COUNCIL BUSINESS COMMITTEE

The Future Buildings Consultation

Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for non-domestic buildings and dwellings; and overheating in new residential buildings.

25th March 2021

Report of the Director of Economic Growth and Regeneration

PURPOSE OF REPORT

To advise Members of Part Two of the Government's consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for non-domestic buildings and dwellings; and overheating in new residential buildings.

The consultation commenced on 19th January 2021 and runs until 13th April 2021.

The government is seeking views on:

Non-domestic buildings

• The vision for the Future Buildings Standard that the Government propose will start to apply to new non-domestic buildings from 2025 onwards;
• The Government's preferred option to uplift energy efficiency standards for new non-domestic buildings in 2021 which is intended to deliver a 27% reduction in carbon emissions on average per building compared to the existing Part L standard. As well as improving the energy efficiency of new buildings in the short term, the interim uplift will ensure that construction professionals and supply chains are working to higher specifications in readiness for the proposed introduction of the Future Buildings Standard from 2025;
• Improvements to the non-domestic energy modelling methodologies;
• Improvements to standards when work is carried out in existing non-domestic buildings;
• Changes to Part F (ventilation) and its associated Approved Document guidance, for both new and existing non-domestic buildings; and
• Proposals to introduce a new overheating mitigation requirement in the Building Regulations for new non-domestic buildings which are classed as 'residential'.

Domestic buildings

• Proposals to introduce a new overheating mitigation requirement in the Building Regulations for new homes;
• Improvements to standards when work is carried out in existing homes;
• Reconsulting on the Fabric Energy Efficiency Standard, as well as other standards for building services in new homes and guidance on the calibration of devices that carry out airtightness testing; and
• Changes to Part F (ventilation) and its associated Approved Document guidance.

This report is public.

RECOMMENDATIONS

(1) That the draft response to the consultation, at Appendix 1 of the Report, is submitted as a formal response from Lancaster City Council.

1.0 Introduction

1.1 The consultation seeks views on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for non-domestic buildings and dwellings; and overheating in new residential buildings. These changes are aimed at:

- Reducing carbon emissions and improving the energy efficiency of buildings.
- Ensuring work done to existing homes and non-domestic buildings is done to a high standard of energy efficiency.
- Instigating changes in specifications, skills and supply chains needed to stimulate innovation and learning in the sector, to prepare industry for the Future Buildings Standard from 2025.
- Providing adequate ventilation provisions to align with more airtight construction.
- Reducing the risk of transmission of airborne illnesses in certain non-domestic buildings.
- Protecting the welfare of occupants who may be at risk of overheating in
- residential buildings

The above aims are to be achieved through:

- An uplift to Part L of the Building Regulations, which deals with energy efficiency, for new non-domestic, existing non-domestic and existing domestic buildings.
- An uplift to Part F of the Building Regulations, which deals with ventilation, for new non-domestic, existing non-domestic and existing domestic buildings.
- Introduction of a new standard within the Building Regulations which will set standards to protect against overheating in residential buildings.

1.2 Heating and powering buildings accounts for 40% of the UK's energy usage. Decarbonising buildings is outlined in the Clean Growth Strategy as essential to ensure that the UK reaches net carbon zero by 2050. The Future Buildings Standard is intended to support the UK in reaching this target.

1.3 Additionally, the Future Buildings standards addresses over heating in homes. An estimated 2,000 deaths per year can be attributed to heat-related causes in England and Wales. By 2050, this number is projected to be over 7,000 per year as a result of climate change. The new standards are aimed at protecting homes from overheating.

1.4 The consultation seeks responses to 132 questions, as posed in the consultation document. Officers have provided a draft response to the consultation document at Appendix 1. Subject to this committee's agreement, the response, or a version amended to reflect Members' specific concerns, will be submitted as Lancaster City Council's formal response to the consultation.

2.0 Details of Consultation

2.1 The Future Buildings Standard Consultation ends on 13 April 2021. The full documentation can be viewed using the following link:

https://www.gov.uk/government/consultations/the-future-buildings-standard

3.0 Options and Options Analysis (including risk assessment)

	Option 1: To formally respond to the Future Buildings Standard Consultation with the comments provided in Appendix 1 of this report	**Option 2:** To formally respond with any other comments	**Option 3:** To provide no response to the consultation
Advantages	The views of the Council will be considered by the Government when the policy details are formulated.	The views of the Council will be considered by the Government when the policy details are formulated.	No advantages
Disadvantages	While the Council may submit comments, they may not result in the issues raised being reflected in the final policy.	While the Council may submit comments, they may not result in the issues raised being reflected in the final policy.	That the views/opinions of the Council will not be taken into account and future opportunities to feed into the process will be lost.
Risks	The Future Buildings Standard Consultation policy may not be revised to reflect the views of the Council.	The Future Buildings Standard Consultation may not be revised to reflect the views of the Council.	That the views/opinions of the Council will not be taken into account and future opportunities to feed into the process will be lost.

4.0 Officer Preferred Option (and comments)

4.1 Option 1 is the preferred Officer opinion. This option ensures that Lancaster City Council provides its views and will be able to make further comments should revisions and further consultation be carried out.

5.0 Conclusion

5.1 It is recommended that the response set out in Appendix 1 is submitted as Lancaster City Council's formal response to the consultation.

CONCLUSION OF IMPACT ASSESSMENT
(including Health & Safety, Equality & Diversity, Human Rights, Community Safety, Sustainability and Rural Proofing):

Responding to the consultation is Lancaster City Council's opportunity to ensure that sustainability considerations are taken into account in the development of the policy.

LEGAL IMPLICATIONS

There are no legal implications stemming from this report.

FINANCIAL IMPLICATIONS There are no financial implications resulting directly from the recommendations.
OTHER RESOURCE IMPLICATIONS, such as Human Resources, Information Services, Property, Open Spaces Building Control functions are carried out by the Council and private Approved Inspectors. As plans are assessed and inspections carried the options proposed in the consultation statement are unlikely to have a significant impact on resources. The enhancement of accessibility and adaptability standards would have an impact upon the development of homes that the Council may wish to carryout. Additional resource may be required to meet the standards and will need to be taken into account when any such schemes are planned.
SECTION 151 OFFICER'S COMMENTS The s151 Officer has been consulted and has no comments to add.
MONITORING OFFICER'S COMMENTS Responses to consultations such as this lie within the Terms of Reference of this Committee. The Monitoring Officer has no further comments to add.

BACKGROUND PAPERS The MHCLG Future Buildings Standard Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for non-domestic buildings and dwellings; and overheating in new residential buildings can be viewed at the following link: The Future Buildings Standard consultation (publishing.service.gov.uk)	**Contact Officer:** Diane Neville **Telephone:** 01524 582335 **Email:** dneville@lancaster.gov.uk **Ref:** N/A

Appendix 1 – Proposed Lancaster City Council response to the consultation

The consultation poses a series of questions to which the following responses are recommended.

Section A: Non-Domestic Buildings

The Future Buildings Standard

Question 1): Our aim is that buildings constructed to the Future Buildings Standard will be capable of becoming carbon neutral over time as the electricity grid and heat networks decarbonise.

Do you agree that the outline of the Future Buildings Standard in this chapter meets this aim?
a) Yes
b) No

Please explain your reasoning and provide supporting evidence or alternative suggestions.

Heating and powering buildings currently accounts for 40% of the UK's total energy usage. By making our buildings more energy efficient and embracing smart technologies, we can cut energy bills, reduce demand for energy, and boost economic growth while meeting our targets for carbon reduction. The Committee on Climate Change has stated that achieving the UK's net zero target will require the full decarbonisation of buildings by 2050.

Question 2): We believe that developers will typically deploy heat pumps and heat networks to deliver the low carbon heating requirement of the Future Buildings Standard where practical. What are your views on this and in what circumstances should other low carbon technologies, such as direct electric heating or hydrogen, be used?

1. Primarily "heat pumps" as there are no existing "Heat Networks" (District Heating) operating within the Council area.
2. It may be possible that the Local Plan & Town Planning Approval Conditions (and/or new S.106 agreements) could be amended to encourage Heat Networks to be provided.

Question 3) Do you agree that <u>some</u> non-domestic building types are <u>more suitable</u> for low carbon heating and hot water, and that some non-domestic building types are more challenging?
a) Yes
b) No

If you answered no, please explain your reasoning.

Extract from Consultation - The Future Buildings Standard
1.4.4. Our vision for the Future Buildings Standard is designed to transition non-domestic buildings to use low-carbon heat sources for heating and hot water. This in turn means that new buildings constructed to the standard will be fit for the future with the ability to become carbon neutral over time as the electricity grid and heat networks decarbonise. This chapter will set out what we think the Future Buildings Standard will look like, as well as providing the technical specification of the standard, and outlines our envisaged timeline for the implementation of the standard.

Interim uplift of energy and ventilation standards (Part L and Part F) for new and existing non-domestic buildings
1.4.5. In order to support the introduction of the Future Buildings Standard from 2025, we are consulting on two ambitious options to uplift the energy efficiency and ventilation standards for new non-domestic buildings in **2021**. The Government's preferred option will deliver a 27% reduction in carbon emissions on average per building compared to the existing standard. It will also ensure that construction professionals and supply chains are working to higher specifications in readiness for the introduction of the Future Buildings Standard.

1.4.6. Many of the non-domestic buildings that will exist in 2050 have already been built. The Building Regulations provide an important opportunity to raise standards in existing buildings under certain circumstances, such as during the major refurbishment of an office building. We believe that we can make significant carbon savings by uplifting standards that apply when

this type of work is carried out, and this consultation sets out proposed uplifts in these standards.

Introduction of overheating standards for new residential buildings in 2021

1.4.8. The **Future Homes Standard consultation** set out the Government's ambition for increasing the energy efficiency of new homes, including increasing the standards for insulation. We need to ensure that improving the energy efficiency of new homes does not have unintended consequences by increasing the risk of overheating.

This consultation sets out our proposals to reduce the risk of overheating in new residential buildings. This definition of 'residential' includes new homes and flats, schools, or other establishments where people sleep on the premises (including living accommodation for care of maintenance for older or disabled people and people under the age of 5 years), and residential colleges and halls of residence. It should be noted that residential colleges and halls of residence are considered under some definitions as non-domestic buildings but they will remain in scope for the proposed regulations.

Extract from Consultation - The Future Buildings Standard

Table 2.1: Demand types identified for specific building types

Demand type	Building type
Type 1 demand: space heating demand more suitable for heat pumps. Domestic hot water demand more suitable for point-of-use or heat pump.	Offices, multi-residential buildings, prisons, primary schools, secondary schools, retail units, community centres, courts, libraries, museums, airport terminals, data centres, theatres
Type 2 demand: space heating demand more suitable for heat pumps. High domestic hot water demand, which may be less suitable to be provided using point-of-use or heat pumps.	Hotels, hospitals, other health care buildings, restaurants
Type 3 demand: space heating demand less suitable for heat pumps. Domestic hot water demand more suitable for point-of-use or heat pump.	Retail warehouses, distribution warehouses, industrial process buildings, sports halls

Extract from Consultation Document:

2.3.4. A large proportion of this low-carbon heat will come from the national grid. The national grid has significantly decarbonised over recent years and will continue to decarbonise to become net zero over time. The transition to low-carbon heating and hot water systems means that new buildings constructed to the standard will be zero carbon ready, with the ability to decarbonise over time alongside the national grid and will not need to be retrofitted to meet our net zero commitment.

