

A look at the changes coming into force for Approved Document L

Current technical guidance is contained in:

- Approved Document L1A, Conservation of fuel and power in new dwellings
- Approved Document L1B, Conservation of fuel and power in existing dwellings
- Approved Document L2A, Conservation of fuel and power in new buildings other than dwellings
- Approved Document L2B, Conservation of fuel and power in existing buildings other than dwellings

As of 15 June 2022, the guidance will change due to the Building Regulations etc. (Amendment) (England) Regulations 2021 and the following two approved documents will be in force:

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

This update to the building regulations in relation to the conservation of fuel and power highlights a significant uplift to existing energy efficiency requirements. These changes to improve energy efficiency across the board give a strong starting point towards the proposed Future Homes Standard, due to be introduced by government in 2025.

Transitional Arrangements: When to apply the changes

The new building regulations will come into force for applications made on or after 15 June 2022. The new requirements will not apply to applications made prior to 15 June 2022 providing substantial building work has begun before 15 June 2023 on all aspects of the application. This gives 1 year's grace to allow commencement. (Note: jobs need substantial start i.e., foundations dug and poured.)

Applications covering multiple buildings – only those individual buildings for which work is commenced in accordance with the above can take advantage of the transitional provisions.

Key Changes to New Homes:-

- Uplift to energy efficiency standards – 31% reduction in carbon emissions (compared to Approved Document L 2013) delivered through technologies and fabric upgrades.
- 'Full' Fabric Energy Efficiency Standard to be adopted.
- New Approved Document O for the mitigation of overheating.
- Removal of the overheating risk assessment from Part L and SAP.

Key Changes to Existing Homes:-

- Uplift of fabric standards for new thermal elements for work on an existing home.
- Introduction of a primary energy and fabric energy efficiency metric for the whole house calculation method for new extensions.
- New or replacement heating systems should be designed to accept low carbon heating in future.
- Revised guidance on work to ventilation systems in existing homes.

(Elmhurst Energy, 2021)

Approved Document L & F - some of the main changes as of June 2022

Approved Document L – Extensions & Alterations noteworthy changes

1. New thermal elements, replacement thermal elements and glazing need to meet new U-Values. (Table 4.2, paragraph 4.7 in Part L)
2. >25% max glazing for the floor area of extensions including covering existing controlled openings still applies however is slightly stricter. Once over 25%, SAP calculations required or Area weighted U-value, possibly specifying a higher U-Value than Part L depicts. Highly glazed extensions will require design calculations prior to starting works. This also includes new glazing in existing buildings, extending openings for Bi folds etc. if exceeding 25% glazing of the total floor area of the dwelling. (Paragraph 10.10 in Part L)
3. Boiler efficiency should be assessed when extending the heating system and upgrading the system may be required to a **92% efficient boiler**. Electric radiators or electric underfloor heating will likely become an alternative for those not wanting to upgrade but the running cost is likely more. (Table 6.2 in Part L)
4. Renovating thermal elements still applies but with more clarification. Most U-values stay the same however replacing a flat roof membrane will require insulation upgrades. (Paragraph 11.2 in Part L)
5. Exempt structures such as conservatories and porches under 30m² will no longer be exempt if heated at all, any fixed heating, even if a separate system to the house, will now deem it controllable work. (Paragraph 0.14 in Part L)

Approved Document F – Extensions & Alterations noteworthy changes

1. Night latches cannot be used in place of trickle vents. (Part F, paragraph 1.52)
2. Open plan kitchen diners need minimum of 3 trickle vents in a room (8000mm² each). (Part F, Paragraph 1.52)
3. Minimum requirement for trickle vents now 8000mm² for habitable rooms or 10,000mm² for single storey dwellings. (Part F Table 1.7)
4. Exposed Façades in busy areas (main road etc) will require noise attenuating trickle vents. (Paragraph 1.54 Part F)
5. Existing home ventilation guides required to be given to the homeowner by the builder. (Explaining how to use and ventilate efficiently etc) (Paragraph 4.20 Part F)
6. All replacement windows must have trickle vents regardless of if the previous windows did not. (Paragraph 3.15)
7. Energy efficiency measures in existing homes means the ventilation of dwelling will be assessed. Doing multiple minor works (Insulating lofts, replacing loft hatches etc.) or major work (bricking up chimneys, installing internal wall insulation etc.) will now require ventilation retrospectively and in some cases, you will require a ventilation report to specify new ventilation requirements. In most cases retrofitting trickle vents will be an adequate method. (Table 3.1, para 3.6-3.13)

