

# Building Regulations Guide 2022

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# **Approved Document L & The Future Homes Standard (FHS)**

- The UK government has set a target that will require all new homes by 2025 are net zero carbon. The aim is to make homes less or non reliant on fossil fuel heating such as natural gas.
- It will impact the following building regulations:
  - Part L (conservation of fuel and power)
- Part F (ventilation)
- (NEW) Part O (overheating)
- This will be delivered in 2 phases:
- The first was Dec 2021 and the second in Jan 2025.
- The Dec 2021 changes only apply to England currently. Scotland, Wales and NI have not released any changes as yet.
- The Jan 2025 changes will impact new dwellings only. No data has been released for other parts of the regulations.

## **Timeline**

DEC	JUN	20
2021	2022	20
Government releases first phase changes to Part L (conservation of fuel and power) and Part F (ventilation), Part O (overheating )	Part L, F and O come into effect. Developers must submit building notice/initial notice or deposit plans by June 2022 for transitional agreements to apply.	Ongo consulta Engage with indus develop of tech guida

Ministry of Housing, Communities & Local Government The Future Homes Standard: 2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings

Summary of responses received and Government re



## **Approved Document L Conservation of Fuel and Power**





- Pre Dec 2021 The UK building regulations for thermal performance of buildings was split into 2 documents and 4 parts:
  - PartLIA New Build dwellings
  - PartLIB Existing dwellings
  - Part L2A New non-dwellings
  - PartL2B Existing non-dwellings
- The new documents have been merged into 2 documents:
- L (volume 1) Dwellings
- L (volume 2) Buildings other than dwellings

# **Approved Document L** Impact to Roof lights / Roof windows

### **Rooflight versus Roof window**

For the new regulations, definition and application of the rooflight / skylight / roof window is key to ensure correct compliance.

Definition according to the Approved Doc L	Explana
Rooflight (out-of-plane, projecting)	A glazeo on a ker
Roof windows (in-plane with roof)	A windo the surr

### U Value assessment – **Rooflights & Roof windows**

- To correctly assess whether an element meets the new limiting U-Values - it must be calculated in the appropriate plane - either horizontal or vertical.
- Testing the same product in either a horizontal or vertical position will provide significant different resulting u-values - Vertical will give better values (Lower)
- Rooflights should be calculated in the horizonal position
- The following U value adjustments are applied when calculated in the incorrect plane: Table 2. Indicative adjustments to roof window U-values from vertical to inclined position.

	U-value adjustment (W/m²k) (from vertical to inclined position)	
Inclination of roof or inclination of in-plane roof window	Twin skin or double glazed roof window	Triple skin or triple glazed roof window
70° or more (treated as vertical)	0.0	0.0
< 70° and > 60°	+0.2	+0.1
≤ 60° and > 40°	+0.3	+0.2
$\leq$ 40° and > 30°	+0.4	+0.2
30° or less (treated as horizontal)	+0.5	+0.3

### **Compliance Methods – U Value**

- Thermal transmittance, also known as U-Value, is the rate of transfer of heat trough a structure or be a single material or composite divided by the difference in temp across the structure.
- It measures how well a building transfers heat
- The U-value is measure in W/m2K and is identified by a numerical value e.g 1.5/m2k. The lower the value the more efficient the product
- The U-value is calculated in accordance with BS EN ISO 10077-1 and can be used as compliance method in all parts of the building regulation.



d unit installed "out of plane" with the surface of the roof rb or upstand. Also sometimes referred to as a skylight.

ow installed in the same orientation as, and in plane with, rounding roof.

