

APPROVED DOCUMENT L 2021 (ENGLAND) ROOFLIGHTS & ROOF WINDOWS

Approved Document L of the Building Regulations (England) defines the requirements for Conservation of Fuel and Power by setting the standards for energy performance and carbon emissions for new and existing buildings.

- Approved Document L, Conservation of fuel and power, Volume 1: Dwellings – 2021 edition
- Approved Document L, Conservation of fuel and power, Volume 2: Buildings other than dwellings – 2021 edition

This document provides a brief overview of the requirements set out within these documents, relating to the specification of rooflights and roof windows.



APPROVED DOCUMENT L CONSERVATION OF FUEL AND POWER, VOLUME 1: DWELLINGS - 2021 EDITION



The new regulation sets a 31% reduction in carbon emission over the 2013 standards for dwellings. This is done partly with a general uplift in the performance of the building fabric but also with the introduction of other measures such as on site power generation (e.g. photovoltaic panels, heat pumps etc) to ensure the required CO₂ emissions performance can be achieved on the journey to net zero carbon dwellings.

To demonstrate compliance to the regulation an energy assessment is still required, in line with the Standard Assessment Procedure (SAP). The energy performance of the dwelling is described using the following metrics:

- Dwelling primary energy rate, in kWhPE/m² per year
- Dwelling emission rate, in kgCO₂/m² per year
- Dwelling fabric energy efficiency rate, in kWh/m² per year

Rooflights & Roof Windows for dwellings

Limiting U-value

The rooflight limiting U-value is **2.2 W/(m²·K)** when assessed in the horizontal plane¹ (previously assessed in the vertical plane), this is for both new and existing dwellings.

The roof window limiting U-value will depend upon whether the installation of the roof window is going into a new or existing dwelling: for a new dwelling the limiting value will be **1.6 W/(m²·K)**, for an existing dwelling the limiting value will be **1.4 W/(m²·K)**; these U-values are assessed in the vertical plane², (and adjusted in line with guidance in SAP 10 Appendix R).

Notional building U-value

The SAP notional building uses an improved rooflight U-value of **1.7 W/(m²·K)** (assessed horizontally) and an improved value of **1.2 W/(m²·K)** for roof windows (assessed vertically). For the energy assessment comparison, rooflight and roof window U-values are typically expected to equal or exceed these values.

For out-of-plane rooflights and rooflight-and-kerb assemblies the U-value for comparison against the limiting fabric value should be based on the developed surface area (U_r/U_{rc} values), and for the energy assessment the value should be based on the roof opening (see The Rooflight Association NTD02 for further details).

¹ Rooflights have historically had their U-value assessed in the vertical plane (as for a window), this has now changed in the revised Approved Document L and rooflights should now be assessed in the horizontal plane - which will influence the U-value. If the only U-value available is that assessed vertically there is a conversion table available in BRE document BR443.

² Roof windows are still assessed in the vertical plane; timber framed roof windows are to come into line with the new requirement 1 year after all other roof windows.

APPROVED DOCUMENT L CONSERVATION OF FUEL AND POWER, VOLUME 2: BUILDINGS OTHER THAN DWELLINGS - 2021 EDITION



The new regulation sets a **27% reduction in carbon emission over the 2013 standards for buildings other than dwellings**. This is done partly with a general uplift in the performance of the building fabric but also with the introduction of other measures such as on site power generation (e.g. photovoltaic panels, heat pumps etc) to ensure the required CO₂ emissions performance can be achieved on the journey to net zero carbon buildings other than dwellings.

To demonstrate compliance to the regulation an energy assessment is still required, in line with the Simplified Building Energy Model (SBEM or approved alternative software). The energy performance of the building is described using the following metrics:

- Building primary energy rate, in kWhPE/m² per year
- Building emission rate, in kgCO₂/m² per year

Rooflights & Roof Windows for buildings other than dwellings

Limiting U-value

The limiting rooflight U-value is **2.2 W/(m²·K)** when assessed in the horizontal plane¹ (previously assessed in the vertical plane), this is for both new and existing buildings.

Guidance covering regulations for Scotland, Wales and Northern Ireland is available in The Rooflight Association Quickguides 09SC, 09WA & 09NI.

¹ Rooflights have historically had their U-value assessed in the vertical plane (as for a window), this has now changed in the revised Approved Document L and rooflights should now be assessed in the horizontal plane - which will influence the U-value. If the only U-value available is that assessed vertically there is a conversion table available in BRE document BR443.

² Roof windows are still assessed in the vertical plane; timber framed roof windows are to come into line with the new requirement 1 year after all other roof windows.

The roof window limiting U-value is **1.6 W/(m²·K)** when assessed in the vertical plane².

Notional building U-value

The SBEM notional building uses an improved rooflight U-value of **2.1 W/(m²·K)** (assessed horizontally) and **1.6 W/(m²·K)** for roof windows (assessed vertically). For the energy assessment comparison, rooflight and roof window U-values are typically expected to equal or exceed these values.

For out-of-plane rooflights and rooflight-and-kerb assemblies the U-value for comparison against the limiting fabric value should be based on the developed surface area (U_r/U_{rc}-values), and for the energy assessment the value should be based on the roof opening (see The Rooflight Association NTD02 for further details).

Rooflight upstands built on site

For upstands that are not supplied as part of the rooflight or if constructed on site, there is a thermal requirement for them to achieve a U-value of **0.35 W/(m²·K)** or better.