

The new building regulations came into force for applications made on or after 15 June 2022. These requirements do not apply to applications made prior to 15th June 2022, providing substantial building work has begun before 15th June 2023 on all aspects of the application.



Some of the main changes from June 2022



- New thermal elements, replacement thermal elements and glazing need to meet new U-Values as shown in Table 4.2, paragraph 4.7 in Part L:

Limiting U-values for new fabric elements in existing dwellings	
Element type	Maximum U-value W/(m ² K)
Roof	0.15
Walls and floor	0.18
Swimming pool basin	0.25
Window	1.4 or Window Energy Rating Band B minimum
Rooflight	2.2
Doors with >60% of internal face glazed	1.4 or Doorset Energy Rating Band C minimum
Other doors	1.4 or Doorset Energy Rating Band B minimum

Note: see Table 4.2 Part L for full details/exceptions/notes

- Greater than 25% maximum glazing for the floor area of extensions including covering existing controlled openings still applies however is slightly stricter. Once over 25%, SAP calculations are 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)
- 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. See Table 6.2 in Approved Document L for full details.



Note: see Table 6.2 Part L for full details/exceptions/notes

Minimum efficiencies for gas-fired heating systems in existing dwellings

System type	Minimum efficiency	Notes
Wet heating (e.g. radiators or underfloor heating)	92% (as defined in ErP(1))	Follow paragraph 6.2
Range cooker with integral central heating boiler	75% (as defined in SEDBUK 2009)	Follow paragraph 6.3
Warm air heating	BS EN 17082	Follow paragraph 6.4
Independent space heating appliance for primary and secondary space heating	63% gross 70% net	Follow paragraph 6.5
Inset live fuel-effect combined fire/ back boiler	45% for natural gas 46% for LPG	Follow paragraph 6.6
All types except inset live fuel-effect combined fire/back boiler	63% for natural gas 64% for LPG	

- 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)

U-Values pre and post June 2022

THERMAL ELEMENT		OLD U-VALUE	NEW U-VALUE
New Floors		0.22 W/m ² K	0.18 W/m ² K
Retained Floors		0.25 W/m ² K	0.25 W/m ² K
New Cavity Walls		0.28 W/m ² K	0.18 W/m ² K
Retained Cavity Walls		0.55 W/m ² K	0.55 W/m ² K
Retained Solid Walls 9"		0.3 W/m ² K	0.3 W/m ² K
Retained Single Skin Walls 4"		0.3 W/m ² K	0.3 W/m ² K
Timber Frame Walls		0.28 W/m ² K	0.18 W/m ² K
Timber Frame Walls		0.16 W/m ² K	0.15 W/m ² K
Pitched Roof (Vaulted Ceiling)		0.18 W/m ² K	0.15 W/m ² K
Flat Roof (Cold Deck)		0.18 W/m ² K	0.15 W/m ² K
Flat Roof (Warm Deck)		0.18 W/m ² K	0.15 W/m ² K
Retained Roof	Flat roof	0.18 W/m ² K	0.16 W/m ² K
	Flat ceiling	0.16 W/m ² K	0.16 W/m ² K
	Vaulted	0.18 W/m ² K	0.18 W/m ² K
Windows		0.22 W/m ² K	0.4 W/m ² K
External Doors >60% Glazing		1.8 W/m ² K Band E	1.4 W/m ² K Band C
Other External Doors		1.8 W/m ² K Band E	1.4 W/m ² K Band B
Roof Light		1.6 W/m ² K	2.2 W/m ² K (subject to change)

Ground floor

Examples of insulation products that can be used to achieve the U-values as specified in Part L. Based upon traditional oversites, beam and block floors with a perimeter area ratio of 1, insulation thickness may be reduced if the P/A ratio is lower, calculations may be required. It is now a requirement to provide a 25mm perimeter upstand of PIR insulation as standard, except for floating floors.

