

Bulletin 9

Proposed revisions to Building Regulations
Part L (England & Wales) in 2010
September 2009

In summary

Changes to Part L of the Building Regulations for England and Wales have recently been proposed by the Government.

In 2010, new buildings will have to be at least 25% more efficient than current new buildings.

For existing housing, Window Energy Ratings will be the main compliance route for replacement windows, with a minimum band C required. There will be no window U value compliance route for replacement windows for dwellings.

Conservatories less than 30m² are introduced for the first time meaning that all conservatories will need to include low emissivity glass. Energy efficient glazing such as Pilkington K Glass™ and Pilkington energiKare™ are well placed to satisfy these requirements.

For non-dwellings, there will be a greater focus on limiting solar gains in the summer, increasing opportunities for high performance solar control glass such as Pilkington Suncool™ and Pilkington Eclipse Advantage™.

This Bulletin summarises those proposed changes which are relevant to glazing. They are expected to come into force in October 2010.

Introduction

On 18th June 2009, the Government's Department for Communities and Local Government (CLG) published proposals for amending Part L of the Building Regulations in England & Wales. The previous amendments to Part L in 2006 introduced very few significant changes for products from the fenestration industry. This was in recognition of the major steps the industry had taken to develop energy efficient products in time for the 2002 changes. However, the expectation was that significant improvements would be required from the industry for 2010. This Bulletin summarises the parts of the proposals that are directly relevant to glazing.

Please note that the information provided in this Bulletin is based on proposals subject to a public consultation, so it is possible that changes may be made prior to implementation of the Regulations.

Headlines

- Significant reductions in target carbon dioxide (CO₂) emissions for all new buildings (compared with 2006)
- Window Energy Ratings are the main standard for replacement windows for dwellings
- No window U value compliance route for replacement windows for dwellings
- Conservatories less than 30m² are introduced into Part L for first time.
- Increased focus on the risk of overheating in summer, particularly in non-dwellings

New dwellings

The CO₂ emissions associated with the energy consumption of the whole dwelling remains as the sole criterion for demonstrating compliance, in that the predicted rate of emissions from the dwelling (the Dwelling Emissions Rate) must not be greater than the Target Emissions Rate (based on a notional dwelling). The standard government software, SAP, provides the means for determining compliance, although it has been revised to reflect the changes and is subject to consultation. For 2010, a target 25% reduction in CO₂ emissions (compared with 2006) has been set, following the well-documented roadmap that was described in our Bulletin 8 (issued August 2008). However, this does not mean every component of a building will have to improve by 25%.

As for 2006, there are no specific elemental requirements for windows other than 'long stops'. These long stops, or limiting values, have been left unchanged from 2006, recognising the fact that lowering U values is not necessarily the most cost effective way to improve energy efficiency. So, the limiting U value for windows, roof windows, glazed rooflights, pedestrian doors etc., remains at 2.2 W/m²K.

There are cautionary notes about designing dwellings where the glazing total area is less than 20% of the floor area leading to a need for more artificial lighting and an associated increase in energy consumption.

Implications for glazing:

As the Government's software fully takes into account solar gains, Pilkington **K Glass**[™] with its high g value will generally result in a dwelling having a similar emissions rate to one with soft coat low emissivity (low e) glass. Adding low iron glass, such as Pilkington **Optiwhite**[™], increases the g value of the glazing and improves the Dwelling Emission Rate. The limiting U value of 2.2 means that low e double glazing remains the minimum. Although not a requirement, triple glazing may become increasingly more common in new dwellings as demonstrated by its prevalence in low energy houses.

Existing dwellings

In existing dwellings, certain 'controlled fittings' remain within the scope of the Building Regulations. These include replacement windows for existing dwellings and windows for extensions. The requirements apply to whole windows, roof windows, rooflights and doors (including the frame). Applications where only the glass is being replaced in the existing frame are outside of the scope. The standards for controlled fittings are summarised in Table 1.

Table 1. Proposed standards for controlled fittings for existing dwellings

Fitting	Standard
Window, roof window or rooflight	Window Energy Rating (WER) ¹ = band C
Doors with >50% glazed area	U value = 1.8 W/m ² K
Other doors	U value = 1.8 W/m ² K

¹ BFRC Window Energy Ratings www.bfrc.org

It is important to note that, based on the proposals, whole U values are no longer to be used for demonstrating compliance for windows. Window Energy Ratings are to be the only compliance route for all but a few installations. Centre pane U values of 1.2 W/m²K are permitted as an alternative, but only in 'exceptional circumstances', for example, as a 'one-off' to match the existing retained windows.

Implications for glazing:

With Window Energy Ratings being in effect the sole measure for replacement windows and windows for extensions, the proposals recognise the importance of taking into

account the solar gain provided by the glazing. As a minimum rating of band C is required, this acknowledges the positive contribution that energy efficient windows can make in delivering CO₂ and energy savings for dwellings. Energy efficient windows, such as those containing Pilkington **energiKare**[™] with its high g value, will continue to meet and exceed the requirements of these regulations.

Conservatories

Based on the proposals to remove the current exemption, conservatories with a floor area less than 30m² are introduced into Part L for the first time. They would be included in the list of building work but not notifiable to Building Control.

A new definition of a conservatory is given. As before, it needs to be thermally-separated with independently-controlled heating (if applicable) and the separation between dwelling and conservatory must be to a standard comparable to the rest of the external envelope. However, the transparent and/or translucent material in the external envelope must be more than 150% of the floor area. There must also be reasonable provision for ventilation.

Glazed elements are required to meet the same standards as for controlled fittings (see Table 1). For vertical and roof glazed elements, a Window Energy Rating of minimum band C is required.

