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Llywodraeth Cymru
Welsh Government

Welsh Government
Consultation Document

Building Regulations Part L and F Review - Stage 2A

Changes to Part L (Conservation of Fuel and Power) and Part F (Ventilation) of the Building Regulations for existing dwellings and mitigating overheating in new dwellings

Date of issue: 25 November 2020

Action required: Responses by 17 February 2021

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.
This document is also available in Welsh.

Overview

The Building Regulations and the associated guidance set out in Approved Documents seek to ensure buildings meet certain standards for minimum health, safety, welfare, convenience and sustainability.

This document covers proposals for changes relating to Part L (conservation of fuel and power) and Part F (ventilation) for new dwellings.

This consultation is aimed primarily at firms, individuals and their representative bodies within construction and construction-related industries and the building control bodies that enable the building control system to operate. Specific elements may be of interest to members of the public.

How to respond

You can email your response to the questions in this consultation to: enquiries.brconstruction@gov.wales

If you are responding in writing, please make it clear which consultation and which questions you are responding to:

Written responses should be sent to:

Changes to the Building Regulations in Wales for new and existing dwellings, Building Regulations, Welsh Government, Cardiff, CF10 3NQ

When you reply, it would be useful if you confirm whether you are replying as an individual or submitting an official response on behalf of an organisation and include:

- your name,
- your position (if applicable),
- the name of organisation (if applicable),
- an address (including post code),
- an email address, and
- a contact telephone number

Further information and related documents

Large print, Braille and alternative language versions of this document are available on request.

Contact details

For any enquiries about the consultation please contact the Welsh Government Building Regulations team by emailing: enquiries.brconstruction@gov.wales

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In order to show that the consultation was carried out properly, the Welsh Government intends to publish a summary of the responses to this document. We may also publish responses in full. Normally, the name and address (or part of the address) of the person or organisation who sent the response are published with the response. If you do not want your name or address published, please tell us this in writing when you send your response. We will then redact them before publishing.

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Chapter 1. Introduction

Background

- 1.1 Between 19 December 2019 and the 12 March 2020 we undertook a consultation seeking your views on changes to Part L (Conservation of Fuel and Power) and Part F (Ventilation) of the Building Regulations for new dwellings (<https://gov.wales/building-regulations-part-l-review-0>)
- 1.2 That consultation outlined the background to the wider Part L review and how this will assist in delivery our commitments under the Environment (Wales) Act 2016 and how the work has been undertaken in accordance with the Well-being of Future Generations (Wales) Act 2015.
- 1.3 The key purpose of that consultation was to seek views on proposed changes to Part L and Part F of the Building Regulations for new homes, and the associated statutory guidance (Approved Document L Volume 1 and Approved Document F Volume 1). In particular it sought to make new homes more energy efficient and to future-proof them for the introduction of low carbon heating systems. It also included changes to Part L to align it with the 2018 recast of the Energy Performance of Buildings Directive (EPBD), and proposals for a new approach to transitional arrangements. In addition, the consultation considered proposals for improving compliance and performance to ensure that energy efficiency requirements are delivered on the ground.
- 1.4 The responses to that consultation are currently being reviewed and it is proposed a Government response to this will be published later this year.

The Consultation Package

- 1.5 This consultation package forms part of the Stage 2 consultation that follows on from that initial consultation. This consultation forms part A of the Stage 2 consultation and primarily deals with existing dwellings, alongside some minor changes to non-domestic buildings. The consultation covers the following areas:

Mitigating Overheating in New Dwellings

- 1.6 The stage 1 consultation set out proposals to make new buildings more energy and thermally efficient. There is growing evidence that new homes are at risk of overheating during the summertime, and that this will increase with both improvements to their thermal efficiency as well as the impacts of climate change. The consultation seeks views on a more comprehensive approaches to considering overheating in new dwellings.

Part L and Part F Changes for Existing Dwellings

- 1.7 The previous consultation set out the proposals for new dwellings, however large parts of our building stock are made up of existing buildings. To ensure existing buildings contribute to our commitments this consultation sets out proposals for improving energy performance in existing buildings through reducing energy

demand (Part L - Conservation of Fuel and Power), without affecting the health and comfort of its occupants (Part F - Ventilation).