- Roof windows should be calculated in the vertical position
- According to the guidance in the Building Research Establishment's BR 443 rooflights and roof windows are quoted in the vertical position – allowing for comparison of products that can be used in different inclinations
  - NOTE: This does not apply to Standard Assessment Procedure calculations, where the U-value of each element is calculated based on the plane in which it is constructed or installed

### Limiting Values – New & Existing Dwellings

## Limiting Values – Buildings other than dwellings - new & existing

Table 4.1 Limiting U-values for new fabric elements and air permeability in new dwellings

Element type	Maximum U-value <sup>(1)</sup> W/(m²k)
All roof types <sup>(2)</sup>	0.16
Wall <sup>(2)</sup>	0.26
Floor	0.18
Party Wall	0.20
Swimming pool basin <sup>(3)</sup>	0.25
Window <sup>(4)(5)</sup>	1.6
Rooflight <sup>(6)(7)</sup>	2.2
Doors (including glazed doors)	1.6
Air permeability	8.0m³/(h.m²) @ 50Pa 1.57m³/(h.m²) @ 4Pa

Table 4.2 Limiting U-values for new fabric elements in existing dwellings

Element type	Maximum U-value <sup>(1)</sup> W/(m²k)
Roof	0.15
Wall <sup>(2)(3)</sup>	0.18
Floor <sup>(4)(5)</sup>	0.18
Swimming pool basin <sup>(6)</sup>	0.25
Window <sup>(7)(8)(9)</sup>	1.4 or Window Energy Rating <sup>(10)</sup> Band B mimimum
Rooflight <sup>(11)(12)</sup>	2.2
Doors with >60% of internal face $glazed^{(13)}$	1.4 or Doorset Energy Rating <sup>10)</sup> Band C mimimum
Other doors <sup>(13)(14)</sup>	1.4 or Doorset Energy Rating <sup>(10)</sup> Band B mimimum

NOTES from Table 4.1 and 4.2 of the Approved Document L for rooflights

- U-values for rooflights or rooflight-and-kerb assemblies should be based on the outer developed surface area, which is often greater than the area of the roof opening.
- The limiting value for rooflights also applies to kerbs that are supplied as part of a single rooflight-and-kerb assembly sourced from the

same supplier and for which the supplier can provide a combined Ud-value for the assembly.

 An upstand built on site should have a maximum U-value of 0.35W/(m2·K)

Table 4.1 Limiting U-values for new or replacement elements in new and existing buildings and air permeability in new buildings		
Element type	Maximum U-value <sup>(1)</sup> W/(m²k) or air permeability	
Roof (flat roof) <sup>(2)</sup>	0.18	
Roof (pitched roof) <sup>(2)</sup>	0.16	
Wall <sup>(2)(3)</sup>	0.26	
Floor <sup>(4)(5)</sup>	0.18	
Swimming pool basin <sup>(6)</sup>	0.25	
Window in buildings similar to dwellings <sup>(7)(8)</sup>	1.6 or Window Energy Rating <sup>(9)</sup> Band B	
All other windows, $^{\scriptscriptstyle{(8)(10)(11)}}$ roof windows, curtain walling	1.6	
Rooflights <sup>(12)(13)</sup>	2.2	
Pedestrian doors (including glazed doors) <sup>[14]</sup>	1.6	
Vehicle access and similar large doors	1.3	
High-usage entrance doors	3.0	
Roof ventilators (including smoke vents)	3.0	
Air permeability (for new buildings)	8.0m³/(h.m²) @ 50Pa	

NOTES from Table 4.1 of the Approved Document L for rooflights/roof windows

- U-values for rooflights or rooflight-and-kerb assemblies should be based on the outer developed surface area, which is often greater than the area of the roof opening.
- The limiting value for rooflights also applies to kerbs that are supplied as part of a single rooflight-and-kerb assembly sourced from the

same supplier and for which the supplier can provide a combined Ud-value for the assembly.

 An upstand built on site should have a maximum U-value of 0.35W/(m2·K)

### **Notional Values – new dwellings**



Table 1.1 Summary of notional dwelling specification for new dwelling $^{(l)}$		
Element or system	Reference value of target setting	
Opening areas (windows, roof windows, rooflights and doors)	Same as for actual dwelling not exceeding a total area of openings of 25% of total floor area <sup>(2)</sup>	
External walls including semi-exposed walls	U = 0.18 w/(m².k)	
Party Walls	U = 0	
Floors	U = 0.13 W/(m².k)	
Roofs	U = 0.11 W/(m².k)	
Opaque door (less than 30% glazed area)	U = 1.0 W/(m².k)	
Semi-glazed door (30-60% glazed area)	U = 1.0 W/(m².k)	
Windows and glazed doors with greater than 60% glazed area	U = 1.2 W/(m².k) Frame factor = 0.7	
Roof Windows	U = 1.2 W/(m².k), when in vertical position (for correction due to angle, see specification is SAP 10 Appendix R)	
Rooflights	U = 1.7 W/(m <sup>2</sup> .k), when in horizontal position (for correction due to angle, see specification is SAP 10 Appendix R)	