Fabric standards

2.3.8. Regardless of the non-domestic building type, we believe that providing the best fabric standards possible should be essential to buildings constructed to the Future Buildings Standard. The relationship between building fabric and energy demand in non-domestic buildings is complicated, and often a balance needs to be struck between heating, cooling demands, and daylight provision.

Heat pumps

2.3.10. We anticipate that the installation of heat pumps will play an increasing role in delivering low carbon heat for buildings built to the Future Buildings Standard. Heat pumps come with the same low-carbon benefits as direct electric heating (paragraphs 2.3.14 to 2.3.15) but deliver heat much more efficiently as they capture renewable heat from the atmosphere. Heat pumps can help to keep running costs down and reduce demand on the electricity grid.

Heat networks

2.3.12. Heat networks (also referred to as district heating) are distribution systems that take heat from a centralised source and deliver it to a number of different buildings.9 Heat networks in non-domestic buildings will form part of our overall plan for the future of low carbon heat, particularly in cities and high-density areas.

Heat networks can decarbonise more easily compared to other heat sources because new technologies can be added to the system with little disruption to individual buildings.

2.3.13. Heat networks provide a unique opportunity to exploit larger scale, renewable and recovered waste heat sources that cannot be accessed at an individual building level. Heat networks also provide system benefits such as thermal storage and reducing the energy demand of the national grid at peak times.

Direct electric water heating

2.3.15. Direct electric water heating, for example **instantaneous water heaters**, may be an appropriate technology for heating hot water in some non-domestic buildings because there is no need to store large amounts of hot water. This is especially the case where demand for hot water is relatively low, such as in an office.

Question 4): Do you agree with the allocation of building types to space and water heating demand types, as presented in Table 2.1 of this consultation document?

a) Yes

b) No

Question 5): We would like to introduce the Future Buildings Standard for all buildings as quickly as possible. When do you think the Future Buildings Standard should introduce low carbon *space heating* for buildings with Type 1 or Type 2 demand (buildings that have space heating demand more suitable for heat pumps)?

a) 2025 – our proposed date

b) Another date (please specify)

Please explain your reasoning.

Appears to be proportionately balanced and realistic considering we are or should be already enroute to meet current British and European targets and standards, in conjunction with global objectives. Many of these have been incorporated into British standards and Building Regulations incrementally. Setting these aside, technological advances have been made in the industry with standards, equipment and products to make this become a reality. However, incentivisation needs to be harmonised with these advancements, including enhancements to the Building Regulations to help administer, enforce and improve uptake.

Question 6): We would like to introduce the Future Buildings Standard for all buildings as quickly as possible. When do you think the Future Buildings Standard should introduce low carbon *space heating* for buildings with Type 3 demand (buildings that have space heating demand less suitable for heat pumps)?

a) 2025

b) Another date (please specify)

Please explain your reasoning.

Similarly, to Q5 as it makes better sense to introduce them in tandem with domestic and other types of buildings. However, they need to engage with the wider industry. This will increase the acceptance of change and allow them to contribute to the changes required and help reach collective targets. It will also assist the regulator being able to introduce the changes at the same time of reducing the time they would normally need to promote the changes and educate the industry. This will thereby improve interpretation and understanding and have better chances of achieving the objectives of the changes.

Question 7): We would like to introduce the Future Buildings Standard for all buildings as quickly as possible. When do you think the Future Buildings Standard should introduce low carbon *water heating* for buildings with Type 1 or Type 3 demand (buildings that have water heating demand more suitable for point-of-use heaters or heat pumps)?
a) 2025 – our proposed date
b) Another date (please specify)

Please explain your reasoning.
This is the same reasons as listed above under Q's 5 and 6.

Question 8): We would like to introduce the Future Buildings Standard for all buildings as quickly as possible. When do you think the Future Buildings Standard should introduce low carbon *water heating* for buildings with Type 2 demand (buildings that have water heating demand less suitable for point-of-use heaters or heat pumps)?
a) 2025
b) Another date (please specify)

Please explain your reasoning.
This is the same reasons as listed above under Q's 5, 6 and 7.

Interim uplift to Part L standards for non-domestic buildings

Question 9): We would welcome any further suggestions, beyond those provided in this consultation, for improving the modelling process; Part L and Part F compliance; and the actual energy performance of non-domestic buildings.
Please provide related evidence.
No Comment other than to recommend that the changes should be implemented in tandem with considering demand types and building types.

Extract from Consultation Document:
3.5.3. We are therefore proposing the following three performance metrics for new buildings to be measured against:
i) **Primary energy target**;
ii) **CO2 emission target**; and
iii) **Minimum standards** for **fabric** and **fixed building services.**
3.5.4. Primary energy is energy from renewable and non-renewable sources which has not undergone any conversion or transformation process. It is a measure of the total energy used including energy losses from extraction, processing, conversion, and transportation. Primary energy is a new measure (for Building Regulations) and is discussed in more detail in the following section.

Question 10): What level of uplift to the energy efficiency standards for non-domestic buildings in the Building Regulations should be introduced in 2021?
a) Option 1 – average 22% CO2 reduction
b) Option 2 – average 27% CO2 reduction
c) No change
d) Other level of uplift (please specify)

Please explain your reasoning and provide supporting evidence or alternative suggestions where applicable.
This level is the Government's preference. However, if businesses and individuals were better incentivised and in some cases fully subsidised, we would be better placed to achieve and probably exceed these targets. If the COVID pandemic showed anything, its level of expenditure and support the Government can make, when/where its most needed. Global Warming and Climate Change should also be viewed as critical.

Extract from Consultation Document:
2.3.19 The **National Calculation Methodology** takes a theoretical building of the same size and shape as the actual building and assigns standardised properties for fabric and services - this is known as the **'notional building'**. The carbon and primary energy rate of the notional building set the targets for the actual building.
The proposed **National Calculation Method Modelling Guide** for 2021, described in Section 3.6, sets out notional building specifications for the following low-carbon fuels:
- **Biofuel**
- **Electricity (heat pump)**
- **Electricity (direct)**
- **Waste heat**
- **Certain district heating systems (Heat Networks)**

We believe that these specifications provide a reasonable starting point for the Future Buildings Standard where the notional building uses any one of these fuels.
We will also consider whether minimum fabric standards also need to be reviewed for the Future Buildings Standard.

Question 11): Do you agree with the way that we are proposing to apply primary energy as the principal performance metric?
a) Yes
b) No

Question 12): Do you agree with using CO2 as the secondary performance metric?
a) Yes
b) No

Extract from Consultation Document:
Changes to **minimum standards** for **building services** for new and existing non-domestic buildings, including proposals to introduce a new regulation to ensure buildings have self-regulating devices when a heating appliance is installed and the installation of building automation and control systems; Practical examples: mandating thermostatic radiator valves or local heating sub-zones, with their own temp and time controls, to reflect user's & building uses, etc.

Question 13): Do you agree with the approach to calculating CO2 and primary energy factors, referred to in paragraph 3.5.7 of this consultation document?
a) Yes
b) No
If you answered no, please explain your reasoning and provide supporting evidence or alternative suggestions.

Question 14): Do you agree with the proposals for natural gas being assigned as the heating fuel for any fuels with a worse CO2 emission factor than natural gas?
a) Yes
b) No

If you answered no, please explain your reasoning and provide supporting evidence or alternative suggestions.

To not use the real heating fuels would distort the market and reduce the accuracy of any energy use models and the energy use of a proposed real building performance.

Question 15): Do you agree with our proposal of using a hybrid electric/heat pump heating system in the notional building when electricity is specified as a heating fuel?
a) Yes
b) No

If you answered no, please explain your reasoning and provide supporting evidence or alternative suggestions.

Question 16): Do you agree with the proposal for the treatment of domestic hot water in the notional building?

a) Yes
b) No

If you answered no, please explain your reasoning and provide alternative suggestions.

Question 17): Do you agree with the proposal for connecting to an existing heat network, as presented in the draft NCM modelling guide?
a) Yes
b) No, they give too much of an advantage to heat networks
c) No, they do not give enough of an advantage to heat networks
d) No, I disagree for another reason

If you answered no (b, c or d), please explain your reasoning and provide supporting evidence or alternative suggestions.
There are no Heat Networks available in our Council District and so it is a false model design assumption. Unless the developer was proposing to **install** a Heat Network.

Question 18): Do you agree with the proposal for connecting to a new heat network, as presented in the draft NCM modelling guide?
a) Yes
b) No, they give too much of an advantage to heat networks
c) No, they do not give enough of an advantage to heat networks
d) No, I disagree for another reason

If you answered no (b, c or d), please explain your reasoning and provide supporting evidence or alternative suggestions**.**
As per Q17, there are no Heat Networks available in our Council District and so it is a false model design assumption. Unless the developer was proposing to **install** a Heat Network.

Question 19): Do you agree with the proposed changes to the National Calculation Methodology Modelling Guide and activity database?
a) Yes
b) Yes, but additional changes should be made
c) No

If you answered b or c, please explain your reasoning and provide alternative suggestions.

Question 20): We would welcome any further suggestions for revising the outputs from SBEM, which would enable easier checking by building control on building completion. Please provide related evidence.
No Comment

Extract from consultation:
Limiting heat gains in non-domestic buildings.

3.6.19. The current Part L guidance for non-domestic buildings includes standards for the maximum solar gain of a building (i.e., heat gains from the sun through windows). The intention of this is to reduce the use of any comfort cooling systems in place and reduce the need for cooling being installed if it is not already present.

3.6.20. In the current guidance, limiting solar gain can be shown by demonstrating that solar gains are no greater than would occur through a reference glazing system. We are proposing to increase the solar performance requirements by improving the performance of the reference glazing in reducing solar gains (the performance measurement for this is known as a 'g-value').
While we recognise that solar control glass can reduce visible light transmission, many modern glazing systems can still achieve high levels of solar control while being very transparent to visible light.

The details of this can be found in the draft NCM modelling guide and in Table 4.3 of the draft *Approved Document L, volume 2: buildings other than dwellings*.

NOTE: There are new specific regulations (New AD_'X' – Over-Heating) being proposed to stop "over-heating" of future (2021) residential buildings & apartments'.

Question 21): Do you agree with the proposals for limiting heat gains in non-domestic buildings?
a) Yes
b) No, they go too far
c) No, they do not go far enough
d) No, I disagree for another reason

If you answered no (b, c or d), please explain your reasoning and provide alternative suggestions.
Extract from consultation:
3.7.1. To reflect the importance of providing a thermally efficient building, we propose that standards for new non-domestic buildings should continue to include minimum levels of fabric performance. We are proposing to increase the minimum standards for roofs, walls, floors, windows, and external doors.

