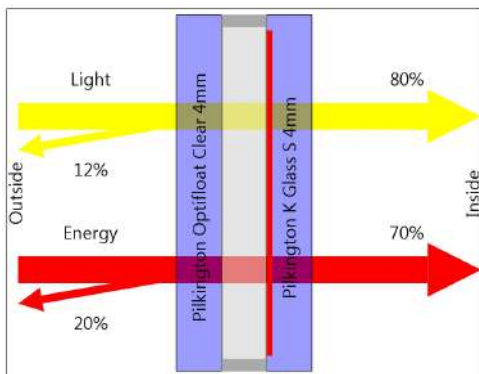
Standard units fitted into wooden frames with beads, using non-setting glazing compound and silicone sealant: Where they are surface cracks, loss of adhesion or voids, rake or remove the faulty compound or sealant and replace with

non-setting compound or silicone sealant, preferably the same as originally used. Always use non-setting glazing compound for back bedding repair purposes. When pointing non-setting glazing compound between the beads and glass ensure that, the compound slopes away from the glass. When using silicone sealant ensure that the sealant is proud of the glass, this will prevent water lodgement occurring.

Standard units fitted into frames with beads, using gaskets or mastic load bearing strips: this system is normally used for glazing into aluminium and uPVC window and door frames. Check annually for obvious deterioration and ensure that all drainage holes are free from obstruction.

IF A SERIOUS FAULT DEVELOPS INFORM YOUR SUPPLIER AT ONCE





DATA SHEET FOR STANDARD 4/4/4 SLIM-GLAZE

IMC Glass can always provide data sheets which can be calculated for a wide range of products to determine their key properties such as light transmittance, solar gain and U-value

Many product combinations can be available on request and can be provided for customers to forward on architects/planning officers etc to ensure that you are provided with all the necessary information for project specific requirements.

Product Code	U Value	UV %	Light %			Energy %			Solar Factor	Shading Coeff.	
			LT	LR out	LR in	ET	ER	EA		T SC	S SC
4-4Kr-KS4	W/m ² K	Tuv	80	12	12	61	20	20	g	0.80	0.70
	1.9	39							0.70		

Performance Code	Sound Reduction	Ra	Thickness	Weight kg/m ²	Selectivity
U-Value/Light/Energy	Rw dB	98	mm	Rw dB (C;Ctr)	1.14
1.9/80/70	29		12	20.00	

Glass 1
Pilkington Optifloat Clear 4mm
Glass 2
Pilkington K Glass S 4mm



WE DELIVER ACROSS IRELAND & THE UK

We currently have deliveries in Dublin and Northern Ireland on a regular basis but can accommodate anywhere in the UK and Ireland using our connections in the courier trade, all large orders will come packed securely on a wooden A-frame and delivered straight to your preferred destination

GENERAL INFORMATION ON HEAT LOSS TIMBER WINDOWS



SOME INFORMATION ON HEAT LOSS IN GLAZED TIMBER SASH & CASE WINDOWS

Single glazed timber sash and case windows are extremely poor at retaining energy. The heat loss through single glazing which has a U-Value of 5.4 is around 77%.

Usually the single pane of glass 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 heat loss, through the glass.

Low E Double Glazing such as Slim-Glaze will reduce heating energy costs by at least 20%, 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-Glaze, Krypton and Xenon are the most effective inert gas insulators as the thermal conductivity properties are much lower than air, meaning they are excellent at reducing U-values in sealed double glazed units

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 replacement of one square meter of single glazing for Low E double glazing will provide a saving of approximately 90Kg of carbon dioxide emissions per year. Reducing your carbon footprint

THE DANGERS OF USING UNCERTIFIED UNITS

There are widespread concerns in the Industry in relation to some lesser known companies in Ireland now manufacturing their own version of our Slim-Glaze units, reduced sightline insulating glass units. (IGU's) apart from these companies not having much or any experience within IGU manufacturing they are also using standard Argon gas to pass them off and in turn they will have more than 30% less energy efficiency. Why take a chance on a product which already underperforms, hasn't been tested and could lead to more issues down the line? even one these companies based around Rathmines area of Dublin have even resorted to copying and pasting from our own website in an effort to try and make themselves look genuine.

All IGUs placed on the European Market and UK must, under the Construction Products Regulations, be manufactured in accordance with all parts (1 to 6) of EN 1279, the harmonised European Standard for Insulating Glass Units.

The primary requirements of EN 1279 to demonstrate durability of the IGU, to provide a reasonable service life are:

- Testing to EN 1279 part 2 – Long term test method and requirements for moisture penetration to ensure they don't "condensate inside cavity space".
- Testing to EN 1279 part 3 – Long term test method and requirement for gas leakage rate and for gas concentration tolerances to guarantee that gas cannot escape the unit .