Minimum U value is 0.18W/m2K

Product	Thickness
Celotex GA4000	100mm
Recticel Eurothane Gp	100mm
Jabfloor insulation	100mm+ 60mm
Ecotherm Eco-Versal	100mm
Kingspan K103	100mm

For suspended timber floor 0.18W/m2K

Product	Thickness
Celotex XR4000	150mm between 150mm Timber Joists at 400cc
Rockwool Flexi	200mm between 200mm timber joists.

Cavity wall

Based on a 'standard' cavity construction with a brick outer leaf and a block inner leaf. In most instances the cavity will now be greater than 100mm unless a suitable

PIR cavity insulation board is used. Specialist advice from architects, energy assessors and manufacturers may be required.

U-Value required 0.18W/m2K

Cavity width	Construction
100mm	Brickwork, 100mm cavity full fill PUR/PIR cavity specific insulation with a thermal conductivity of 0.021 W/m2K, 100 blockwork inner leaf with a thermal conductivity of 0.15 W/m2K 12.5mm plasterboard finish.
100mm	Brickwork, 100mm cavity full fill insulation with a thermal conductivity of 0.032 W/m2K, 100 mm thermalite blockwork with a thermal conductivity of 0.15 W/m2K and a 52.2mm insulated PIR plasterboard finish (40mm PIR + 12.5mm plasterboard min.)
150mm	Brickwork, 150mm cavity insulated with a thermal conductivity 0.032 W/m2K, 100 mm thermalite blockwork with a thermal conductivity of 0.15 W/m2K 12.5mm plasterboard finish.
150mm	Brickwork, 150mm cavity insulated with an insulation of thermal conductivity 0.032 W/m2K, 150 mm blockwork with a thermal conductivity of 0.15 W/m2K 12.5mm plasterboard finish.
150mm	Brickwork, 150mm cavity insulated with an insulation of thermal conductivity 0.032 W/m2K, 100 mm thermalite blockwork with a thermal conductivity of 0.15 W/m2K 12.5mm plasterboard finish.
150mm	Brickwork, 150mm cavity partial filled with 100mm insulation with an insulation of thermal conductivity 0.022 W/m2K, 150 mm blockwork with a thermal conductivity of 0.15 W/m2K 12.5mm plasterboard finish.
175mm	Brickwork, 175 mm cavity insulated with an insulation with a thermal conductivity of 0.037 W/m2K (Knauf/Dritherm37) 100 mm

Common construction products

For suspended timber floor 0.18W/m2K

Blocks 0.15W/m2K	Cavity insulation 0.02 W/m2K	Cavity insulation 0.032 W/m2K	Cavity insulation 0.037 W/m2K
Celcon Solar	Recticel Euro wall	Dritherm 32 Cavity	Rockwool Cavity batts
Celcon Standard	Celotex CW4000	Batts	Other Dritherm products
Durox Supablock	All will be PIR partial / full fill cavity wall systems and workmanship will need to be impeccable.	Please note most other cavity wall insulations do not achieve the same value as Dritherm 32, even other Dritherm products like 34 etc	
Durox SupaBlock 400			
Thermalite shield			
Thermalite Turbo			
Topblok supa bloc			
Toplite standard			

Note: Changing blocks/insulation brands may require a designer's recalculation especially where insulation is specified to offset glazing. Use of denser blocks can have a serious effect on U-value and may require more insulation if they are required for structural stability. Note: New thermal elements may need higher values if you have more than 25% glazing.

Timber framed wall

Based on a worst-case scenario with any façade detailing, however with a brick or rendered block façade, a better U-Value can typically be achieved meaning, but this will need site specific calculations.