Table 3.2: Standards for new thermal elements, windows, doors and air permeability for new non-domestic buildings		
	2013 U-values in new non-domestic buildings ($W/m^2.K$)	Proposed U-values for new non-domestic buildings ($W/m^2.K$)
Pitched roof – insulation at ceiling level	0.25	0.16
Pitched roof – insulation at rafter level	0.25	0.16
Flat roof or roof with integral insulation	0.25	0.18
Wall	0.35	0.26
Floors	0.25	0.18
Swimming pool basin	0.25	0.25
Windows in buildings similar to dwellings	2.2	1.6 or Window Energy Rating Band B
Rooflight[i]	2.2	2.2 (horizontal plane)
All other windows, roof windows and curtain walling	2.2	1.6
Pedestrian doors (including glazed doors)	2.2	1.4
High usage entrance doors	3.5	3.0
Vehicle access or similar large doors	1.5	1.3
Roof ventilators (including smoke vents)	3.5	3.0
Air Permeability	10 $m^3/(h.m^2)$ @50Pa	8 $m^3/(h.m^2)$ @50Pa or 1.57 $m^3/(h.m^2)$ @ at 4Pa
Notes: i. Section 3.9 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.		

Question 22): Do you agree with the proposed minimum standards for fabric performance in new non-domestic buildings as presented in Table 3.2 of this consultation document? (See Above)

a) Yes

b) No, the standards go too far

c) No, the standards do not go far enough

d) No, I disagree for another reason

If you answered no (b, c or d), please explain your reasoning and provide supporting evidence or alternative suggestions.

Table 3.3: Standards for new thermal elements, windows, doors for existing non-domestic buildings		
	2013 U-values for new elements in existing non-domestic buildings (W/m².K)	Proposed U-values for new elements in existing non-domestic buildings(W/m².K)
Pitched roof – insulation at ceiling level	0.16	0.16
Pitched roof – insulation at rafter level	0.18	0.16
Flat roof or roof with integral insulation	0.18	0.18
Wall	0.28	0.26
Floors	0.22	0.18
Swimming pool basin	0.25	0.25
Windows in buildings similar to dwellings	1.6 or Window Energy Rating Band C	1.6 or Window Energy Rating Band B

	2013 U-values for new elements in existing non-domestic buildings (W/m².K)	Proposed U-values for new elements in existing non-domestic buildings(W/m².K)
Rooflight [L]	1.8 (vertical plane)	2.2 (horizontal plane)
All other windows, roof windows and curtain walling	1.8	1.6
Pedestrian doors (including glazed doors)	1.8	1.4
High usage entrance doors	3.5	3.0
Vehicle access or similar large doors	1.5	1.3
Roof ventilators (including smoke vents)	3.5	3.0
Notes:		

See www.bregroup.com/sap/sap10/ for BR 442 (Latest Version) U-Values

Question 23): Do you agree with the proposed minimum standards for fabric performance of new thermal elements in existing non-domestic buildings as presented in Table 3.3 of this consultation document?

a) Yes

b) No, the standards go too far

c) No, the standards do not go far enough

d) No, I disagree for another reason

If you answered no (b, c or d), please explain your reasoning and provide supporting evidence or alternative suggestions.

Question 24): Do you agree with the draft guidance in paragraph 4.15 of the draft *Approved Document L, volume 2: buildings other than dwellings* on reducing unwanted air infiltration when carrying out work to existing non-domestic buildings?
a) Yes
b) No

If you answered no, please explain your reasoning.

Question 25): Do you agree that the limiting U-value for rooflights in new and existing non-domestic buildings should be based on a rooflight in a horizontal position, as detailed in paragraph 4.4 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.

Question 26): Do you agree that we should adopt the latest version of BR 443 for calculating U-values in new and existing non-domestic buildings, as detailed in paragraph 4.1 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.

Question 27): Do you agree with the newly proposed minimum efficiencies for natural gas, oil and LPG boiler and domestic hot water system installations in new non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough

If you answered no (b or c), please explain your reasoning.

Question 28): Do you agree with the proposed set of standards for air distribution systems for new non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough

If you answered no (b or c), please explain your reasoning.

Question 29): Do you agree with the proposals for self-regulating devices for new non-domestic buildings, as set out in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.

Question 30): Do you agree with the minimum efficacy proposals for lighting in new non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes

b) No, the standards go too far

c) No, the standards do not go far enough

If you answered no (b or c), please explain your reasoning.

Question 31): Do you agree with the proposals for cooling in new non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes

b) No, the standards go too far

c) No, the standards do not go far enough

If you answered no (b or c), please explain your reasoning.

Extract from Consultation:

building automation and control systems.

3.10.17. We have proposed to set the specification of BACS as a 'Class A' system using EN 15232, on the understanding that this is the necessary specification to meet ISO 16484. It also provides a high level of control, and our analysis suggests it is cost-effective.

Question 32): Do you agree with the proposals to require building automation and control systems (BACS) in new non-domestic buildings, when such buildings have a heating or air-conditioning system over 290kW?

a) Yes

b) No, a different trigger point should be used

c) No, I do not agree that building automation and control systems should be required in new buildings

d) No, I disagree for another reason

If you answered no (b, c or d), please explain your reasoning and provide alternative suggestions. Please also highlight any unintended consequences that may result from setting this standard.

Extract from Consultation:

3.10.19. We propose to extend the commissioning requirements for new non-domestic buildings to both BACS, and on-site electricity generation systems.

3.10.20. The Government wants to ensure that commissioning is carried out as effectively as possible.

We are therefore proposing to make the **requirements for commissioning much clearer** by providing a dedicated section in *Approved Document L, volume 2: buildings other than dwellings*, which will set out the **legal requirement** as well as guidance on how to **meet the legal requirements** in normal circumstances.

We also propose to expand the guidance on commissioning by referencing specific commissioning guidance beyond the currently referenced CIBSE Guide M.

Question 33): Do you agree with the technical specification for new building automation and control systems as EN 15232, Class A?

a) Yes

b) No, the requirements go too far

c) No, the requirements do not go far enough

If you answered no (b or c), please explain your reasoning.

Question 34): Do you agree with the proposals for improving the commissioning guidance for new non-domestic buildings in Section 8 and 9 of draft *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough
d) No, I disagree for another reason

If you answered no (b, c, or d), please explain your reasoning and provide alternative suggestions.

Question 35): Do you agree with the proposals for requirements relating to the assessment of overall energy performance of building services installations and providing information to building owners for new non-domestic buildings given in sections 8 and 9 of *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes
b) No

If you answered no, please explain your reasoning.

Extract from Consultation:

3.10.23. We are proposing to introduce new requirements and associated guidance on sizing and controls for building services systems. The intention is to reduce the risks from under or oversizing systems. For example, a significantly oversized condensing boiler may not regularly run in condensing mode, and therefore will not be able to fulfil its energy-saving potential. We have proposed guidance in the Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings* for the following building services systems:

Table 3.4: Guidance on sizing and controls for building services systems	
Service type	***Approved Document L, volume 2: buildings other than dwellings***
Space heating	Paragraph 5.8
Domestic hot water	Paragraph 6.23 and 6.25
Comfort cooling	Paragraph 6.33 and 6.38
Mechanical ventilation	Paragraph 6.45, 6.52 and 6.53
Lighting	Paragraph 6.57
Building automation and control systems (BACS)	Paragraph 6.68
On-site electricity generation	Paragraphs 6.69 to 6.72

Question 36): Do you agree with the guidance proposals for adequate sizing and controls of building services systems in new non-domestic buildings, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes
b) No, I do not agree with providing guidance on this
c) No, the guidance should be improved

If you answered no (b or c), please explain your reasoning.

Making buildings fit for installing low carbon heat

3.10.26. We propose that wet space heating systems in non-domestic buildings should be designed to operate with a **flowrate temperature** of **55°C or lower** in the final heating circuit. To encourage this, we could either:

- design the notional building in the National Calculation Methodology to give carbon and primary energy credit for heating systems designed to operate at temperatures of 55°C or lower; or
- set a minimum standard in the *Approved Document L, volume 2: buildings other than dwellings* that heating systems

Question 37): Do you agree with the proposal that wet space heating systems in new buildings should be designed to operate with a flow temperature of 55°C or lower?
a) Yes, through a minimum standard set in paragraph 5.9 of the *Approved Document L, volume 2: buildings other than dwellings*
b) Yes, through carbon and primary energy credit in SBEM
c) Yes, by another means
d) No, the temperature should be below 55°C
e) No, this standard should not be applied to all new buildings
f) No, I disagree for another reason

Please explain your reasoning.
Needs to be more specific – However, if the return temperature is 55% or above it may not operate efficiently – i.e. a condensing boiler will not produce condensate and will have similar efficiencies to non-condensing boilers

Question 38): Do you agree with the proposals to clarify, rationalise and simplify the guidance for building services in new non-domestic buildings, and to incorporate the standards of the Non-Domestic Building Services guidance into the main body of the *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.
No one reads the existing third-tier documents.

Question 39): Do you agree with the proposals to simplify the requirements in the Building Regulations for the consideration of high-efficiency alternative systems in new non-domestic buildings?
a) Yes
b) No

If you answered no, please explain your reasoning.
As similar to above, no one reads the existing third-tier documents.

Question 40): Do you agree with the efficiency proposals for replacement fixed building services in existing non-domestic buildings as detailed in paragraphs 5.4 to 5.7 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.

Extract from Consultation:
Natural gas, LPG and oil boilers and domestic hot water
3.11.2. We propose that the increases in minimum seasonal efficiencies in new non-domestic buildings, detailed in paragraph 3.10.2, also apply to installations in existing non-domestic buildings.

Question 41): Do you agree with the newly proposed minimum efficiencies for natural gas, oil and LPG boiler and domestic hot water system installations in existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough

If you answered no (b or c), please explain your reasoning.

Question 42): Should minimum boiler efficiency standards in existing non-domestic buildings still benefit from relaxations through the use of heating efficiency credits?
a) Yes, boiler installations should continue to benefit from heating efficiency credits
b) No, boiler installations should no longer benefit from heating efficiency credits (the Government's proposal)

If you answered yes, please explain your reasoning.
Not needed as modern boilers are far more efficient than those they replace.

Question 43): Do you agree with the proposed set of standards for air distribution systems for existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough

If you answered no (b or c), please explain your reasoning.

Self-regulating devices
3.11.7. We propose that the new regulations in the Building Regulations 2010 requiring self-regulating devices in new buildings outlined in paragraphs 3.10.5. to 3.10.7, which specify that buildings must have self-regulating devices when a heating or cooling system is installed, also apply to the replacement of a heating appliance in an existing building.

Question 44): Do you agree with our proposed approach and guidance to mandating self-regulating controls in existing non-domestic buildings, including technical and functional feasibility, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.
These upgrades to controls are easily installed and are very likely to be cost effective.

3.11.12. The standards for existing buildings would only apply when the Building Regulations are triggered by relevant building works, such as a building refurbishment. They would not be applicable in other scenarios, such as when replacing an individual lamp within an existing luminaire.

Question 45): Do you agree with the minimum efficacy proposals for lighting in existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough
If you answered no (b or c), please explain your reasoning.

Cooling
3.11.13. We propose that the minimum standards for comfort cooling systems in new non-domestic buildings detailed in paragraphs 3.10.11 to 3.10.14 also apply for installations in existing non-domestic buildings.