Energy Performance of Buildings Directive Changes

1.8 Part L of the Building Regulations forms part of an ambitious energy efficiency agenda in Wales and is used to set minimum energy performance standards for buildings to drive. It was in place before the EU introduced the recast Energy Performance of Buildings Directive (EPBD)¹. The EPBD has been amended² and we have set out proposals in this consultation to align with the latest changes to the requirements in the Directive for new and existing non-domestic buildings and existing dwellings.

Leaving the EU – Brexit

1.9 A substantial body of legislation has been developed at the EU level which helps reduce Wales' greenhouse gas emissions and protects Wales' environment and social well-being. The UK's withdrawal from the EU does not affect the need for action now. To ensure protection and standards which benefit our citizens, and the well-being of society as a whole are not eroded, this consultation will bring forward changes as part of the implementation of the Energy Performance of Building Directive (EPBD) 2010 (Recast).

Development of these proposals

1.10 Using the five ways of working set out in the Well-being of Future Generations (Wales) Act 2015 the proposals have been developed with our stakeholders. Welsh Government is grateful for the input and support from industry and other stakeholders in attending technical working groups, and providing other advice throughout the development phase to inform our direction of travel and final proposals. In addition, we are grateful to the advice provided by the Building Regulations Advisory Committee for Wales (BRACW) in shaping these proposals.

1.11 The proposals set out in this consultation will actively deliver four of the well-being goals: a prosperous Wales, a healthier Wales, a more equal Wales and a globally responsible Wales.

1.12 The proposals will help deliver a prosperous Wales as they seek to make existing homes more energy efficient and to future-proof them for the introduction of low carbon heating systems. This directly delivers an innovative and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change). The introduction of these changes will reduce the energy costs associated with the building. As buildings become more economical to run, this will ensure a more equal Wales helping people no matter what their background or circumstances (including their socio-economic background and circumstances).

¹ DIRECTIVE 2010/31/EU of the European Parliament and of the Council of 19 May 2010: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010L0031&from=EN>

² EPBD DIRECTIVE (EU) 2018/844 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

1.13 The proposals also make amendments to Part F (Ventilation) and introduce a new requirement for mitigating overheating in new dwellings. The Part F proposals help to ensure good indoor air quality through the supply and removal of air to and from a space or spaces in a building. The proposals to mitigate overheating help ensure that new dwellings at higher risk of overheating are provided with measures to reduce the risk of overheating in hot weather. These amendments will help ensure people's physical well-being is maximised.

1.14 All of these actions will improve the well-being of people in Wales, whilst also taking account of whether such actions are making a positive contribution to global well-being.

Further Consideration

1.15 Stage 1 and this Stage 2A consultation cover all of the changes to energy efficiency and ventilation for new and existing dwellings. They also cover changes relating to aligning with EPBD requirements for new and existing non-domestic buildings.

1.16 For non-domestic buildings, we have not yet consulted on improvements to the energy efficiency standards (Part L) or ventilation standards (Part F). We intend to consult on these matters in 2021 as a Stage 2B consultation. The Stage 2B consultation will consult on making improvements to Building Regulation requirements for new and existing non-domestic buildings, including opportunities to promote low carbon and higher energy efficiency heating, ventilation and air conditioning systems in new buildings and reducing the performance gap.

Timetable for introduction of changes

1.17 The dates for the introduction of changes are set out below.

Dwellings	
Date	Preferred option on timing
Autumn 2020	Stage 1 consultation response document.
Early 2021	Stage 2A consultation response document.
Spring 2021	Publication of new Part L, Part F and overheating regulations, associated guidance and supporting analysed
Autumn 2021	Part L, Part F and overheating regulations come into force

Non – domestic Buildings	
Date	Preferred option on timing
Early 2021	Stage 2B consultation document.
Summer 2021	Stage 2B consultation response document.
Autumn 2021	Publication of new Part L, Part F and overheating regulations, associated guidance and supporting analysed
Early 2022	Part L and Part F come into force