- Notional values for new dwellings using SAP calculations.
- The Standard Assessment Procedure (SAP) is the UK Government's National Calculation Methodology for assessing the energy performance of dwellings. It is used to facilitate various national, devolved and local government policies including Building Regulations and for the production of Energy Performance Certificates (EPCs).

### **Appendix R: Reference values**

Table R1: Reference values for target setting.

	Malua
Element or System	value
Climate data	UK average
Size and shape	Same as actual dy
Opening areas (windows, roof windows, rooflights and doors)	Same as actual dy of total floor area.
	If the total area of floor area, reduce 1) Include all opac actual dwelling door to a flat fro 2) Reduce area of [25% of total floo area of windows
External walls including semi-exposed walls	U = 0.18 W/m <sup>2</sup> K
Party walls	U = 0
Floors	U = 0.13 W/m <sup>2</sup> K
Roofs	U = 0.11 W/m <sup>2</sup> K
Opaque door (<30% glazed area)	U = 1.0 W/m <sup>2</sup> K
Semi-glazed door (30%-60% glazed area)	U = 1.0 W/m <sup>2</sup> K
Windows and glazed doors with >60% glazed area	U = 1.2 W/m <sup>2</sup> K Frame factor = 0.7 Solar energy trans Light transmittan Orientation same Overshading sam dwelling has very if greater oversha
Roof windows	U = 1.2 W/m²K whe Overshading facto Other parameters
Rooflights	U = 1.7 W/m²K whe horizontal position Overshading facto Other parameters
Curtain wall	Curtain walling to same areas as the floor area the glaz U-value of opaque U-value of glazing bridging with the
Thermal mass	Same as actual d
Living area	Same as actual d
Number of sheltered sides	Same as actual dv

velling
velling up to a maximum for total area of openings of 25%
openings in the actual dwelling exceeds 25% of the total to 25% as follows: que and semi-glazed doors with the same areas as the (excluding any doors not in exposed elements, e.g. entrance om a heated corridor). all windows and roof windows/rooflights by a factor equal to or areas less area of doors included in 1)] divided by [total s and roof windows/rooflights in actual dwelling].
smittance = 0.63
ce = 0.8 as actual dwelling
e as for compliance calculation (average if actual little or average overshading; same as actual dwelling ding)
n in vertical position (for correction due to angle see table 6e) or 1.0 as for windows
en in horizontal position (no correction applied as tested in n) or 1.0 as for windows
be treated as standard glazing and opaque wall with the actual dwelling. When the total opening area exceeds 25% of ed area to be reduced to 25% as for oopening areas above. e wall = 0.18 W/m <sup>2</sup> K = 1.3 W/m <sup>2</sup> K (which includes an allowance of 0.1 for thermal curtain wall)
velling
velling
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## Summary & Whitesales products

	New & Existing Dwellings (Limiting) June 2022	Non Dwellings – New & Existing (Limiting)	New Dwellings (Notional) June 2022
Roof windows (vertical position)	1.6W/m²K	1.6W/m²K	1.2W/m²K
Rooflights (when in horizontal position)	2.2W/m²K	2.2W/m²K	1.7W/m²K

Combined unit (kerb and lid) U-value W/m2K

Em.glaze – flat glass	1.23
Ray.lux	1.26
Em.dome (triple skin)	1.15 – 1.48
<b>Glass Monopitch</b> (1.1Ug centre pane)	1.6
Glass Ridgelight (1.1Ug Centre pane)	1.6
<b>Glass Lantern</b> (1.1Ug centre pane)	1.6
Glass Pyramid (1.1Ug centre pane)	1.6
Poly Barrel Vault (1.1Ug centre pane)	1.88

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