Question 46): Do you agree with the proposals for cooling in existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, the standards go too far

c) No, the standards do not go far enough
If you answered no (b or c), please explain your reasoning.
Question 47): Do you agree with the proposals that when Building Automation and Control System (BACS) is installed in an existing non-domestic building with a heating or air-conditioning system over 290 kW, it should meet the same minimum standards as new non-domestic buildings?
a) Yes
b) No, a different trigger point should be used
c) No, a different standard should be used
d) No, for another reason

Commissioning and providing information.
3.11.15. Our proposals for commissioning in new non-domestic buildings are designed to also apply to work on existing non-domestic buildings. Our proposed changes for extending commissioning requirements to Building Automation and Control systems, and on-site electricity generation systems, and for providing clearer commissioning requirements are detailed in paragraphs 3.10.18 to 3.10.22.

Question 48): Do you agree with the proposals for requirements relating to the assessment of overall energy performance of building services installations and providing information to building owners for existing non-domestic buildings?
a) Yes
b) No, I do not agree with providing this guidance
c) No, the guidance should be improved

Sizing building services systems
3.11.17. We propose that the new requirements and associated guidance for the sizing and controls of building services systems, detailed in paragraph 3.10.23, also apply in new non-domestic buildings also apply to installations in existing non-domestic buildings.

3.11.18. We propose that measures for new non-domestic buildings that would make it easier to install low carbon heating in future, detailed in paragraphs 3.10.24 to 3.10.28, also apply to existing non-domestic buildings. In existing non-domestic buildings, we are proposing that when a whole wet space heating system is replaced, including both the heating appliance (e.g. a boiler) and the emitters (e.g. a radiator), that the new system is designed to run at 55°C.

The proposal would ensure that the existing non-domestic building is ready for low carbon heat, such as heat pumps or district heating.

Question 49): Do you agree with the guidance proposals for adequate sizing and controls of building services systems in existing non-domestic buildings, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, do not agree with providing this guidance
c) No, the guidance should be improved

If you answered no (b or c), please explain your reasoning.

Question 50): Do you agree with the proposal that when whole wet space heating systems (i.e. boiler and radiators) are replaced in existing non-domestic buildings the replacement system should be designed to operate with a flow temperature of 55°C or lower?
a) Yes, through a minimum standard set in paragraph 5.9 of *Approved Document L, volume 2: buildings other than dwellings*
b) Yes, through carbon and primary energy credit in SBEM
c) Yes, by another means

d) No, the temperature should be below 55°C
e) No, this standard should not be applied to all existing buildings
f) No, I disagree for another reason
Question 51): Do you agree with the proposals to restructure the guidance for building services in existing non-domestic buildings, and to incorporate the standards of the Non-Domestic Building Services guidance into the main body of the *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

Question 52): Do you agree the Government should continue to provide guidance for minimum building services efficiencies in existing non-domestic buildings, if the standard does not go significantly further than the Ecodesign regulations?
a) Yes
b) No, the Ecodesign regulations are sufficient
c) No

A building should be designed to minimum standards & guidance available in one published document.

Extract from Consultation:
3.12 Part L guidance for non-domestic buildings
3.12.1. The new *Approved Document L, volume 2: buildings other than dwellings* is provided alongside this consultation document, with major technical changes highlighted in yellow. The new guidance aims to be clearer about what is expected of builders and installers in complying with the regulatory requirements. Approved Documents deal with complex information and are an essential resource relied upon by those who enforce the regulations, advise on compliance or must comply with the regulations. ***The Independent Review of the Building Regulations and Building Safety*** highlighted that the complexity of the current regulations and Approved Documents guidance "can lead to confusion and misinterpretation in their application…regulations and guidance must be simplified and unambiguous."

In line with this recommendation, and to make the minimum standard as clear as possible, supplementary information has been removed. Sections 3.10.29 and 3.11.19 set out some proposals to simplify, rationalise and clarify the guidance for new and existing non-domestic building services.
This is a comprehensive, but not exhaustive, list of other guidance that has been simplified, rationalised, or clarified:

- inclusion of cavity wall insulation in renovating a thermal element;
- removal of guidance on Energy Performance Certificates;
- removal of advice on low and zero carbon technologies;
- removal of advice on upgrading windows and doors when only replacing glazing panes or the door leaf;
- removal of advice on weather stripping secondary glazing;
- removal of guidance that an approach to demonstrate thermal bridging has been limited is

to adopt Accredited Construction Details at www.gov.uk;

- removal of design considerations for swimming pool basins;
- removal of advice on cost-effective renovations of thermal elements as a compensating measure for the thermal performance of an extension;
- removal of examples of renovating a thermal element on the inside or outside of the building;
- removal of example of economic payback for consequential improvements;
- updates to external references in Appendix E and Appendix F;
- removal of advice on the building control body failing to receive a commissioning notice; and
- removal of a summary of the notional building specifications.

Question 53): Do you agree with the changes made to simplify, rationalise and clarify the guidance, and the updates to external references in Appendix E and Appendix F, in

***Approved Document L, volume 2: buildings other than dwellings*, as outlined in paragraph 3.12.1 of the consultation document?**

a) Yes
b) Yes, but not with the changes to the supplementary guidance
c) Yes, but not with the external references
d) No

Extract from Consultation:

3.12.2. Current guidance in *Approved Document L2B: Conservation of fuel and power in existing buildings other than dwellings (2010 edition incorporating 2010, 2011, 2013 and 2016 amendments)* requires that if am existing building has **over 1000m2 floor area** and proposed building work meets certain criteria, further work may need to be undertaken to improve the energy efficiency of the entire building.

Question 54): Do you agree that the measures in Tables D.1 and D.2 of Appendix D of *Approved Document L, volume 2: buildings other than dwellings* are likely to be technically, functionally, and economically feasible under normal circumstances?

a) Yes
b) No

modular and portable buildings

3.13.4. In light of the proposals for uplifting the Part L minimum standard for new buildings, and the introduction of primary energy targets, we have reviewed the relaxation factors given to **modular** and **portable** buildings. We are proposing that the relaxation factors should continue to apply, but that we should use this opportunity to recalibrate these factors in such a way that:

- encourages older and less efficient building modules to be upgraded when used for buildings on short-term hire, and;
- sets a higher standard for long-term hire or permanent buildings constructed using refurbished modules, recognising the greater potential for improvements to these building applications.

Question 55): Do you agree with the proposals for relaxation factors for modular and portable buildings, as detailed in Tables 2.2 and 2.3 of draft *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes
b) No, the requirements go too far
c) No, the requirements do not go far enough

3.14 Airtightness

Introduction of the Pulse airtightness methodology

3.14.2. The Pulse test has been developed for application in smaller buildings, particularly dwellings, although may in theory be used in larger buildings. We are seeking views on whether this method would also be appropriate for use in non-domestic buildings and whether we should allow Pulse to be used to determine airtightness for complying with the energy efficiency requirements for buildings other than dwellings. Details on the Pulse measurement system can be found at:

https://buildtestsolutions.com/air-leakage-testing/pulse/ (technical reports can be accessed via the downloads tab).

Question 56): Do you think that the Pulse methodology should be an approved means of demonstrating airtightness for non-domestic buildings?

a) Yes
b) No

If you answered no, please explain your reasoning and provide supporting evidence.

Question 57): Do you agree that we should adopt an independent approved airtightness testing methodology such as the CIBSE draft methodology for non-domestic buildings?
a) Yes, and the CIBSE methodology is appropriate (TM23)
b) Yes, but with a methodology other than CIBSE
c) No, an independent approved airtightness methodology shouldn't be adopted.

3.14.5. In the Future Homes Standard consultation, guidance in the *Approved Document L, volume 1* was *inconsistent* with what was written in the CIBSE methodology on when calibration of devices that carry out airtightness testing should take place. This is detailed in paragraph 7.2 of *draft Approved Document L, volume 2: buildings other than dwellings,* provided alongside this consultation.

Question 58): Do you agree with the proposal for guidance on the calibration of devices that carry out airtightness testing in new and existing non-domestic buildings?
a) Yes
b) No

3.15.2. It is important that new non-domestic buildings have the right level of metering to measure performance accurately. We are proposing to continue to reference CIBSE's TM39 as the standard to which new buildings should be sub-metered. As well as meeting CIBSE's TM39, we are proposing that the sub-metering installation should allow a useful comparison to be made between design-stage energy forecasts, such as TM54, and measured results. Further detail can be found in section 5 of draft *Approved Document L, volume 2: buildings other than dwellings*.

Question 59): Do you agree with the proposed approach to energy sub-metering, as detailed in Section 5 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No

3.15.4. We are proposing that, as well as the Part L compliance calculations, the **forecast energy performance** of **non-domestic buildings** should be modelled and handed to the building owner at completion stage for the purposes of energy benchmarking.
We propose to introduce this requirement for buildings with a floor area of **over 1,000m2.**
Question 60): Do you agree with the proposed approach to energy forecasting, as detailed in paragraph 9.4 of draft *Approved Document L, volume 2: buildings other than dwellings*?
a) Yes
b) No, I do not agree with the proposed approach
c) No, energy forecasting should not form part of the Building Regulations

3.16 Transitional arrangements
3.16.1. Whenever changes to the **Building Regulations** or **approved standards** take place, *transitional arrangements* apply. When a developer submits a building notice, initial notice or full plans application to the local authority, the Building Regulations standards in place at the time of the application will apply, so long as work under the building notice or full plans application has already started or starts within a specified period of the notice being given.
The transitional arrangements exist for good reason – they mean that developers have assurance about the standards to which they must build, and that they should not have to make material amendments to work which is already underway when new regulations are implemented.
3.16.2. We propose that where a building notice, initial notice or full plans application is submitted to the local authority, transitional arrangements should apply. This means that the existing energy efficiency requirements and guidance would apply to that work.

We propose that work must commence on **individual buildings** within the building notice/plans to benefit from the *transitional* arrangements, rather than apply site wide as they have in the past.

We also propose that transitional arrangements would apply to work to a building other than a dwelling within that notice/plans so long as work on that building has commenced within 12 months of new regulations coming into effect.

Question 61): Do you agree with the proposals for transitional arrangements for buildings other than dwellings?

a) Yes

b) No

If you answered no, please explain your reasoning and provide alternative suggestions.

4. Interim Uplift to Part F standards for non-domestic buildings

4.1 Chapter Summary

4.1.1. This chapter includes the following proposals in respect of all non-domestic buildings:

- changes to *Approved Document F - Ventilation (2010 edition incorporating 2010 and 2013 amendments)* to simplify the guidance in line with the principles presented in **the Future Homes Standard** consultation; and
- measures to mitigate the Interim uplift to Part F standards for non-domestic buildings.

4.3.1 We propose to split this into two separate volumes, one each for domestic and non-domestic buildings. This will align the structure of Approved Document Part F with Approved Document Part L, and we believe will provide greater clarity for users.

Requirement [regulations will be amended as necessary in line with the intention sections below]	
Requirement	*Limits on application*
Means of ventilation **F1(1).** There shall be adequate means of ventilation provided for people in the building.	Requirement F1 does not apply to a building or space within a building: a. into which people do not normally go; or b. which is used solely for storage; or c. which is a garage used solely in connection with a single dwelling.