Building regulations

- 1.18 Building Regulations control certain types of building work, principally the erection and extension of buildings and provision or extension of certain services or fittings, chiefly to ensure that buildings meet certain standards of health, safety, welfare, convenience and sustainability.
- 1.19 Compliance with the Building Regulations is the responsibility of the person carrying out the work and the building control system helps to ensure that the required level of performance has been met. The role of a building control body, either the Local Authority or a private sector Approved Inspector, is to act as an independent third-party check to help achieve compliance. As an alternative to third-party checking by building control, some types of work may be self-certified as being compliant by installers who are registered as a member of a competent person self-certification scheme and have been assessed as competent to do so.
- 1.20 Building Regulations greatly influence how our buildings are constructed and used. As such, they help to deliver significant benefits to society. Regulation can also impose costs on both businesses and individuals. The “functional” nature of the Building Regulations, by having regulation setting out the broad requirement rather than prescribing how it must be achieved, seeks to minimise this cost and also ensure innovation is not hindered. Guidance in the Approved Documents that accompany the Regulations then sets out some of the ways that these requirements can be met although it does not have to be followed if the required level of performance can be shown to be achieved in a different way. This approach provides clarity for building control bodies and industry alike.
- 1.21 To avoid the risk of unnecessarily onerous and costly standards being imposed on industry it is important that a proper cost/benefit assessment and consultation with industry has been undertaken by the Welsh Government to assess what reasonable minimum standards are appropriate.

Chapter 2. Part L Standards for Existing Dwellings

Background

2.1 This chapter looks at changes to the application of the Building Regulations to existing dwellings. We have proposed the following changes:

- Raising the standards for controlled works in existing dwellings, where this can be shown to be cost-effective.
- Some amendments to the requirements on consequential improvements.
- Transposing relevant requirements from the Energy Performance of Buildings Directive (EPBD)

2.2 The structure of the Approved Documents has been amended such that they are to be published in two volumes: volume 1 to provide guidance for dwellings, and volume 2 to provide guidance for buildings other than dwellings. Furthermore, relevant parts of the Building Services Compliance Guides are proposed to be included in the Approved Documents rather than separately referenced. The changes to the structure were consulted on in the stage 1 consultation³ and therefore are not consulted upon again here.

Performance standards for building fabric

- 2.3 Improvements to the standards for works in existing dwelling have been identified. Further details of the proposed standards are set out in Volume 1 of Approved Document L.
- 2.4 The Part L 2014 review aligned the standards for domestic extensions with the mandatory limiting fabric parameters for new dwellings. It is now proposed to improve the standards for domestic extensions to align with similar improvements proposed for the limiting fabric parameters for new dwellings in the stage 1 consultation. Consideration was given to further the improvement of standards for extensions, up to the elemental values in the new-build recipe. However, the recipe is a performance-based approach and the elemental fabric specifications for new dwellings are flexible as long as the limiting fabric parameters are achieved or exceeded. Furthermore, there may be practical and cost issues in achieving the same fabric performance as the new-build recipe in space constrained extensions.
- 2.5 The Approved Document sets energy efficiency for windows and doors (where new, replaced or enlarged). As the current Approved Document, it is proposed that they continue to align with those for extensions. Hence, the minimum standard for windows and doors is proposed to be improved from $U=1.6 \text{ W/m}^2\cdot\text{K}$ to $U=1.4 \text{ W/m}^2\cdot\text{K}$.
- 2.6 A conservatory or porch is exempt from the energy efficiency requirements where it meets specific requirements, one of which is being thermally separate from the heated area of the dwelling. A conservatory or porch is considered to be thermally separate where the existing walls, windows and doors between the dwelling and the conservatory or porch are left in place or, if they are removed, their replacements meet standards set out in the Approved Document. These latter standards currently align with those of extensions and it is proposed that this continues to be the case – thus these standards will be improved to align with the improvements for extensions identified in the preceding paragraphs.
- 2.7 A conversion describes when part of a dwelling, which previously was not subject to the energy efficiency requirements, is converted into a heated space, for example a loft conversion (this is described as a ‘change in energy status’ in the Building Regulations). In the case of a conversion, a retained thermal element is an existing element that becomes a thermal element where previously it was not, for example a gable wall in a loft conversion. If the thermal performance of the retained element is

³ <https://gov.wales/building-regulations-part-l-review-0>

poorer than a threshold value specified in the Approved Document, it is recommended that upon conversion the thermal performance is upgraded to at least a minimum standard also defined in the Approved Document. Further guidance is now proposed in the draft Approved Document to highlight the potential moisture risks when upgrading retained thermal elements and makes recommendations for the risk to be assessed and mitigated by a person who is competent to do so. In addition, it is proposed that all standards for roofs now align with the standard for pitched roofs with insulation at ceiling levels of $U=0.16 \text{ W/m}^2\text{.K}$ as there is no significant technical or economic reason for the standards to be different; previously the standard for pitched roofs with insulation between the rafters and for flat roofs was $U=0.18 \text{ W/m}^2\text{.K}$. We are also proposing that all of these proposals apply to a material change of use, as similar issues apply (for example, where the building is now used as a dwelling, where previously it was an unheated building e.g. a barn).