Minimum U-value required 0.18W/m²K

Product	100mm x 47mm, 600cc (4x2 inch)	150mm x 47mm, 600cc (6x2 inch)	200mm x 47mm, 600cc (8x2 inch)
Kingspan Kooltherm K12	70mm between studs + 40mm lining, 12.5mm plasterboard	100mm between studs + 25mm lining, 12.5mm plasterboard	Follow 150mm x 47mm guidance
Celotex GA4000 + TB4000	100mm GA4000 between + 50mm TB4000 lining, 12.5mm plasterboard	100mm GA4000 between + 40mm TB4000 lining, 12.5mm plasterboard	100mm GA4000 between + 30mm TB4000 lining, 12.5mm plasterboard
Recticel Eurothane GP	100mm between + 50mm insulation over + 12.5mm plasterboard	100mm between + 40mm insulation over + 12.5mm plasterboard or 150mm between + 25mm lining, 12.5mm plasterboard	100mm Between + 30mm lining, 12.5mm plasterboard
Ecotherm Eco-Versal	80mm between + 40mm lining, 12.5mm plasterboard	100mm between + 30mm lining, 12.5mm plasterboard	See 150mm X 47mm guidance
Actis hybris + Actis Hcontrol (Acts as a vapour control barrier also when taped.)	N/A	105mm of Hybris Actis between studs + 45mm HControl Hybrid quilt lining, counter battened, 12.5mm plasterboard	See 150mm x 47mm guidance

Flat roof – Warm deck roof

Based on a traditional warm deck build up with all insulation above the flat roof joists which negates the ventilation requirements.

Minimum U-value required 0.15W/m²K

Product	Thickness
Celotex GA4000	150mm
Recticel Eurothane Power deck / Euro deck	150mm
Ecotherm Eco-Versal	150mm
Kingspan Therma roof TR27	150mm

Flat roof – Cold deck roof

Based on a traditional cold deck build-up of insulation between and below the joists. Requires adequate cross flow ventilation. Cold decks are not ideal, warm decks are preferred. Assumes 150mmx47mm joists with a 50mm ventilation void.

Minimum U-value now required 0.15W/m²K

Product	Joists at 600cc	Joists at 450cc	Joists at 400cc
Kingspan Kooltherm K7	100mm between joists + 50mm underlining, 12.5mm plasterboard	Follow 600cc guidance	Follow 600cc Guidance
Celotex GA4000	100mm between joists + 60mm underlining, 12.5mm plasterboard	100mm between joists + 70mm underlining, 12.5mm plasterboard	Follow 450cc guidance
Recticel Eurothane GP	100mm between joists +70mm underlining, 12.5mm plasterboard	Follow 600cc guidance	100mm Between joists +75mm underlining, 12.5mm plasterboard
Ecotherm Eco-Versal	100mm between joists +60mm underlining, 12.5mm plasterboard	100mm between joist + 70mm underlining, 12.5mm plasterboard	Follow 450cc guidance

Pitched roof– Vaulted Ceilings

Below assumes 150mmx47mm rafters with a 50mm pitched ventilation roof. Based on a pitched roof with a vaulted ceiling (no ceiling joists installed).

Minimum U-value required 0.15W/m²K

Product	Joists at 600cc	Joists at 450cc	Joists at 400cc
Kingspan Kooltherm K7	100mm between joists + 50mm underlining, 12.5mm plasterboard	Follow 400cc guidance	100mm between rafters + 50mm underlining, 12.5mm plasterboard
Celotex GA4000	100mm between joists + 60mm underlining, 12.5mm plasterboard	100mm between joists + 60mm underlining, 12.5mm plasterboard	Follow 450cc guidance
Recticel Eurothane GP	100mm between joists +60mm underlining, 12.5mm plasterboard	Follow 600cc guidance	Follow 600cc guidance
Ecotherm Eco-Versal	100mm between joists +50mm underlining, 12.5mm plasterboard	Follow 400cc guidance	100mm between rafters + 70mm underlining, 12.5mm plasterboard
Other options – indicative only			
Celotex GA4000		Expect 75mm Between rafters and 75mm over rafters at 400cc. Full design should be sought with condensation risk analysis not all PIR manufacturers will allow this.	
Celotex XR4000		Expect 140mm over rafters	
TLX Silver with a PIR insula		Around 130mm of PIR with a TLX silver underneath. Air gaps, timber size and design to be discussed	
TLX Gold		145mm PIR between, TLX gold above rafter, design to be discussed.	