Intention

In the Secretary of State's view, requirement F1(1) is met if the building other than a dwelling is provided with a means of ventilation which achieves all of the following.

a. extracts water vapour and indoor air pollutants from areas where they are produced in significant quantities before they spread through the building – by following guidance for extract ventilation in **Section 1** for the relevant building type.

b. supplies a minimum level of outdoor air for occupant's health – by following guidance for whole building ventilation in **Section 1** for the relevant building type.

c. rapidly dilutes **indoor air pollutants** and **water vapour** when necessary in occupiable rooms and sanitary accommodation – by following guidance for purge ventilation in **Section 1** for the relevant building type.

d. For offices, monitors the indoor air quality – paragraph 1.39 – 1.41.

e. Minimises the ingress of external pollutants – by following guidance in **Section 2.**

f. provides all of the following as far as reasonably practicable:

i. low levels of noise, by following guidance in paragraphs 1.5 to 1.8;

ii. is easy to maintain, by following guidance in paragraph 1.9;

iii. protection from rain;

iv. protection from cold draughts;

v. does not significantly risk occupants' health.

In the Secretary of State's view, requirement F1(1) is met for work on an existing building other than a dwelling by following guidance in **Section 3**.

Question 62): Do you agree with the proposed guidance in Section 1 and Section 2 of *Approved Document F, volume 2: buildings other than dwellings* on minimising the ingress of external pollutants and on the proper installation of ventilation systems in non-domestic buildings?
a) Yes
b) No

Question 63): Do you agree with the proposed guidance for reducing noise nuisance for ventilation systems in non-domestic buildings?
a) Yes
b) No

Question 64) Do you agree with the additional guidance provided in paragraphs 1.18 to 1.26 of the draft *Approved Document F, volume 2: buildings other than dwellings* on the installation of ventilation systems?
a) Yes
b) No

Question 65): Do you agree that the guidance in Appendix B of the draft *Approved Document F, volume 2: buildings other than dwellings* provides an appropriate basis for setting minimum ventilation standards?
a) Yes
b) No

Question 66): Do you agree with the list of industry guidance presented in Section 1 of draft *Approved Document F, volume 2: buildings other than dwellings*?
a) Yes
b) Yes, but additional guidance should be provided
c) No

Question 67): Do you agree with the list of references to industry guidance presented in Appendix C and Appendix D in the draft *Approved Document F, volume 2: buildings other than dwellings*?
a) Yes
b) No, the Government should amend the list of references
c) No, for another reason

4.3.7. The new *Approved Document F, volume 2: buildings other than dwellings* aims to be clearer about what is expected of builders and installers in complying with the regulatory requirements. Approved Documents deal with complex information and are an essential resource relied upon by those who enforce the regulations, advise on compliance or need to comply with the regulations. *The Independent Review of the Building Regulations and Building Safety* highlighted that the complexity of the current regulations and Approved Documents guidance "can lead to confusion and misinterpretation in their application…regulations and guidance must be simplified and unambiguous." In line with this recommendation, and to make the minimum standard as clear as possible, some of the supplementary text has been removed, new information has been added, and relevant external guidance has been referenced.

This is a comprehensive, but not exhaustive, list of the information that has been simplified, rationalised or clarified:

- additional advice on ventilation through infiltration;
- additional guidance on providing clear, non-technical information;

- change in terminology to background ventilators;
- removal of guidance which is either *only applicable to dwellings* or does not form part of the Part F minimum standard, including the following:
  - general information on the purpose and effectiveness of ventilation, fire precautions and modular and portable buildings
  - advice on measures to avoid legionella contamination.
  - advice on recirculated air in air-conditioning, available from HSE
  - guidance on adequate space for plant maintenance
  - advice on food and beverage preparation areas
  - advice that workplace regulations apply to most places where people work
  - advice on complex urban layouts in ventilation provision
  - advice on trickle ventilators, available at: www.ggf.org.uk
  - guidance on ductwork leakage testing, available on www.hvca.org.uk
  - some defined terms which only apply to the dwellings guidance such as closable opening, gross internal volume, permanent opening, and wet room.

Question 68): Do you agree with the proposals to simplify, rationalise and clarify the Approved Document guidance in *Approved Document F, volume 2: buildings other than dwellings* as outlined in paragraph 4.3.7 of the consultation document?
a) Yes
b) No

Question 69): Do you agree that purge ventilation in offices should be designed to provide at least four air changes per hour?
a) Yes
b) No, this standard goes too far
c) No, this standard does not go far enough

Question 70): Do you agree with the guidance for the ventilation of car parks and offices, as detailed in Section 1 of *Approved Document F, volume 2: buildings other than dwellings*?
a) Yes
b) Yes, but some improvements can be made
c) No, the guidance should be significantly changed

Question 71): Do you agree with the proposals in Section 3 of draft *Approved Document F, volume 2: buildings other than dwellings,* when replacing an existing window with no background ventilators?
a) Yes
b) No, the standards do not go far enough
c) No, the standards go too far
If you answered no, please explain your reasoning and provide alternative suggestions.

Question 72): Do you agree with the proposal to provide a completed commissioning sheet to the building owner and associated guidance in Section 4 of draft *Approved Document F, volume 2: buildings other than dwellings*?
c) Yes
d) No

Extract from Draft AD_F Vol.2
1.38 Each office should have the means to increase the general ventilation rate of each occupiable room by 50% so that it can operate for long periods (e.g., months) at a higher ventilation rate. This may be beneficial to reduce the spread of airborne infection in offices in a period when airborne illness is prevalent.

Question 73): Do you agree with requiring increased capacity of 50% within new ventilation systems in offices shown in paragraph 1.38 of the draft *Approved Document F, volume 2: buildings other than dwellings*?

a) Yes
b) Yes, but with qualifications
c) No, the standard is too high
d) No, the standard is too low
e) No, I disagree for another reason.

Extract from Draft AD_F Vol.2
Whole building ventilation rates for offices
1.35 Outdoor air should be supplied for occupiable rooms in offices at whichever will provide a higher total rate between:

a. 10 litres per second per person
b. 1 litre per second per m2 floor area.

1.36 Common spaces, including rooms or spaces used solely or mainly for circulation such as corridors and lift lobbies, should be provided with either:

a. natural ventilation by appropriately located ventilation opening(s) with a total opening area of at least 1/50th of the floor area of the common space;
b. mechanical ventilation installed to provide a supply of outdoor air of 1 litre per second per m2 of floor area.

Question 74): Do you agree with the proposed standards for provision of outdoor air for offices, shown in new paragraphs 1.35 to 1.36 of draft *Approved Document F, volume 2: buildings other than dwellings?*

a) Yes
b) Yes, but with qualifications
c) No

Question 75): Do you agree that extract ventilation in bathrooms, WCs, and other sanitary accommodation should be capable of operating in a continuous mode if necessary?

a) Yes
b) No

If you answered no, please explain your reasoning.

Extract from Draft AD_F Vol.2
Indoor air quality monitoring for offices
1.39 Each occupiable room should have a means of monitoring the performance of the ventilation system. This may be achieved through using CO2 monitors or other means of measuring indoor air quality. This does not apply to either:

a. rooms designed for fewer than 15 people
b. large volume spaces, such as atria.

1.40 Where CO2 monitors are used, they should meet all of the following:

a. be mains operated
b. include a visual indicator of CO2 concentration
c. be capable of logging data at no more than 15-minute intervals, and to store data for at least the previous 24-hour period
d. any audible alarms should be able to be permanently deactivated.
e. be capable of recording and displaying readings in the range of at least 0 – 5000 parts per million.

1.41 Where CO2 monitors are used, they should be located:

a. at least 300mm away from any wall if ceiling mounted.

b. at least 150mm away from the ceiling if wall mounted.
c. away from obstructions such as furniture or fittings
d. at least 500mm away from individual workstations, doors, windows, or air vents.

Question 76): Do you agree with the proposal for indoor air quality monitoring in offices as outlined in paragraphs 1.39 to 1.41 of draft *Approved Document F, volume 2: buildings other than dwellings*?

a) Yes

b) Yes, but with qualifications

c) No

If you answered b or c, please explain your reasoning and provide any suggestions for guidance if applicable.

To ensure compatibility of monitoring with the BEM (BACS) system and between the appropriate level of heating required and ventilation for the use of the space. This is irrespective of the daily use and must not be assumed as it must be monitored closely and amended accordingly.

Question 77): If applicable, please provide any suggestions for guidance for indoor air quality monitoring (e.g. CO2 monitoring) in non-domestic buildings.

– Radon Gas (Radon Risk Areas)
– Black Damp (Methane ground gas) [from old Mine Workings and/or covered land fill waste sites]
– Natural Gas / LPG (Leaks)
CO2 from appliances being used.

Recirculation of air within ventilation systems in offices

1.46 Office buildings should have the ability to provide adequate outdoor air to all occupied spaces without recirculating air within spaces or between different spaces, rooms or zones, unless the ventilation system has an ultraviolet filter, HEPA filter or other germicidal filter.

NOTE: For some system types some recirculation is necessary or desirable in normal operation. Such systems should comply with paragraph 1.46 by either meeting the standards for filtration or by having the ability to switch to a full fresh air mode.

Question 78): Do you agree with the proposals for systems that recirculate air as outlined in paragraph 1.46 of draft *Approved Document F, volume 2: buildings other than dwellings*?

a) Yes

b) No

Requirements for specific types of occupiable rooms

1.27 Ventilation systems in non-domestic environments may be required to disperse airborne contaminants, for example infectious agents being transmitted as aerosols. Ventilation systems, including natural ventilation, should be designed to provide a minimum of **15 litres per second per person** of outdoor air in the **following types** of **occupiable rooms**.

a. Rooms where singing, loud speech or aerobic exercise or other aerosol generating activities are likely to take place.
These may include rooms, for example, in gymnasiums, indoor sports venues, dance studios, theatres, concert halls, public houses, nightclubs, assembly halls, as well as in other types of building.

b. Rooms where members of the public are likely to gather in large numbers.
These may include rooms, for example, in public buildings, hotels, shopping malls, gymnasiums, indoor sports venues, dance studios, theatres, concert halls, public houses, nightclubs or assembly halls as well as in other types of building.

c. Rooms which are maintained at both low temperatures and low levels of humidity.
These may include rooms used for chilled food processing and occupied cold stores.

1.28 Buildings containing rooms outlined in paragraph 1.27 should also meet the ventilation guidance relevant to the building type set out in paragraphs 1.29 to 1.50. If the ventilation guidance set out in 1.29 to 1.50 requires outdoor air rates greater than 15 litres per second per person in these rooms, the higher rate should be provided as a minimum.

Question 79): Do you agree with the proposed minimum ventilation standard in occupiable rooms in all types of non-domestic buildings where singing, loud speech or aerobic exercise may take place, where low temperature and low humidity environments may exist, or where members of the public may gather in large groups? These are outlined in paragraphs 1.27 and 1.28 of draft *Approved Document F, volume 2: buildings other than dwellings*.

a) Yes CINEMAS, CONFERENCE HALLS, MEETING ROOMS, WAITING ROOMS, CHURCHS, SCHOOLS, COLLEDGES, UNIVERSITIES,

b) Yes, with qualifications
c) No

If you answered b or c, please explain your reasoning, and provide any suggestions for guidance if applicable.

