



Table 2: Comparative U values for PVC-U or timber windows with Pilkington low E glass
 This table shows different types of low E glass in various window specifications with one pane of the unit Pilkington **Optifloat**™ clear

	Gap between panes		
	6mm	12mm	16mm or more
Double glazing (Pilkington Optifloat ™; air filled)	3.1	2.8	2.7
Double glazing (Pilkington K Glass ™; air filled)	2.7	2.2	2.0
Double glazing (Pilkington Optitherm ™ SN, air filled)	2.6	2.0	1.8
Double glazing (Pilkington Optitherm ™ S2, air filled)	2.5	2.0	1.8
Double glazing (Pilkington Optifloat ™; argon filled)	3.0	2.7	2.6
Double glazing (Pilkington K Glass ™; argon filled)	2.4	2.0	1.9
Double glazing (Pilkington Optitherm ™ SN, argon filled)	2.3	1.8	1.7
Double glazing (Pilkington Optitherm ™ S2, argon filled)	2.3	1.8	1.6

Window U values are dependent on the thermal performance of the frame.
 The above U values make a conservative assumption about the thermal performance of the frame; high performance frames would result in lower U values.

Table 3: Comparative U values of Insulating Glass Units (IGU) with Pilkington low E glass

Cavity Width (mm)	U Values							
	6	8	10	12	14	16	18	20
Pilkington Optifloat ™ Clear/ air/ Pilkington Optifloat ™ Clear	3.3	3.1	3.0	2.9	2.8	2.7	2.7	2.8
Pilkington Optifloat ™ Clear/ argon/ Pilkington Optifloat ™ Clear	3.1	2.9	2.8	2.7	2.6	2.6	2.6	2.6
Pilkington Optifloat ™ Clear/ air/ Pilkington K Glass ™	2.7	2.3	2.1	1.9	1.8	1.7	1.7	1.7
Pilkington Optifloat ™ Clear/ argon/ Pilkington K Glass ™	2.3	2.0	1.8	1.6	1.5	1.5	1.5	1.6
Pilkington Optifloat ™ Clear/ air/ Pilkington Optitherm ™ SN	2.5	2.1	1.8	1.6	1.5	1.4	1.4	1.4
Pilkington Optifloat ™ Clear/ argon/ Pilkington Optitherm ™ SN	2.0	1.7	1.5	1.3	1.2	1.2	1.2	1.2
Pilkington Optifloat ™ Clear/ air/ Pilkington Optitherm ™ S2	2.4	2.1	1.8	1.6	1.4	1.3	1.3	1.4
Pilkington Optifloat ™ Clear/ argon/ Pilkington Optitherm ™ S2	2.0	1.7	1.4	1.3	1.1	1.1	1.1	1.1
Overall thickness of IGU	14	16	18	20	22	24	26	28

U values based upon nominal 4mm glass thickness
 Figures determined in accordance with the requirements of EN673: 1997 for 'normal' exposure conditions, U values for gas filled IGU based on 90% argon / 10% air
 U values are rounded to the nearest 0.1W/m²K as described in clause 9 of the standard

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Comparative U values for Pilkington **Optitherm**™ T SN are the same as those given for **Optitherm**™ SN.

If you need more information about the new regulations, or any of the products in our low E glass range, simply call us on 01744 692000 or visit www.pilkington.com

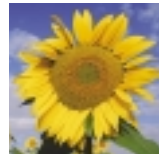
Helping you understand the new Government Building Regulations on energy efficiency.



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With Pilkington it's easy to comply

The changes to the Government Building Regulations (Part L in England and Wales, Parts J & A in Scotland), affect every new and replacement window fitted from March 2002 in Scotland, and April 2002 in England & Wales.



Although these new regulations have only recently come into force, Pilkington has long had a tried and tested range of low emissivity (low E) glass to help you meet them.

Pilkington **K Glass™** – the UK's leading low E glass – has been proven to comfortably achieve a thermal performance within the new requirements (incorporated into an appropriate insulating glass unit and frame). Our 'OK' sticker, designed to appear on units using this glass, is a reminder of this fact – and that meeting Building Regulations is as easy as specifying Pilkington **K Glass™**.

A summary of the changes

There are several methods of demonstrating compliance. Using the simplest – the 'Elemental Method' – the changes to regulations will mean windows must achieve a prescribed level of thermal performance (expressed as a 'U value' and measured in W/m²K) based on the whole window (glass and frame). Generally speaking, maximum values have been set according to frame material as follows:

Timber and PVC-U framed windows	2.0 W/m ² K
Metal framed windows	2.2 W/m ² K

(It should be noted that there are exceptions to these standards. Details can be found in our brochure entitled 'Glass and Building Regulations: Thermal Insulation and Energy Efficiency').

To meet these requirements, every new and replacement window fitted in all domestic and commercial buildings will need to incorporate a low E glass such as those produced by Pilkington.

How the new regulations will be controlled

For new housing, the current system of building control approval will continue to

apply. For replacement windows in England & Wales, installers registered with FENSA - Fenestration self Assessment Scheme set up by the Glass and Glazing Federation - will be able to self-certify compliance and spot checks will be carried out by the FENSA organisation. In Scotland, although a Building Warrant is not needed replacement windows must meet the same requirements as new housing.