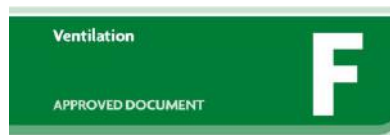
Pitched roof – Flat Ceilings

Based on the assumption all insulation is laid between and over the ceiling joists, and 147mm x 47mm ceiling joists installed at 600cc.

Minimum U-value required 0.15W/m²K

Product	Joists at 600cc
Knauf - glass mineral wool	150mm insulation between ceiling joists, 150mm laid perpendicular over the top, 300mm total
Rockwool – Thermal insulation loft roll	150mm insulation between ceiling joists, 150mm laid perpendicular over the top, 300mm total
Celotex GA4000 (Other PIR insulations options may differ slightly).	100mm insulation between joists and 60mm under+ 12.5mm plasterboard.
Actis Multifoils.	HYBRIS 140mm thickness between joists + HCONTROL HYBRID 45mm underneath with relevant air gaps.

Some of the main changes from June 2022



- Night latches cannot be used in place of trickle vents. (Part F, paragraph 1.52)
- Open plan kitchen diners need a minimum of 3 trickle vents in a room (8000mm² each). (Part F, Paragraph 1.52)
- Minimum requirement for trickle vents now 8000mm² for habitable rooms or 10,000mm² for single storey dwellings. (Part F Table 1.7)
- Exposed façades in busy areas (main road, etc.) will require noise attenuating trickle vents. (Paragraph 1.54 Part F)
- Existing home ventilation guides required to be given to the homeowner by the builder. Which explain how to use and ventilate efficiently, etc. (Paragraph 4.20)



- All replacement windows must have trickle vents regardless of if the previous windows did not. (Paragraph 3.15)
- Any new 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)



Table 3.1 Energy efficiency measures **Category of measure**

Roof insulation

- | | |
|--|-------|
| a. Renewing loft insulation, including effective edge sealing at junctions and penetrations | Minor |
| b. Loft conversions or works that include changing a cold loft (insulation at ceiling level) to a warm loft (insulation at roof level) | Minor |

Wall insulation

- | | |
|---|-------|
| c. Installing cavity wall insulation to any external wall | Minor |
| d. Installing external or internal wall insulation to less than or equal to 50% of the external wall area | Minor |
| e. Installing external or internal wall insulation to more than 50% of the external wall area | Major |

Replacement of windows and doors 1

- | | |
|--|-------|
| f. Replacing less than or equal to 30% of the total existing windows or door units | Minor |
| g. Replacing more than 30% of the total existing windows or door units | Major |

Draught-proofing (other than openings) 2

- | | |
|--|-------|
| h. Replacing a loft hatch with a sealed/insulated unit | Minor |
| i. Sealing around structural or service penetrations through walls, floors or ceiling/roof | Minor |
| j. Sealing and/or insulating a suspended ground floor | Major |
| k. Removing chimney or providing another means of sealing over chimney, internally or externally | Major |

Note: 1. If the energy efficiency works involve only replacing windows, then the guidance in paragraphs 3.14 to 3.16 may be followed as an alternative means of demonstrating compliance.

Note: 2. Draught-proofing measures might not, on their own, constitute building work. This work may be controllable under the Building Regulations if carried out as part of other building work.

		Number of minor measures						
		0	1	2	3	4	5	6
Number of major measures	0	Category A						
	1				Category B			
	2							
	3						Category C	
	4							

If the work is categorised as Category A, it is likely that the energy efficiency measures have not reduced the ventilation provision of the dwelling below the requirements, so no further ventilation provision is necessary. If the work is categorised as Category B, it is likely that the ventilation provision of the dwelling has been reduced below the requirements. Further ventilation provision should be provided. (See 3.11 Part F)

If the work is categorised as Category C, it is likely that the ventilation provision of the dwelling has been reduced significantly below the requirements. Further ventilation should be provided. (See 3.12 Part F)