Question 80) Do you think the mitigating measures to protect against infection via aerosols would be suitable for any non-domestic buildings other than those stated in the Approved Document guidance?

a) Yes
b) No

If you answered yes, please explain your reasoning and provide evidence to support this.
If used in cinemas, Conference Halls, Meeting Rooms, Waiting Rooms, Churches etc.

Section B: Domestic Buildings

Standards for overheating in new residential buildings in 2021

Question 81): How should the Government address the overheating risk?

a) Through a new requirement in the Building Regulations and an Approved Document, as proposed in this consultation
b) Through Parts L and F of the Building Regulations
c) Through government guidance
d) I have an alternative approach
e) It isn't an issue that needs addressing

Please explain your reasoning and provide alternative suggestions where applicable.
We consider that a new Part and Approved Document should be standalone but also merge between Parts F and L. The problem of overheating is beyond that of combining current Parts and Approved Documents F & L. It requires specific attention and provisions to be included within a new Approved Document. Whilst it is guidance only, the new area will help ensure the issues are addressed through the new section and document. However, we also consider that further guidance should be developed and supported with a new British Standard.

5. Standards for overheating in new residential buildings in 2021

5.1 Chapter Summary

5.1.1. This chapter includes the **following proposals** in respect to **new residential buildings**:

- proposals to *reduce the risk of overheating* in new residential buildings, including houses, flats, care homes and residential educational buildings (the full list of building types within the scope of

this proposed regulation can be found in the draft *Overheating Approved Document* and below in Table 5.1);

- two potential methods of complying with the proposed new requirement of the Building Regulations and acceptable strategies for each method;
- proposals to take account of factors such as noise and security to ensure the overheating strategy is usable for occupants;
- requirements to provide occupants with information in order for them to understand their overheating strategy;
- any policy interactions with the new overheating requirement; and
- transitional arrangements for the new requirement.

5.2.2. Overheating occurs in buildings when indoor temperatures are too high for the health, welfare, or comfort of occupants. While there is currently no formal Government guidance for individuals or organisations on how to identify overheating risk in buildings or apply effective preventative measures, there is provision within Part L of the Building Regulations 2010 for limiting heat gains.

The case for change

5.2.7. In line with our response to the Climate Change Committee's **statutory report** in 2015, the Government carried out research into overheating in new homes. The research was published alongside the **Future Homes Standard** consultation in October 2019 and demonstrated that during warm years, overheating will occur in most new homes in most locations in England, particularly in London. The research also showed that mitigation techniques, such as solar shading and increased ventilation, are highly effective at reducing indoor temperatures, which in turn reduces the risk of mortality and the impact on productivity associated with sleep loss.

Table 5.1: Residential buildings in scope of this Regulation	
	Purpose for which the building is intended to be used
Residential (dwellings)	Dwellings, which includes both houses and flats.
Residential (institutional)	Home, schools or other similar establishments, where people sleep on the premises. The building may be living accommodation for care or maintenance of any of the following: a. Older and disabled people, due to illness or other physical or mental condition. b. People under the age of 5 years.
Residential (other)	Residential college, halls of residence, living accommodation for children aged 5 years and older.

Question 82): Do you agree with the buildings that are in scope of this new part of the Building Regulations?

a) Yes

b) Yes, but they should be expanded to include more building types and/or existing buildings

c) No, they should be reduced to only include flats and houses

d) No, I disagree for another reason

Please explain your reasoning.

Existing buildings with overheating concerns will otherwise seek to install cooling systems or equipment being counterproductive through use/dispensing of its own energy.

Question 83): Do you agree that the division of England based on overheating risk detailed in paragraph 5.6.3 of this consultation document is correct?

a) Yes

b) No, there should be one area

c) No, there should be more areas

If you answered no (b or c), please explain your reasoning, and provide supporting evidence.

Extract from Consultation Document:

5.6.5. The **overheating guidance** provided is based on both location and type. Houses and parts of residential buildings have been separated into two groups based on their characteristics, these two groups are:

Group A, which will include most houses, and will have both of the following characteristics:

a. more than two fabric elements

b. openings on opposite facades, allowing for cross-ventilation.

Group B, which will include most flats, residential units in care homes and residential units in student halls of residence, and will have both of the following characteristics:

a. have two or fewer fabric elements.

b. openings on facades which are not opposite.

Question 84): Do you agree with the categorisation of buildings into Group A and Group B as detailed in paragraph 5.6.5 of this consultation document?

a) Yes

b) No

Extract from Consultation Document:

5.6.7. The measures in the simplified method have been chosen as the lowest cost method of keeping occupants cool *while not requiring air conditioning*.

The proposed requirement for overheating is met by designing and constructing the building to *limit unwanted solar gains* and by removing *excess heat* from the building.

5.6.8 Within the simplified method, *unwanted solar gains are limited* by setting **maximum glazing areas**, which are different based on the location and group of building.

For buildings in Greater London, a **minimum shading requirement** is also proposed in addition to the maximum glazing areas.

For the simplified method, the shading should be provided using shutters, low-g glazing, or overhangs.

Question 85): Do you agree with the simplified method as a means of compliance with the proposed new requirement to reduce overheating risk?

a) Yes

b) No, the method should be more sophisticated

c) No, the method is too easy to pass

d) No, for another reason

Extract from Consultation Document:

5.6.15. We consider any combination of the following to be acceptable means of limiting solar gains. We believe that these options are the best evidenced means of reducing solar gain which are reliable in practice.

We would be interested to receive any further suggestions for acceptable means of limiting solar gains.

- **Fixed shading devices**, for example shutters, external blinds, overhangs, and awnings;
- **Glazing design**, for example size, orientation, g-value, and size of window reveal;
- **Building design**, for example the placement of balconies; and
- **Shade of adjacent permanent buildings, structures, or landscape**

Question 86) Do you agree with the maximum glazing area and shading standards for limiting solar gains in the simplified method as detailed in paragraphs 1.6 to 1.9 of the draft *Overheating Approved Document?*

a) Yes
b) No

Question 87) Do you agree with the approach to removing excess heat in the simplified method as detailed in paragraphs 1.10 to 1.13 of the draft *Overheating Approved Document?*

a) Yes
b) No

Question 88): Do you think that adequate levels of daylight will be provided and that homes will be acceptable to purchasers while meeting these proposed standards?

a) Yes
b) No

Question 89): Do you agree with offering dynamic thermal analysis as a means of compliance with the proposed new requirement to reduce overheating risk?

a) Yes, as described in the draft *Overheating Approved Document*
b) Yes, but not as described in the draft *Overheating Approved Document*
c) No

Question 90): Please detail any information you have about the likelihood of occupants opening doors and windows at night in unoccupied rooms.

I can provide no specific comment in relation to this as I've not come across this other than when the room is occupied. Owners may leave a window opening after day time use for airing purposes or forgetting to close it. When dealing with noise complaints, it usually results from the window or door being open from an occupied room rather than from an adjoining, unoccupied room. However, I can see this being a possibility if the habitant may only require background cooling from another room and thereby reducing the noise pollution that may exist if the opening is directly from their occupied room.

Question 91): Do you agree with the proposed acceptable strategies for shading and the removal of excess heat, when following the dynamic thermal analysis method, as found in Section 2 of the draft *Overheating Approved Document*?

a) Yes, I agree with both sets of acceptable strategies
b) Yes, but with amendments to the acceptable shading strategies
c) Yes, but with amendments to the acceptable strategies to remove excess heat
d) Yes, but with amendments to both sets of acceptable strategies
e) No, I do not agree with the acceptable strategies

Question 92): Do you agree that the overheating standard should not account for the effect of curtains, blinds and tree cover?

a) Yes, curtains, blinds and tree cover should be excluded (all are non-permanent.)
b) Yes, but only curtains and blinds should be excluded
c) Yes, but only tree cover should be excluded
d) No, none of these should be excluded

Question 93): Do you agree that the building should be constructed to meet the overheating requirement without the need for mechanical cooling?

a) Yes
b) No

Question 94): Do you agree with limiting noise in new residential buildings when the overheating strategy is in use, and the proposed guidance in Section 3 of the draft *Overheating Approved* Document?

a) Yes

b) Yes, but with amendments to the guidance

c) No, I do not agree with limiting noise when the overheating strategy is in use

Question 95): Do you agree with minimising the ingress of external pollutants when the overheating strategy is in use, and that the external pollutants guidance in *Approved Document F, volume 1: dwellings* should be followed where practicable?

a) Yes

b) Yes, but with amendments to the guidance

c) No, I do not agree with minimising the ingress of external pollutants when the overheating strategy is in use

Question 96): Do you agree with the proposals on security in Section 3 of the draft *Overheating Approved Document* in new residential buildings?

a) Yes

b) No

Question 97): Do you agree with the protection from falling guidance proposed in Section 3 of the draft *Overheating Approved Document*?

a) Yes

b) No

Question 98): Do you agree with the guidance on protection from entrapment proposed in Section 3 of the draft *Overheating Approved Document*?

a) Yes

b) No

Question 99): Are there any further issues which affect usability that should be included in the *Overheating Approved Document*?

a) Yes

b) No

Question 100): Do you agree with the proposed requirement to provide information on the overheating strategy to the building owner?

a) Yes, I agree with the requirement, the list provided and that this should be within a Home User Guide

b) Yes, I agree with the requirement, but think that the list provided should be changed or that this should not be provided within a Home User Guide

c) No, I do not agree with providing information

Question 101): How do you see this new Building Regulation interacting with policies in local plans?

Orientation and positioning of buildings in relation to height, size and heat gains.
Issues affecting amenity and comfort.
Contributing issues from adjoining properties and their respective use – noise issues, smells, etc.
Noise from and positioning of plant and cooling/heating equipment.
Number, size and orientation of windows and doors on an elevation and/or roof.
Design and positioning of soffits, awnings and sun/solar gains
Glazing type, including associated framing material for doors, windows, façades and roof in general.

Extract from Consultation Document:

5.6.10. There is no requirement to provide specific levels of daylight in the **Building Regulations** or in the **National Planning Policy Framework**.

The method of reducing solar gains proposes smaller window sizes in flats compared to many common designs, which we believe will continue to provide adequate daylight for occupiers of the buildings and avoid the need for excess lighting use in winter.

While too many windows can cause a home to overheat, we recognise that larger windows can make new homes more attractive to potential buyers and solar gains are important for designing low energy buildings.

Below in Figure 5.1 is a potential design for a house in England (not Greater London) with the maximum glazing areas under the simplified method.

It can be seen that the glazing is still generous and is similar to the style of many new build homes. The solutions provided in the simplified method are the lowest cost options.

More architectural freedom is available by using dynamic thermal analysis, described in the following section.