See below the new and existing thermal elements target U-values that come into force in the new Approved Document L – this has been taken from an informative presentation carried out by Ashby Energy Assessors. (Ashby Energy Assessors, 2022)

These standards apply when:

- Providing a new element in an existing building, 'Extension'
- Replacing a window, door or rooflight
- Completely removing and replacing thermal elements

(Table 4.2 Below)

	Current standard's U-values (W/m ² .K)	Proposed standard's U-values (W/m ² .K)
Pitched roof – insulation at ceiling level	0.16	0.15
Pitched roof – insulation at rafter level	0.18	0.15
Flat roof or roof with integral insulation	0.18	0.15
Wall	0.28	0.18
Floors	0.22	0.18
Swimming pool basin	0.25	0.25
Window, roof window	1.6 or Window Energy Rating Band C	1.4 or Window Energy Rating Band B
Rooflight ¹	1.6 or Window Energy Rating Band C	2.2
Doors with >60% of internal face glazed	1.8 or Doorset Energy Rating Band E	1.4 Or Doorset Energy Rating Band C
Other doors	1.8 or Doorset Energy Rating Band E	1.4 or Doorset Energy Rating Band B
Notes:		
i. Section 6.4 of this consultation sets out our proposal to adopt the latest version of BR 443 for calculating U-values for rooflights. In current standards, the limiting U-value is based on a rooflight in a vertical position. The proposed standard is based on a rooflight in a horizontal position.		

Table 4.3. Limiting U-values for existing elements in existing dwellings		
Element	(a) Threshold U-value ¹ W/(m ² ·K)	(b) Improved U-value ¹ W/(m ² ·K)
Roof ^{2,3,4}	0.35	0.16
Wall – cavity insulation ^{2,5}	0.70	0.55
Wall – internal or external insulation ^{2,6}	0.70	0.30
Floor ^{7,8}	0.70	0.25

The figure highlighted in yellow which is the Improved U-value for a Roof is the only one that has changed in the existing elements in existing dwellings tables within the new revised Approved Document L.

Notes (numbers in element column)

2. For dormer windows, 'roof' includes the roof parts of the windows and 'wall' includes the wall parts (cheeks).
3. If meeting such a standard would limit head room, a lesser standard may be appropriate. In such cases, both of the following should be achieved: -
 - a) The depth of the insulation plus any required air gap should be at least to the depth of the rafters.
 - b) The insulant should be chosen to achieve the lowest practicable U-value.
4. If there are problems with the load-bearing capacity of the frame or height of the upstand, for a flat roof or roof with integral insulation, a lesser standard may be appropriate.
5. This applies only to a wall that is suitable for cavity insulation. Where this is not the case, it should be treated as 'wall – internal or external insulation'.
6. If meeting such a standard would reduce the internal floor area of the room bounded by the wall by more than 5%, a lesser standard may be appropriate.
7. The U-value of the floor of an extension may be calculated using the exposed perimeter and floor area of the whole enlarged dwelling.
8. If meeting such a standard would create significant problems in relation to adjoining floor levels, a lesser standard may be appropriate.

Challenges Faces Building Control

It has been expected as part of the Future Homes Standard that no new homes will be able to connect the gas network from 2025. Instead, they will be equipped with energy-efficient insulation and heated by a low-carbon heating source such as an air source heat pump. This would mean a gas boiler ban in new build homes from 2025, but the government's language changed when it published its Heat and Buildings Strategy in October.