Demonstrating that windows will meet the regulations

There are different ways of assessing window U values, but one of the preferred methods is 'hot box' testing. Over the years Pilkington has carried out many hot box tests across our entire range of low E glass and undertaken hundreds of calculations of thermal performance.

We have also carried out a series of tests in conjunction with the industry's leading profile manufacturers (shown in Table 1), using Pilkington **K Glass™** in combination with a variety of their most popular products to prove compliance with the new regulations.

The Pilkington low E glass range

Using innovative coating technology, the Pilkington range of low E glass offers a choice of thermal efficiency levels. Not only do these all – in a suitable insulating glass unit or frame – meet the necessary Building Regulations, they also set new standards in energy management. Table 2 overleaf shows how the different products in the range affect the thermal efficiency of a window, while Table 3 shows comparative U values of Insulating Glazing Units for each type of Pilkington low E glass.

Pilkington **K Glass™**

The UK's leading low E glass, Pilkington **K Glass™** offers the simplest way to meet the new Building Regulations. Since its introduction in 1989, it has been thoroughly tried and tested to all relevant European and British standards, ensuring a high quality glass, neutral in appearance. As its low E coating is applied during manufacture, Pilkington



K Glass™ can be toughened and laminated, and can be glazed in the same way as ordinary float glass, with no special sealants necessary.

The Pilkington **Optitherm™** range

All products in the Pilkington **Optitherm™** range are available in annealed, toughened and laminated form, and can be combined with other types of glass from Pilkington for added safety, security or noise control.

Pilkington **Optitherm™** SN

Giving unrivalled thermal insulation with greater neutrality, Pilkington **Optitherm™** SN has quickly become the leading super neutral low emissivity glass. It offers outstanding U values, very high light transmittance and

low reflectance, to reduce energy consumption even in the most aesthetically pleasing environment. Available in 4, 6, 8, 10 and 12mm thicknesses, this is an off-line coated glass for use in insulating glass units, in which it can be combined with other types of Pilkington glass.

Pilkington **Optitherm™** T SN

Offering all of the benefits of Pilkington **Optitherm™** SN in a toughenable format.

Pilkington **Optitherm™** S2

The latest addition to our low E glass range, and the most advanced. With class-leading thermal insulation shown by a U value of just 1.1 W/m²K, achieved in an IGU with argon in the 16mm cavity, Pilkington **Optitherm™** S2 offers an attractive neutral reflectance, a high light transmittance of 71% and a solar heat transmittance of 53%. Such exceptional performance makes it the ideal choice for meeting the most exacting demands in building energy management.



Table 1: Window combinations tested and proven to have U values of 2.0 or less

Manufacturer	Profile	PVC-U Width	Pilkington Insulight™ Therm Insulating Glass Unit	Contact Details
Deceuninck UK Ltd.	3 chamber	60mm	4/16/4K air filled	01249 814681 Deceuninck.ltd@Deceuninck.com
Eurocell Profiles	Contract 60	60mm	4/16/4K air filled	01773 842100 sales@eurocell.co.uk
	Ultimate 70	70mm	4/20/4K air filled	
HIS	Five Star 5 chamber	70mm	4/20/4K air filled	01278 450600 sales@his.ltd.uk
LB Plastics Ltd.	6000 4 chamber	60mm	4/16/4K argon filled	01773 852311 Sheerframe@lbplastics.co.uk
	7000 4 chamber	70mm	4/16/4K argon filled	
Kommerling	Gold 58 3 chamber	60mm	4/20/4K air filled	01784 464000 enquiries@kommerling.co.uk
Plastmo Profiles Ltd.	3 chamber	60mm	4/16/4K air filled	01604 790780 info@plastmo.co.uk
Premier Profiles Ltd.	3 chamber	60mm	4/20/4K air filled	01302 311200 dmulholland@premierprofiles.ltd.uk
	3 chamber	70mm	4/16/4K air filled	
Profile 22	3 chamber	60mm	4/16/4K air filled	01952 290910 elaine.sheward@profile22.co.uk
	4 chamber	70mm	4/16/4K air filled	
Spectus Systems	Classic 62	60mm	4/16/4K air filled	01625 420400 mail@spectussystems.com
	Sightline 70	70mm	4/16/4K air filled	
HW Systems	Vinylock 1600	63mm	4/20/4K air-filled	01625 423523 jward@hwsystems.co.uk
	Vinylock 1500	63mm	4/16/4K air filled	
	HW70	70mm	4/16/4K air filled	
Veka	Matrix Fully Reversible	70mm	4/16/4K air filled	01282 716611 twilliams@veka.com
	Matrix 58 Casement	60mm	4/16/4K air filled	
WHS Halo	System 10 Rustique	60mm	4/20/4K air filled	0121 749 3000 pam.fay@bewaterwindows.com
	System 10 Estetique	70mm	4/20/4K air filled	
Magnet Windows		Timber (redwood)	4/16/4K air filled	01535 661133 rhammond@magnet.co.uk

The tests were carried out at the National Physical Laboratory, Middlesex using insulating glass units containing Pilkington **K Glass™**. Other units in the Pilkington **Insulight™** Therm range use different types of Pilkington low E glass for even greater energy efficiency. Thermal performance of any unit can also be improved by filling with argon rather than air. These are not the only companies that comply, other window manufacturers may be able to demonstrate compliance and should be contacted direct.