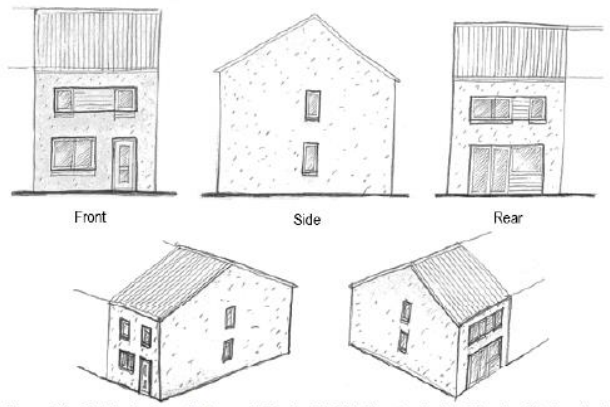

Figure 5.1: Sketch drawing of a house in England built to the standards of the simplified method (note that the standard for Greater London is different).

5.6.18. Section 2 of the draft *Overheating Approved Document* also includes guidance on acceptable strategies for removing excess heat from the indoor environment.

We believe that the options listed below are the only acceptable means of sufficiently removing excess heat, but we would be interested to receive any further suggestions for other means beyond the below:

- opening windows;
- ventilation louvres in external walls; and
- a mechanical ventilation system.

5.6.19. Given the Government's net zero commitment, our preferred means of mitigating overheating is through passive means, (i.e. low or no energy needed), as far as practicable.

By placing restrictions on the type of overheating mitigation used (i.e., passive means first), a widespread uptake of air conditioning in new builds can be avoided.

Question 102): Do you agree that this guidance on limiting the effects of heat gains in summer, in both Approved Document L guidance for new dwellings and SAP Appendix P, can be removed?

a) Yes

b) No

If you answered no, please explain your reasoning.

Question 103): Should the transitional arrangements that apply to the overheating requirements align with the proposed transitional arrangements for Part L and F 2021 for new dwellings, as described in paragraph 5.10.2 of this consultation document?

a) Yes (each Dwelling commenced, or block of dwellings commenced, – not each development phase)
b) No

Part L standards for domestic buildings in 2021

Extract from Consultation:
6.1.1. This chapter includes the following proposals for Part L in respect of existing domestic buildings:
• uplift to minimum standards for new and replacement thermal elements (i.e., walls, floors, roofs) and controlled fittings (e.g. windows, rooflights and doors);
• uplift to minimum standards for when a thermal element is being renovated;
• changes to minimum standards for building services, including proposals to introduce a new regulation to ensure buildings have *self-regulating devices* when a heating appliance is replaced, and to incorporate standards from the Building Services Compliance Guides into *Approved Document L, volume 1: dwellings*.; and
• guidance on the calibration of devices that carry out airtightness testing.
6.1.2. The Future Homes Standard consultation, which launched in October 2019, consulted on energy standards exclusively in newly built domestic buildings. This chapter includes the following additional proposals for Part L in respect of new domestic buildings, which should be considered alongside these original proposals and the Government response:
• the level at which the Fabric Energy Efficiency Standard should be set;
• some changes to minimum standards for building services; and
• guidance on the calibration of devices that carry out airtightness testing.

Table 6.1: Standards for new thermal elements, windows and doors in existing dwellings

	Current standard's U-values (W/m².K)	Proposed standard's U-values (W/m².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.

Question 104): Do you agree with the proposed minimum fabric standards for existing domestic buildings set out in Table 6.1 of this consultation document?
a) Yes

b) No

Question 105): Do you agree with the draft guidance in section 4 of the draft *Approved Document L, volume 1: dwellings* on reducing unwanted air infiltration when carrying out work to existing homes?
a) Yes
b) No

Question 106): Do you agree that we should control the primary energy and fabric energy efficiency of new extensions to existing homes when using the SAP method of compliance?
a) Yes
b) No

Question 107): Do you agree that the limiting U-value for rooflights in existing domestic buildings should be based on a rooflight in a horizontal position, as detailed in Section 4 of draft *Approved Document L, volume 1: dwellings*?
a) Yes (Removes complex correction factors that have minor effect on actual u-values)
b) No

Question 108): Do you agree that we should adopt the latest version of BR 443 for calculating U-values in existing domestic buildings, as detailed in Section 4 of draft *Approved Document L, volume 1: dwellings*?
a) Yes (best practice)
b) No

Table 6.2: Upgrading retained thermal elements in existing dwellings

Element	Current standard's U-values (W/m².K)		Proposed standard's U-values (W/m².K)	
	Threshold U-value	Improved U-value	Threshold U-value	Improved U-value
Pitched roof – insulation at ceiling level	0.35	0.16	0.35	0.16
Pitched roof – insulation between rafters	0.35	0.18	0.35	0.16
Flat roof or roof with integral insulation	0.35	0.18	0.35	0.16
Wall - cavity insulation	0.70	0.55	0.70	0.55
Wall - external or internal wall insulation	0.70	0.30	0.70	0.30
Floor	0.70	0.25	0.70	0.25

Question 109): Do you agree with the proposed minimum fabric standards set out in Table 6.2 of this consultation document, and Sections 4 and 11 of draft *Approved Document L, volume 1: dwellings*?
a) Yes
b) No

Table 6.3: Fabric specifications for the Part L 2021 notional building	
Fabric Element	Specification
Windows	1.2 W/m².K
Doors	1.0 W/m².K
External Walls	0.18 W/m².K
Roof	0.11 W/m².K
Floor	0.13 W/m².K
Air Permeability	5m³/(h.m²) @50Pa
Party Wall	0 W/m².K

Question 110): What level of FEES (Fabric Specifications – See Table 6.3) should be used for Part L 2021?

a) Option 1, full fabric specification

b) Option 2, fabric specification x1.15

c) Neither, it should be higher

d) Neither, it should be lower

Please explain your reasoning and provide supporting evidence, including whether you think a higher level of FEES will make it more or less likely for a home to be built with low carbon heat.

This will ensure a meaningful uplift to the fabric of new homes. Additional or a higher level of fees will not necessarily mean a home or building to be built with a lower carbon heat; it will be down to the design and specification and the administration process of the Building Regulations from the respective BCB. It is primarily up to the applicant to ensure they meet the requirements of the Building Regulations, not if the fees are higher – Building Control cannot be a Clerk of Works service.

Extract from Consultation Document:

6.7.3. The **Ecodesign for Energy-Related Products Regulations 2010** were amended in 2018. In some cases, these standards exceed those in the *Domestic Building Services Compliance Guide*, and the **minimum efficiency** in the new draft *Approved Document L, volume 1: dwellings* has been updated to reflect the Ecodesign 2018 standards.

6.7.4. We are making several proposals for simplifying and consolidating the minimum standards for air distribution systems. There are also some areas where technological advancements or improved design and installation practices mean that we can improve minimum standards for building services, to prevent the least efficient systems from being installed in homes.

Question 111): Do you agree that we have adequately covered matters which are currently in the Domestic Building Services Compliance Guide in draft *Approved Document L, volume 1: dwellings* for existing homes?

a) Yes

b) No

Question 112): Do you agree with the proposed minimum standards for building services in existing homes, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 1: dwellings*?

a) Yes

b) No, the standards go too far

c) No, the standards do not go far enough

Extract from Consultation Document:

6.7.6. Current guidance states that the efficiency of a replacement heating appliance should not be worse than 2 percentage points lower than that of the appliance being replaced. To compare the efficiencies of appliances with different fuels, a conversion with CO2 emission factors is given. We now propose that when a replacement service uses a different fuel, the new services should not emit more

CO2 emissions and should not have higher primary energy demand than the service being replaced.

Question 113): Do you agree with the proposals for replacement fixed building services in existing homes, as detailed in Section 5 of draft *Approved Document L, volume 1: dwellings*?
a) Yes
b) No

Extract from Consultation Document:
6.7.7. We plan to introduce a **new regulation** in the **Building Regulations 2010** to ensure that existing domestic buildings must have self-regulating devices when a heating appliance, such as a boiler, is replaced. Technically this means including devices for the separate regulation of the temperature in each room, or designated heating zone (where this is justified) of the building.
A common way of achieving this in practice for homes would be to have **thermostatic radiator valves** (TRVs) on **radiators in each room**, which are often already present in people's new homes.

Question 114): Do you agree with our proposed approach to mandating self-regulating controls in existing domestic buildings, including technical and economic feasibility, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 1: dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.

Building Automation and Control Systems
6.7.9. A Building Automation and Control System (BACS) is a centralised system used to monitor and control a building's environment and services (i.e. heating, ventilation, air conditioning, lighting and other systems such as security alarms and lifts). There is currently no guidance for the installation of BACS in a new or existing home.
We propose to provide guidance for these systems, which are set out in Section 6 of draft *Approved Document L, volume 1: dwellings* provided alongside this consultation.

Question 115): Do you agree with the proposed specifications for building automation and control systems installed in a new or existing home, as detailed in Section 6 of *draft Approved Document L, volume 1: dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning.

Extract from Draft 2021 AD Part_L Vol.1
Section 8: Commissioning
8.1 Fixed building services, Building Automation and Control Systems and on-site electricity generation must be commissioned to ensure that they use no more fuel and power than is reasonable in the circumstances. The commissioning process should involve testing and adjusting the fixed building services, Building Automation and Control Systems and on-site electricity generation as necessary and in accordance with the manufacturer's instructions.
8.2 A commissioning plan should be produced, identifying both of the following.
a. Systems that need to be tested.
b. How these systems will be tested.
For new dwellings, the commissioning plan should be given to the building control body with the design stage primary energy rate, emission rate and fabric energy efficiency rate calculations.
8.3 A fixed building service, Building Automation and Control System or on-site electricity generation that cannot be adjusted by design, or for which commissioning would not affect energy use, does not need to be commissioned.
Fixed building services, Building Automation and Control Systems and on-site electricity generation that do not require commissioning should be identified in the commissioning plan, along with the reason for them not requiring commissioning.
Notice of completion.

8.4 A commissioning notice must be given to the relevant **building control body** and the **building owner** confirming that commissioning has been carried out for the installed fixed building services, Building Automation and Control Systems and on-site electricity generation according to a procedure approved by the Secretary of State.
8.7 Until the **building control body** receives the **commissioning notice**, it may not consider it **appropriate** to give a **completion/final certificate**.

Extract from Draft 2021 AD Part_L Vol.1
Operating and Maintenance instructions
9.1 For new dwellings, and for work to an existing dwelling, operating and maintenance instructions should be provided to the occupiers of the dwelling for any fixed building services, building automation and control systems and on-site electricity generation installed as part of the works. The instructions should contain sufficient information to help the occupiers achieve the expected level of energy efficiency, and to verify compliance with the energy performance requirements of the Building Regulations.
The documentation should be all of the following.

- **a. Easy to understand.**
- **b. Specific to the dwelling.**
- **c. Durable.**
- **d. In an accessible format.**

9.2 For new dwellings and for work to an existing dwelling, the operating and maintenance instructions should achieve all of the following.
a. Explain the following for the heating, hot water, ventilation and any other technologies.