The government said in the Strategy that it now plans to consult on whether it is "appropriate" to prevent new build homes from being connected to the gas grid in England from 2025. The prospective gas boiler ban is yet to be officially confirmed within the Future Homes Standard guidance.

Key changes consulted on:-

- Higher minimum standards for new and replacement thermal elements (i.e. walls, floors, roofs) and controlled fittings (e.g. windows, rooflights and doors).
- New regulation to be introduced requiring 'self-regulating devices' (e.g. TRVs) to be installed on heating systems when a boiler (or other heat generator) is replaced.
- Installation of new heating systems and replacement boilers should be based on an appropriate heat loss calculation for the building and not be significantly oversized.
- More specific guidance to be introduced on requirements for ventilation in existing dwellings when energy efficiency measures are being installed.
- Minimum standards for compliance will now be covered in the Approved Documents. Compliance Guides will no longer be produced.

Methods of Construction – Approaches to take to achieve uplifted U-Values

Option 1

One point to note from the new u-values is that a typical 100mm masonry cavity wall construction will not suffice. For developers, a wider wall may have implications on floor areas and/or plot sizes. If it is decided not to achieve the required target for a wall, then the shortfall will need to be made up elsewhere, however with a set of reference values so tight this may prove more difficult. Other key points to note are; potential for triple glazed units, the inclusion of a waste water heat recovery system which are not currently implemented regularly, the allocation of low energy lighting rather than the assumption of defaults and the enhanced heating control via time and temperature zone controls for most dwellings. Should Option 1 come into effect, then any new dwelling will be expected to have a very high fabric specification.

Option 2

Option 2 is intended to deliver a 31% improvement on current Part L standards by minor fabric increases alongside low-carbon heating and renewables. Similarly to the above, the reference values for the TER and TPER are available within SAP 10.

Changes to the minimum insulation standards and the way that the carbon emissions target is calculated will demand greater performance for new homes in SAP 10.

Within SAP 10, a set of reference **U-values** is used in the background when calculating the Target Emission Rate (TER). This is based on what is called a 'notional' dwelling. In theory, meeting all these notional values will result in a pass, however some are very hard to meet (such as thermal bridging, opening areas and number of extract fans). For this reason the regulations allow for design flexibility – you can perform better or worse than the reference values, so long as the TER is reached.

The **notional values** in green below have been improved, meaning better performance will be needed to meet the target in SAP 10. There are limits to design flexibility, where performance cannot exceed the **backstop values**, even if the headline TER is met. These too have been improved in the new regulations.

	"Notional" Target Values		Backstop values - Absolute Maximums	
	SAP 2012	SAP 10	SAP 2012	SAP 10
Floors	0.13	0.13	0.25	0.18
Walls	0.18	0.18	0.3	0.26
Roof	0.13	0.11	0.2	0.16
Doors	1-1.2	1	2	1.6
Windows	1.4	1.2	2	1.6
Air Permeability	5	5	10	8
WWHR	No	Yes		

Notional and backstop values in SAP 10

Thermal Bridging

Heat losses owing to junctions in the construction have, up until now often been offset by using the **ACD scheme (Accredited Construction Details)**. This gives designers and contractors a set of junction specifications to follow, which in turn allows the SAP assessor to apply improved values over the default values.

Due to concerns over the accuracy and age of these ACD junctions, **SAP 10 has taken away the option to follow them**. This means that the client would need to either use alternative schemes (perhaps from the insulation manufacturers) or have bespoke heat loss values calculated for each junction.

[8 Things to know about the new Building Regulations - Build Energy](#)

The Role of SAP Assessor – SHOULD BE INVOLVED IN EARLY STAGES OF NEW BUILDS

- Provide support and help you through the energy efficient of building a new home.
- Often work on a project from the early stages of design right through to the finished product.
- Helping to create a design which fits with current regulations.
- Working through problems that arise – this may be in regard to building design or certain insulation elements.
- Giving professional advice on changing situations – whether this is an unexpected budget problem or a structural issue.
- Communicating with building control departments or planning departments if necessary.