Although conservatories are not notifiable, the Local Authority may decide to undertake checks on the installation. Furthermore, the installer is expected to provide the owner with details as evidence of compliance, including thermal separation, performance standards of elements (e.g. glazing), heating system and controls, ventilation intended to limit summer overheating and advice on how different patterns of use influence energy consumption and running costs.

For new buildings, the structure excluding the conservatory is assessed as if the conservatory is not there. Where there is no thermal separation between what would be a highly glazed area and the rest of the dwelling then the area is assessed with the rest of the

dwelling for new build or as an extension for existing buildings.

It is indicated in the consultation documents that this is a first stage of a progressive tightening of conservatory standards and in the future they could be treated in the same way as extensions.

Implications for glazing:

Low e glass is effectively the minimum standard for conservatories, meaning that ordinary (i.e. non low e) double glazing will no longer be permissible. The high Window Energy Ratings that can be achieved with Pilkington **energiKare™** allows the requirements to be satisfied by most energy efficient windows. Although not covered by the Regulations, summer overheating in conservatories can be limited by the addition of solar control (and self cleaning) glass such as Pilkington **Activ™** Blue and Pilkington **Activ™** Neutral.

New buildings other than dwellings

As for dwellings, the only means of achieving compliance is on the basis of total carbon dioxide emissions of the building, using the government approved software SBEM. A target of a 25% (aggregate) reduction in CO₂ emissions across all new non-dwellings (c.f. 2006) has been set.

There are no specific elemental requirements for windows, other than ‘long stops’. The long stops, or limiting values, have been left unchanged, with the limiting U value for windows, roof windows, rooflights, curtain walling, pedestrian doors etc., being 2.2 W/m²K. There are no limits for ground floor display windows and similar glazing.

Implications for glazing:

The heat loss, solar gain and daylight transmission of glazing is taken into account by SBEM. As the significance of each factor will vary according to the design and type of building, and whether it is air-conditioned or naturally ventilated, it is not possible to draw overall conclusions about the impact on glazing. The limiting value does, however, mean that non low e glass is not allowed.

Existing buildings other than dwellings

The standards for controlled fittings (i.e. replacement windows) for existing buildings

other than dwellings are summarised in Table 2.

Table 2. Proposed standards for control fittings for existing buildings other than dwellings

Fitting	Standard
Window, roof window or rooflight ¹	U value for whole unit = 1.5 W/m ² K
Windows in buildings domestic in character ²	Window Energy Rating = band C
Doors with >50% glazed area	U value = 1.8 W/m ² K

¹ excluding display windows

² e.g. student accommodation, care homes, etc.

Specifically for curtain walling as a controlled fitting in non-dwellings, the proposed standard is that the overall U value should be no greater than: 0.8 + 1.2X (where X = fraction of curtain walling that is glazed).

For extensions to existing non-dwellings, glazed areas should generally not exceed those given in Table 3.

Table 3. Opening areas in the extension

Building type	Windows and personnel doors as % of exposed wall	Rooflights as % of area of roof
Residential	30	20
Assembly, offices and shops	40	20
Industrial and storage	15	15
Vehicle access doors and display windows	As Required	N/A
Smoke vents	N/A	As Required

Limiting the effects of solar gains in summer

There is a greater focus on ensuring that the building has appropriate passive solar control, thus limiting effects of solar gains in summer. The requirement applies to all non-dwellings and aims to reduce the need for air-conditioning or reduce the installed capacity of an air-conditioning system. Reasonable provision can be considered if the total solar gains during the summer period are no greater than for the given reference cases. This recognition complements an independent study¹ undertaken to quantify the potential energy and CO₂ savings from the greater use of solar control glass in the EU, including the UK.

¹ ‘Impact of Solar Control Glazing on energy and CO₂ savings in Europe’ (TNO Report 034-DTM-2009-01988B)

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For non-dwellings, there will be a greater focus on limiting solar gains in the summer, increasing opportunities for high performance solar control glass such as Pilkington **Suncool**[™] and Pilkington **Eclipse Advantage**[™].

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Implications for glazing:

For extensions to non-dwellings, U values have been tightened up. As a recognition of the importance of taking account of the g value in such buildings, Window Energy Ratings can continue to be used as a means of compliance for non-dwellings which are domestic in character, provided a minimum band C is achieved.

The greater focus on limiting solar gains in the summer through passive control measures, particularly in non-dwellings, will result in an increased use of high performance solar control glass, such as Pilkington **Suncool**[™] and Pilkington **Eclipse Advantage**[™].

Historic and traditional buildings

The current exemption for listed buildings and buildings in conservation areas is removed. Specific guidance is provided as to where special considerations apply and how to arrive at an appropriate balance between heritage and energy conservation.

Implications for glazing:

An appropriate balance may be possible to achieve using products that can replace energy inefficient single glazing in older traditional buildings whilst retaining the original frames. Utilising advanced Pilkington **Spacia**[™] vacuum glazing technology, Pilkington **energiKare**[™] Legacy has the same thickness as single glazing but with four times better thermal insulation.

Timescales

The timescale for Part L 2010 is anticipated as follows:

- End of consultation period – 17th September 2009
- New Part L published in Spring 2010
- New Part L implemented on 1st October 2010

More information

For more information on Part L 2010, or our range of products, please contact our Technical Advice Centre.

The Part L 2010 webinar, organised in conjunction with Building magazine, is still available to view at www.pilkington.co.uk/webinarpartL

For further details please email us at pilkington@respond.uk.com or phone our helpline on 01744 692000.



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