- 2.8 For renovations, conversions or material change of use, where the suitability of an element needs to be assessed prior to the application of insulation, or where it is recommended that expert advice be sought, the Approved Document proposes that the person carrying out this work should be appropriately trained in risk assessment and management, e.g. a Retrofit Coordinator as identified in PAS 2035, and follow the procedures given in PAS 2030/2035: 2019 - Retrofitting dwellings for improved energy efficiency: Specification and guidance.
- 2.9 The current Approved Document includes Appendix C which includes low cost improvements for renovation of existing thermal elements along with comments relating to reasonableness, practicability and cost-effectiveness. It has been highlighted that this table of cost-effective insulation improvements does not satisfactorily address the potential moisture risks. All improvements should be assessed and designed to manage risk, which would make the guidance in the table redundant. Hence, the proposal is to remove the Appendix as the works should be assessed and carried out by a professional.

Performance standards for building services

- 2.10 The main changes proposed to the current standards are as detailed below.

Boiler plus

- 2.11 In December 2016, the UK Government consulted on a range of policy proposals, collectively known as 'Boiler Plus', to give consumers more choice over the way they heat their homes and more control over their energy bills. As a result, additional minimum standards came into force from April 2018 in England only and the details were included in the Domestic Building Services Compliance Guide. The Welsh Government is now consulting upon introducing these requirements in Wales via the Building Regulations.
- 2.12 The new minimum performance standard for domestic gas boilers in Wales homes is proposed to be set at 92% ErP. The proposed standard will also make timers and room thermostats an explicit requirement for all gas and oil systems.

2.13 When a gas combination boiler is installed, an additional energy efficiency measure is proposed to be required. This requirement is flexible to allow a suitable choice to be made that reflects the diverse nature of the housing stock, and the needs of the household. The energy saving technologies that can be used to comply are:

- Flue gas heat recovery systems
- Weather Compensation
- Load Compensation
- Smart controls (with remote access) featuring automation and optimisation functions

2.14 The definitions of some of these technologies included in the Approved Document differ to those used in England. This looks to account for feedback from industry to make the definitions clearer.

2.15 Further details describing the rationale for these changes can be reviewed in the UK Government consultation: <https://www.gov.uk/government/consultations/heat-in-buildings-the-future-of-heat>

Ecodesign for Energy-Related Products Regulations

2.16 The minimum energy efficiency standards have been reviewed to ensure that they all at least achieve the levels required by the Ecodesign for Energy-Related Products Regulations 2010 (as amended). These European standards are currently required in Wales and take precedence over those currently required in the Domestic Building Services Compliance Guide, so this is not a change in policy.

Future-proofing

2.17 We would like to make it easier for existing homes to install low carbon heating in the future. One proposal which would provide benefits now, and make it easier to install heat pumps or district heating in future, is where a space heating systems is installed or replaced in an existing building (including both the boiler and radiators). The system should be sized to allow the space heating system to operate at a flow temperature of 55°C or lower. Where it is not feasible to install a space heating system which can operate at this temperature (for example, where there is insufficient space for larger radiators) the space heating system should be designed to the lowest design temperature possible which will still meet the heating needs of the dwelling.

2.18 Heat pumps operate best at temperatures of 55°C or lower. This flow temperature would also have benefits of increasing the efficiency of condensing boilers, giving an immediate energy saving to the consumer. It would also reduce losses and improve system efficiencies in district heating and facilitate the transition to low carbon technologies.

2.19 Another option considered was to require the installation of hot water storage when a space heating system is installed or replaced in an existing building. A hot water cylinder could be considered as a future-proofing measure, as it is necessary for

later heat pump installation as heat pumps cannot currently supply hot water on demand, and so require storage capacity. However, unless the hot water storage is already required for the immediate new heating system, it would result in an increased cost to the consumer and a reduction of space without offering the consumer anything in the short term (e.g. if the consumer chose to use a gas combination boiler, they would not typically require hot water storage). Furthermore, the pre-installed cylinder might not suit the heat pump that is later selected for installation, so it might work sub-optimally or the cylinder might need to be replaced. Hence this option is not proposed in the consultation.