- **i. What they are.**
- **ii. What they are for.**
- **iii. Where they are located, using a floor plan.**
- **iv. How to operate them.**
- **v. How to control them, including the location and operation of timers and sensors.**
- **vi. How to maintain them.**

b. Signpost other important documentation, such as appliance manuals.
c. Include a completed commissioning sheet, where relevant.
Additional information for new dwellings
9.3 For new dwellings, a signed copy of the *Buildings Regulations Compliance Report (BREL)* and photographic evidence of the build quality should be provided to the homeowner.
Question 116): Do you agree with the proposals for extending commissioning requirements to Building Automation and Control Systems and on-site electricity generation systems, as detailed in Sections 8 and 9 of draft *Approved Document L, volume 1: dwellings*?
a) Yes
b) No
If you answered no, please explain your reasoning.

Extract from Draft 2021 AD Part_L Vol.1
9.5 For **new dwellings**, the operating and maintenance Instructions should include a Home User Guide. The Home User Guide should contain **non-technical advice** on how to **operate and maintain** the home in a **healthy and energy efficient manner**.
The guide must contain advice on how to use the building services efficiently in the following areas:
i ventilation
ii heating & domestic hot water
iii renewable energy (if applicable)
iv staying cool in hot weather.
A **Home User Guide template** can be viewed at

https://wwww.gov.uk/government/publications/home-user-guide-template.

There is no requirement to follow the layout, format or text used within the example.

Question 117): Do you agree with the proposals for requirements relating to the assessment of overall energy performance of building services installations and providing information to homeowners, as detailed in Sections 8 and 9 of draft *Approved Document L, volume 1: dwellings*?

a) Yes
b) No, I do not agree with providing this guidance
c) No, the guidance should be improved

Question 118): Do you agree with the proposed changes to water treatment guidance and removing formal guidance on water softening?

a) Yes (as it is not directly an **energy efficiency measure** – see 6.7.14.)
b) No

If you answered no, please explain your reasoning.

Table 6.4: Guidance on sizing and controls for building services systems	
Service type	*Approved Document L, volume 1: dwellings*
Space heating	Paragraph 5.7
Domestic hot water	Paragraph 5.9
Comfort cooling	Paragraph 6.42 and 6.45
Mechanical ventilation	Paragraph 6.48 to 6.51
Lighting	Paragraph 6.52 and 6.55
Building Automation and Control Systems (BACS)	Paragraph 6.56 to 6.58
On-site electricity generation	Paragraphs 6.59 to 6.62

Question 119): Do you agree with the guidance proposals for adequate sizing and controls of building services systems in domestic buildings, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 1: dwellings*?

a) Yes
b) No, I do not agree with providing this guidance
c) No, the guidance should be improved
If you answered no (b or c), please explain your reasoning.

Question 120): Do you agree with the guidance proposals on sizing a system to run at 55°C when a whole heating system is replaced, as detailed in Section 5 of draft *Approved Document L, volume 1: dwellings*?

a) Yes (provide future proofing for heat networks or heat pumps)
b) No, I do not agree with providing this guidance
c) No, the guidance should be improved

If you answered no (b or c), please explain your reasoning.

Question 121): Do you agree with the proposed changes to the supplementary guidance and the external references in Appendix D and Appendix E, in the draft *Approved Document L, volume 1: dwellings* as outlined in paragraph 6.8.2.?

a) Yes
b) Yes, but not with the changes to the supplementary guidance
c) Yes, but not with the external references
d) No

If you answered b, c or d, please explain your reasoning.

Question 122): Do you agree with the proposal for guidance on the calibration of devices that carry out airtightness testing in new and existing domestic buildings?
a) Yes
b) No

If you answered no, please explain your reasoning and provide alternative suggestions.

Extract from Draft 2021 AD Part_L Vol.1

6.8 Part L guidance changes for existing homes

6.8.1. The new *Approved Document L, volume 1: dwellings* is provided alongside this consultation document. The document contains the previously consulted on guidance for new homes which has been updated to reflect our final policy positions, and now contains new guidance on work to existing homes.

6.8.2. The new guidance in *Approved Document L, volume 1: dwellings* aims to be clearer about what is expected of builders and installers in complying with the regulatory requirements. Approved Documents deal with complex information and are an essential resource relied upon by those who enforce the regulations, advise on compliance, or need to comply with the regulations.

The Independent Review of the Building Regulations and Building Safety highlighted that the complexity of the current regulations and Approved Documents guidance "can lead to confusion and misinterpretation in their application…regulations and guidance must be simplified and unambiguous." In line with this recommendation, and to make the minimum standard as clear as possible, Supplementary information has been removed, clarifications made, and some new information has been added.

This is a comprehensive, but not exhaustive, list of the information that has been changed:

- Inclusion of cavity wall insulation in renovating a thermal element;
- Additional clarity on installing a boiler interlock in existing systems;
- Additional clarity on operating and maintenance information;
- Additional clarity on the commissioning notice of completion for dwellings;
- Removal of advice on upgrading windows and doors when only replacing glazing panes or the door leaf;
- Removal of advice on weather stripping secondary glazing;
- Removal of guidance that an approach to demonstrate thermal bridging has been limited is to adopt Accredited Construction Details at: www.gov.uk;
- Removal of design considerations for swimming pool basins;
- Removal of guidance that there may be poor levels of daylight in extensions if there is too little glazing;
- Removal of advice on cost-effective renovation of thermal elements as a compensating measure for the thermal performance of an extension;
- Removal of guidance on flexibility on areas of glazing to maintain the character of an existing building;
- Removal of examples of fixed building services that do not need commissioning; and
- Removal of advice on the building control body failing to receive a commissioning notice and issuing a final certificate.

Part F standards for existing domestic buildings in 2021

Question 123): Do you agree that we have adequately covered matters for existing dwellings which are currently in the Domestic Ventilation Compliance Guide in draft *Approved Document F, volume 1: dwellings*?
a) Yes
b) No

If you answered no, please explain your reasoning and provide alternative suggestions.

Question 124): Do you agree with the proposed changes to supplementary guidance and the external references used in Appendix E and Appendix F, for existing domestic buildings from the draft *Approved Document F, volume 1: dwellings*?
a) Yes
b) Yes, but not with the changes to the supplementary guidance

c) Yes, but not with the external references
d) No

If you answered b, c or d, please explain your reasoning.

Question 125): Do you agree with the proposal to align the guidance and standards for work to existing homes to that outlined in Chapter 4 of the Government Response to the Future Homes Standard consultation?
a) Yes
b) No

If you answered no, please explain your reasoning and provide supporting evidence.

Extract from Draft 2021 AD Part_L Vol.1
Appendix B: Reporting evidence of compliance (Part L Vol.1 2021)
B.1 The **standardised Buildings Regulations England Part L** (BREL) report and photographic evidence of compliance should be provided to the **building control body** and to the **building owner** to demonstrate compliance with the energy efficiency requirements.
B.2 The approved software will produce the BREL report for the building as a standard output option.
B.3 Two versions of the BREL report should be produced by the approved software.
a. The first **design stage** BREL report, before commencement of works, to include all of the following.
i. The target and Dwelling Primary Energy Rate.
ii. The target and Dwelling Emission Rate.
iii. A supporting **list of specifications**.
b. The second, **as-built** BREL report, to include all of the following.
i. The target and as-built Dwelling Primary Energy Rate.
ii. The target and as-built Dwelling Emission Rate.
iii. A supporting list of specifications and any changes to the **list of specifications** provided at design stage.
These reports can then be used by the **building control body** to assist checking that what has been designed is actually built. The report should include a facility to compare the *'as designed'* and '*as built'* data input files and automatically produces a schedule of changes.

Question 126): Do you agree with the proposed guidance for installing energy efficiency measures in existing homes, as detailed in Section 3 of draft *Approved Document F, volume 1: dwellings*.
a) Yes
b) No

Question 127): Do you agree with the content of the proposed checklist for ventilation provision detailed in Appendix D of draft *Approved Document F, volume 1: dwellings*?
a) Yes
b) No

Question 128): Do you agree with the guidance in Section 3 of draft *Approved Document F, volume 1: dwellings* when replacing an existing window with no background ventilators?
a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough

Question 129): Do you agree with the proposals in paragraphs 3.29 to 3.31 of draft *Approved Document F, volume 1: dwellings* in 7.4.11 of this consultation document on work to existing kitchens or bathrooms?
a) Yes
b) No, the standards go too far
c) No, the standards do not go far enough

Question 130): Do you agree with the proposal to provide a completed commissioning sheet to the homeowner, as detailed in Section 4 of draft *Approved Document F volume 1: dwellings*?
a) Yes
b) No

Impact and Equalities Assessment

Question 131): Please provide any feedback you have on the impact assessment here, including the assumptions made and the assessment of the potential costs and benefits of the proposed options we have made.

Solutions could involve a hybrid of options to resolve a problem, not just the standard or singular options outlined. However, going back to previous points we raised, we consider it imperative for the Government to incentivise and subsidise the adoption and use of solutions. Without this, the point is futile and the uptake of these systems will take more than appealing to better nature, moral and ethical consciousness – it will come down to fiscal support. Government may be able to raise awareness to the dangers of ignoring the problem and financial mistakes if ignored. It's also not just about new buildings and properties; they need to provide support to both new and existing building stock owners and users. Manufacturers also need to be supported to help subsidise the roll out of the required technology, materials and plant to ensure targets are met. Coupled with incentives for prospective owners, developers and users, this will help ensure governments achieve targets, improve standards and eradicate health, safety and welfare issues. Affordability and accessibility is also key for those facing social challenges and their accommodation, which can become a breeding ground for all sorts of issues.
Education is also central to change hearts and minds and educate designers, agents, developers and building users of the benefits, requirement and moral obligation to improve standards in the workplace, at home and in leisure.

Question 132): Please provide any feedback you have on the potential impact of the proposals outlined in this consultation document on persons who have a protected characteristic. Please provide evidence to support your comments.

Leading on from Q131, it's a reminder that both new and existing stock need to be considered as approx. 2/3 are already built. Socially challenged people, particularly those in sheltered housing and who are tenant in commercial properties must be equally catered for.
Children, particularly those with special needs and must also be included in the review and the assessment of their needs included – this is of course equally relevant for all ages and their rights are not overlooked or discriminated against, such as people with varying disabilities, health conditions, elderly, etc. Everyone's comfort levels are different and therefore, buildings (new or existing) need to be developed to meet their needs. Action is likely to be more difficult for existing buildings and trying to adapt them to meet the needs of the current users, who may move on to another building, etc. Action needs to be delivered with solutions that are responsive, agile and flexible that can be tailored to meet the needs to the occupant and user or users. There have been significant technological advances in equipment, material and controls than can enable this to be reality. Supported with the appropriate level of subsidy and incentivisation to all stakeholders involved in this process, can and will make a real difference. Peoples health can and has been affected by the incompatibility of the heating and cooling systems of a building, in conjunction with its fabric and structure. Visitors, workers and those relocating

from different countries also have to be considered as they may be more familiar and used to higher or lower climates. Families with or without children are also susceptible to varying comfort levels and issues arising from lack of suitable controls. This is a real opportunity to get it right and help us achieve the required balance. The lack of control and damage we are doing to ourselves, the planet and the buildings we live in, work in and visit has been evidenced across the globe, not just in the UK. These proposed changes can help improve standards and Government meet or even exceed targets.