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15 JUNE 2022

Technical Update...

BUILDING REGULATIONS

The UK Government has announced changes to the three building regulations to the help the UK deliver net zero. These include a requirement for new homes to produce around 30% less CO2 than current standards and a 27% reduction in emissions from other new buildings.

IMPLEMENTATION PERIOD

The changes follow a public consultation and come into effect on 15 June 2022. For new build the date applicable is from date of building application, so it does not apply to work subject to a building notice, full plans application or initial notice submitted before the 15 June 2022, provided the work for each building is started before 15 June 2023.

Further detail of the transitional arrangements can be found in Circular Letter 01/2021 published on gov.uk. This update to the regulations is paving the way for the Future Homes and Buildings Standard in 2025, which will aim for all future homes to be net zero ready.

DOCUMENTS UPDATED ON **15 JUNE 2022**

- **Approved Document L - Conservation of Fuel and Power**
  - ADL1 Domestic
  - ADL2 Commercial
- **Approved Document F - Ventilation**
  - ADF1 Domestic
  - ADF2 Commercial
- **Document O – Overheating**
  - ADO Domestic

Approved Document L

LIMITING VALUES

Document L has two parts, Part 1 applies to dwellings and Part 2 applies to commercial buildings. The table below sets out the updated limiting U Values for thermal performances.

	2010	15th June 2022
L1A New Dwellings		
Window/Doors	2.0	1.6
Rooflight	2.0	2.2
L1B Existing Dwellings		
Window	1.6 or Band C	1.4 or Band B
Rooflight	1.6 or Band C	2.2
Doors with greater than 60% of internal face glazed	1.8 or Band E	1.4 or Band C
Other doors	1.8 or Band E	1.4 or Band B
L2A New Commercial		
Windows/Doors	2.2	1.6
Rooflight	2.2	2.2
High usage entrance doors	3.5	3.0
L2B Existing Commercial		
Windows in buildings similar to dwellings	1.6 or Band C	1.6 or Band B
Windows, doors and roof windows	1.8	1.6
Rooflight.	1.8	2.2
High usage entrance doors	3.5	3.0

Approved Document L

NOTIONAL VALUES

In addition to the limiting values, the Building Regulations state that 'where a building is erected, it shall not exceed the Target Emission Rate for the particular building...'.

The Target Emissions are calculated though the Standard Assessment Procedure (SAP) for domestic, or Simplified Building Energy Model (SBEM) calculation for commercial. Both establish the target as a minimum allowable for the energy performance of a building based on a "notional building". This applies where the "notional building" is a building of the same type, size and shape as the proposed building, with the CO2 based on default or "notional values" for the different building elements. The updated notional values for windows and doors are set out below.

	2010	15th June 2022
L1A New Dwellings – SAP10 Standard Assessment Procedure		
Windows	1.4	1.2
Glazed Doors	1.4	1.2
Panel Doors	1.0	1.0
L2A New Commercial - SBEM Simplified Building Energy Model		
Windows	1.6	1.4
Doors	2.2	1.9

After notional values have established the Target Emissions Rate, there is the ability when calculating the actual building performance to offset up to the "Limiting Values" (maximum possible U Values for each element), as long as the overall building meets or exceeds the notional Target Emission Rate.

Approved Document F

VENTILATION

Approved Document F includes standards for ventilation and air quality for all buildings. It also covers requirements for the prevention of condensation.

The types of ventilation covered include, mechanical, passive stack, background and purge (rapid). The requirements for background ventilation or trickle vents on existing windows has changed as below.

Existing windows *with* background ventilators

If the existing windows have background ventilators, the replacement windows should include background ventilators. The new background ventilators should comply with both of the following conditions:

a. Not be smaller than the background ventilators in the original window.

b. Be controllable either automatically or by the occupant. If the size of the background ventilators in the existing window is not known, the ventilator sizes in paragraph 3.15 may be applied.

This update to the building regulations is paving the way for the Future Homes and Buildings Standard in 2025, which will aim for all future homes to be net zero ready.

Existing windows *without* background ventilators

Replacing the windows is likely to increase the airtightness of the dwelling. If ventilation is not provided via a mechanical ventilation with heat recovery system, then increasing the airtightness of the building may reduce beneficial ventilation in the building.

In these circumstances, it is necessary to ensure that the ventilation provision in the dwelling is no worse than it was before the work was carried out. This may be demonstrated in any of the following ways:

a. Incorporating background ventilators in the replacement windows equivalent to the following:

- **i.** Habitable rooms – minimum 8000mm^2 equivalent area.
- **ii.** Kitchen – minimum 8000mm^2 equivalent area.
- **iii.** Bathroom (with or without a toilet) – minimum 4000mm^2 equivalent area.

b. If the dwelling will have continuous mechanical extract ventilation, installing background ventilators in any replacement windows which are not in wet rooms, with a minimum equivalent area of 4000mm^2 in each habitable room.

c. Other ventilation provisions, if it can be demonstrated to a building control body that they comply with the requirements of paragraph 3.2.

Note: If it is not technically feasible to adopt the minimum equivalent areas set out in paragraph 3.15, the background ventilators should have equivalent areas as close to the minimum value as is feasible.

For technical support or for more information on the updates to the Building Regulations please contact Smart Technical Support on 01934 876 100 or email support@smartsystems.co.uk

Approved Document O

OVERHEATING

Approved Document O is the new building regulation which covers overheating mitigation requirements for new residential buildings.

Limiting unwanted solar gains in summer and providing an adequate means to remove heat from the indoor environment, Document O aims to protect the health and welfare of a building's occupants by reducing the occurrence of high indoor temperatures.

Compliance can be demonstrated by the designer using one of the following methods:

- The simplified method for limiting solar gains and providing a means of removing excess heat, as set out in Section 1.
- The dynamic thermal modelling method CIBSE's TM59, as set out in Section 2.

When designing new homes, both methods will limit the amount of glazing permissible. To further help mitigate overheating, the building designer can choose solar control or low g value glass, or other measures such as shading and louvres to reduce solar gains.

In addition to Approved Document F Ventilation, the simplified method in Approved Document O Table 1.3 and 1.4 sets out further requirements for ventilation to remove excess heat. Where the required effective open-able area for a new dwelling is based on both a percentage of the floor area and now a percentage of the glazed area. The required area depends on the building risk and location with values ranging up to 95% of the glazed area. The effective open-able area is calculated to Appendix D using discharge coefficients. In many applications the required openable areas will not be achievable even with all glazing opened at 90°. A vent open at 90° will typically offer only 88% of the glazed area. In this instance the simplified method cannot be used and dynamic modelling to CIBSE's TM59 will be the only method to comply for new domestic properties.

The updates to the three documents include a requirement for new homes to produce around 30% less CO2 than current standards and a 27% reduction in emissions from other new buildings.

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