Consequential improvements

- 2.20 Part L 2014 extended the requirements for consequential improvements. Consequential improvements is the term used to describe the use of the Building Regulations to trigger a requirement for extra energy efficiency works in a building where other controlled work is already taking place. The reason for introducing these changes was to recognise the urgency of reducing emissions from the existing building stock and make homes easier and cheaper to heat. We propose some amendments to these requirements.
- 2.21 The current Approved Document requires that where an existing dwelling is extended or converted, as a result increasing the habitable area by more than 10m², additional energy efficiency improvements should be undertaken. These improvements are specified in the current Approved Document.
- 2.22 The following changes are proposed to the current guidance:
- a. Installing further insulation in partially-insulated cavity walls will be removed from the list of energy efficiency improvements. This is to avoid the air gap on the cold side of the insulation being compromised as this may present an increased moisture risk.
 - b. The guidance for insulation of un-insulated cavity walls will include an independent assessment to ensure the wall is suitable for upgrading (e.g. suitable cavity width, sufficiently clean cavity, satisfactory wall tie type/condition, satisfactory mortar joints for sound weatherproofing). We propose to align with Path A (simple or single measures projects) of PAS 2035/2030: 2019⁴. By aligning with PAS 2035 there is inherent assurance that the person carrying the assessment is competent to do so.

Energy Performance of Buildings Directive (EPBD)

- 2.23 Part L of the Building Regulations forms part of an ambitious domestic energy efficiency agenda and is used to set minimum energy performance standards for buildings to drive reductions in emissions. It was in place before the EU introduced the recast Energy Performance of Buildings Directive⁵ in 2010, which was informed by policies the UK were already doing, and so Part L has been used to transpose

⁴ PAS 2035/2030:2019, Retrofitting dwellings for improved energy efficiency. Specification and guidance.

⁵ DIRECTIVE 2010/31/EU of the European Parliament and of the Council of 19 May 2010: <https://eurlex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010L0031&from=EN>

relevant parts of the Directive. The EPBD has recently been amended⁶ and we have set out proposals in this consultation to align with the latest changes to the requirements in the Directive for existing dwellings, in the following areas:

- Self-regulating devices
- Building automation and control systems and on-site electricity generation
- Technical building systems
- Primary energy

Self-regulating devices

2.24 A self-regulating device is a device or system that automatically controls the output of heating and/or cooling emitters to independently control the temperature in each room, (or, where justified, a heating and/or cooling zone⁷) where heating and/or cooling is provided by a fixed building service.

2.25 In order to align with the third subparagraph of article 8(1) of the EPBD (EU) 2018/844, it is proposed to introduce a new regulation in the Building Regulations 2010 to ensure that when a heat generator, such as a boiler, is replaced in an existing building, it must be equipped with self-regulating devices for the separate regulation of the temperature in each room or designated heating zone of the building unit, where technically and economically feasible⁸.

2.26 A common way of achieving this requirement in practice for existing homes would be having thermostatic radiator valves (TRVs) on radiators in each room, which are often already installed as standard practice.

2.27 Suggested guidance for existing dwellings is provided in the draft Approved Document L volume 1 that accompanies this consultation package.

Building Automation and Control Systems and On-Site Electricity Generation

2.28 In order to align with the first and second subparagraphs of article 8(1) of the EPBD (EU) 2018/844, it is proposed to introduce a new regulation in the Building Regulations 2010 to ensure that when a building automation and control system or on-site electricity generation is included in an existing building, system requirements are set in respect of the overall energy performance, the proper installation, and the appropriate dimensioning, adjustment and control of the systems.

2.29 A building automation and control system is a term used for a centralised system installed to monitor and control a building's environment and services i.e. its

⁶ EPBD DIRECTIVE (EU) 2018/844 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency

⁷ A heating and/or cooling zone is a treated area of a building (i.e. an area with either heating or cooling or both) which is on a single floor and has homogenous thermal parameters and homogenous temperature regulation requirements. This can include adjacent spaces which are not physically separated from each other e.g. open plan kitchen and living area.

⁸ It is not necessary to install self-regulating devices in cases where cooling generators are replaced in existing buildings.

heating, ventilation, air conditioning, lighting and other systems (such as security alarms and lifts). Such systems would typically be installed in large commercial buildings but not usually in dwellings. However, it is possible that a building automation and control system could be installed in a large apartment block.