There also needs to be a clear system description to prove that the test evidence, that some companies are producing, relate specifically to the low sightline narrow cavity units (heritage) and not to standard units. which are two totally different test requirements as some places have been trying to "bluff" their way showing test results based on standard units.

Before you buy from any company please ensure that they can show you their EN1279 test results based on heritage units, if not then you could be using uncertified products and will not conform to any regulations set out by architects and planning officers .

So far IMC Glass is the only manufacturer in all of Ireland that has passed all test requirements , we spend many thousands each year to maintain our kite-mark which includes testing samples to B.S.I every 6 months .

Please see link for recommendations when placing orders for narrow cavity units set out by the BWF.

<https://www.bwf.org.uk/wp-content/uploads/bwf-igu-advice.pdf>

Also featured is an article written by BWF warning their members about this issue with strong warnings not to use any products made without certification.

CLASS&SEALEDUNITS

A Strong Warning for IGU's

New guidance has been published by the British Woodworking Federation (BWF) to help firms placing orders for insulating glazing units (IGUs) including narrow cavity or 'slim' glass units.

» **SUCH UNITS – HIGHLY** energy efficient, hermetically sealed units designed to keep homes warmer in the winter and cooler in the summer – usually consist of two or more panes of glass separated by a spacer material and sealed together at the edge. The space between the panes is filled with air or an inert gas such as argon or krypton which, together with a low-emissivity glass coating, produces the unit's excellent insulating properties.

"Slim" units have cavities of 8mm or less and often have a reduced edge seal and they are favoured in listed buildings or conservation areas as they allow thinner timber profiles and bead detail.

However, concerns have been raised by BWF members about the quality of some of these units supplied by a range of different manufacturers. Further investigation by the BWF has also highlighted that there are some 'slim' IGU suppliers who are seemingly unable to provide the appropriate test evidence required to ensure performance of the unit in the long term.

Kevin Underwood, BWF Technical Director, says:

"We have received a number of queries through the BWF technical helpline and in our technical committee and council meetings particularly concerning certain 'slim' insulating glass units on the market. The new guidance addresses this concern, helping buyers to exercise appropriate care and ensure that when purchasing IGUs they know what to ask for and what they should expect from supporting documentation from their suppliers. IGUs that have been suitably tested and manufactured in a controlled manner should provide the levels of performance our members are looking for."

'IGUs that have been suitably tested and manufactured in a controlled manner should provide the levels of performance our members are looking for'

Kevin Underwood points out that CE marking for glass units became mandatory on 1 July 2013, so this should help buyers of all types IGU that are covered by the harmonised standard BS EN 1279-5.

The BWF is advising its members to seek confirmation from suppliers that all the IGUs, both 'standard' and 'slim' types will be CE marked and will meet the requirements for the durability of glass units given in the BS EN 1279 series of standards.

Kevin Underwood explains that buyers should insist that units should only be supplied when there is the correct and full test evidence to accompany them:

"In order to establish that the test evidence applies to the glass units which you're intending to buy, you should ask the supplier for a copy of the system description, and check that this is fully consistent with what you're buying," explains Kevin Underwood.

"The IGUs should also have been tested for durability, which means meeting the requirements for moisture penetration, gas leakage if appropriate, and edge seal strength. The production of the IGUs should also follow a Factory Production Control system and periodic testing meeting the requirements of BS EN 1279."

Members are also advised to discuss the length of warranty that is being offered by their glazing suppliers on these units and to check the detail as to what these warranties will cover. They should also confirm that they will employ an acceptable glazing method using appropriate and compatible materials in an effort to avoid future problems.

A copy of the BWF fact sheet on Slim IGUs can be downloaded at: <http://www.bwf.org.uk/assets/bwf-igu-advice.pdf>



ABOUT IMC GLASS



The Slim-Glaze range is produced by IMC Glass, a family run company founded in 1990 that has been manufacturing double glazing for nearly 35 years and are B.S.I. Kite marked to the latest European standards.

We are also a Pilkington glass energiKare™ partner, offering the latest in energy saving glasses. We are based just 2 minutes off the A1 dual carriageway beside Loughbrickland.



FEEL FREE TO CALL OUR OFFICE ON **(028) 3883 2123** TO TALK TO A MEMBER OF OUR TEAM, OR EMAIL **INFO@IMCGLASS.COM**

AWARD WINNER AT THE ARCHITECT CHOICE AWARDS FOR BEST EXTERIOR PRODUCT.



Voted by The Royal Institute of Architects of Ireland