2.30 Suggested guidance for existing dwellings is provided in the draft Approved Document L volume 1 that accompanies this consultation package.

Energy performance of Technical Building Systems

2.31 A technical building system is a term used for a fixed building services (such as equipment for space heating, space cooling, ventilation, domestic hot water, lighting), building automation and control, on-site electricity generation or a combination of these.

2.32 In order to align with the first and second subparagraphs of article 8(9) of the EPBD (EU) 2018/844, it is proposed to introduce a new regulation in the Building Regulations 2010 to ensure that when a technical building system is installed, replaced or upgraded, the overall energy performance of the altered part, and where relevant, of the complete altered system, is assessed. Furthermore, the results shall be documented and passed on to the building owner.

2.33 Guidance on assessing and providing information about the energy performance of technical building systems for existing dwellings is provided in the draft Approved Document L volume 1 that accompanies this consultation package.

Primary energy

2.34 The current Approved Document L1B provides an ‘equivalent carbon target approach’ which offers more design flexibility to meeting standards for existing dwellings by allowing some elements of the design to be relaxed if compensated for elsewhere as long as the carbon emissions are equalled or bettered. It is proposed to change this approach to be based on primary energy rather than carbon emissions. This aligns with the stage 1 consultation which proposed the introduction of a primary energy metric for new dwellings as a good means of driving energy efficiency. Guidance on this approach for existing dwellings is provided in the draft Approved Document L volume 1.

Question 1

Do you agree with the proposed minimum fabric standards for extensions as set out in Table 4.1?	
a. Yes	
b. No	
c. Unsure	
If you do not agree with any of the proposed standards, please explain your reasoning with any evidence to support this.	

Question 2

Do you agree with the proposed minimum energy efficiency standards for windows and doors as set out in Table 10.1?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 3

Do you agree with the proposed minimum standards for (i) a non-exempt conservatory or porch (paragraph 10.29) and (ii) thermal separation for a conservatory or porch so as to be exempt from the energy efficiency requirements as provided in Section 10 (paragraph 10.28)?	
a. Yes	
b. No	
c. Unsure	
If you do not agree please explain your reasoning with any evidence to support this.	

Question 4

Do you agree with the proposed minimum standards for retained thermal elements for conversions as set out in Table 11.1 and the additional guidance to help address potential moisture risks?	
a. Yes	
b. No	
c. Unsure	
If you do not agree please explain your reasoning with any evidence to support this.	

Question 5

Do you agree with the suggested knowledge/qualifications proposed for renovations, conversions or material change of use given in Section 11, where the suitability of an element needs to be assessed prior to the application of insulation, or where it is recommended that expert advice be sought?	
a. Yes	
b. No	
c. Unsure	
If you do not agree please explain your reasoning with any evidence to support this.	

Question 6

Do you agree with the removal of Appendix C from the current Approved Document?	
a. Yes	
b. No	
c. Unsure	
If you do not agree please explain your reasoning with any evidence to support this.	

Question 7

Do you agree with the introduction of 'Boiler Plus' in Section 6?	
a. Yes	
b. No	
c. Unsure	
If you do not agree please explain your reasoning with any evidence to support this.	

Question 8

Do you agree with the minimum standards for building services in Sections 5 and 6?	
a. Yes	
b. No	
c. Unsure	
If you do not agree please explain your reasoning with any evidence to support this.	

Question 9

Do you agree with the proposal that when a space heating system is installed or replaced in an existing home, the system should be sized to allow the space heating system to operate at a flow temperature of 55°C or lower where feasible in Section 5?	
a. Yes	
b. No	
c. Unsure	
If you do not agree please explain your reasoning with any evidence to support this.	

Question 10

Do you propose any other future-proofing measure(s)?	
a. Yes	
b. No	
If Yes, please detail your measure(s) and what building work would trigger the need to install the measure.	

Question 11

Do you agree with the proposed changes to consequential improvements in Section 12?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 12

Do you agree with the proposed approach for Self-Regulated Devices as in Section 5?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 13

Do you agree with the proposed new standards for Building Automation and Control Systems (BACS) and On-Site Electricity Generation as in Section 6?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 14

Do you agree with the proposed approach to mandate for the assessment and provision of information for Technical Building Systems as in Section 9?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 15

Do you agree with the proposed approach to change from the 'equivalent carbon target approach' to the "equivalent primary energy target approach' in Section 13 to provide design flexibility?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Chapter 3. Part F Changes for Existing Dwellings

Background

- 3.1 Ventilation is the supply and removal of air to and from a space or spaces in a building, whether through natural or mechanical means. Adequate ventilation in homes is important for good air quality.
- 3.2 When work is carried out on an existing building, the rest of the building should not be made less satisfactory in relation to Part F requirements than before the work was carried out. When carrying out a domestic energy efficiency retrofit, many measures are likely to improve the airtightness of the building and reduce background ventilation level. In some cases, this will result in an inadequate level of ventilation for the building and additional ventilation provision is needed. Approved Document F currently provides limited guidance on how this additional ventilation should be achieved.
- 3.3 The proposed changes principally focus on a wider range of common scenarios of domestic energy efficiency retrofit. It identifies where additional ventilation is likely to be needed and provides reasonable provisions that in ordinary circumstances may be accepted as demonstrating compliance for Part F.

Installing Energy Efficiency Measures

- 3.4 Approved Document F includes a new sub-section on additional ventilation provisions when installing energy efficiency measures. It provides two options:
 - a. A simplified method is set out in the Approved Document. It specifies additional ventilation provisions for different energy efficiency retrofit scenarios. This method is intended to be appropriate for the majority of existing dwellings. If the property is significantly different from its original construction by means of energy efficiency measures, the expert advice method should be followed.
 - b. The Approved Document provides the alternative of expert advice. This may be followed if, for example, the simplified method is not appropriate.
- 3.5 For the simplified method, the Approved Document lists the most common energy efficiency measures considered to reduce infiltration. The list could be expanded further, however, the intention is to limit the size of the table such that simplified guidance can be produced in the Approved Document and is easy to follow. As necessary, the expert advice option can be adopted.
- 3.6 Each of the energy efficiency measures listed is categorised as a minor or major retrofit measure; this being the potential impact of the associated measure for improving the airtightness of the envelope, thus reducing the ventilation rate.
- 3.7 To quantify the impact of these retrofit measures on the ventilation rate, improvements in the air permeability were assigned to the major and minor

categories. Median improvement values of 2.5 and 1.0 m³/(h.m²) @ 50 Pa were determined for these two categories respectively derived through a review of 75 case studies taken from the Retrofit for the Future programme (Innovate UK) and the AECB's Low Energy Buildings database (LEBD)⁹ where information was available on the dwellings' air permeability both before and after the installed measure. These were converted to reductions to the air exchange rate (ach), of 0.13 and 0.05 ach respectively, through applying the 'divide by 20 rule'¹⁰.

- 3.8 For the purpose of the simplified method, it is necessary to determine a baseline air exchange rate prior to retrofit. This is taken to be 0.55 ach. This is derived from the mean pre-retrofit air permeability for the 75 case studies of 11.0 m³/(h.m²) @ 50 Pa and applying the 'divide by 20 rule'. Consideration was taken of selecting the pre-retrofit air permeability to represent, say, the 20th percentile of the pre-retrofit air permeability measurements to better assure sufficient ventilation post-retrofit. If this were the case, an air permeability of 7.5 m³/(h.m²) @ 50 Pa would be applied as the baseline instead of 11.0 m³/(h.m²) @ 50 Pa. However, reviewing the case studies, the more airtight properties (within the 20th percentile) tended to already have some energy efficiency retrofit measures applied. Hence, the proposed approach is to adopt the mean of the distribution as the baseline and take account of pre-existing energy efficiency measures when determining the number of minor and major measures.
- 3.9 The Approved Document provides a flow chart of additional ventilation provisions necessary depending on the number of minor and major measures (both new and pre-existing). The following three categories are identified.
- a. **Category A:** The estimated air change rate reduction from applying the energy efficiency measures is up to 0.1 ach. This compares to a baseline of 0.55 ach. Therefore, there is a low risk that the measures in this category would lead to a reduction of the infiltration ventilation rate to below 0.45 ach, which is similar to the minimum ventilation rate recommended for new dwellings. In general, no improvement to ventilation provisions in a dwelling is recommended for Category A except to fit background ventilators in any replacement windows which either have no background ventilators, or where the size of the background ventilators in the existing window is not known.
 - b. **Category B:** The estimated air change rate reduction from applying the energy efficiency measures is up to 0.3 ach. Using the Category A baseline level of 0.45 ach, such a reduction results in a remaining infiltration ventilation rate of 0.15 ach. The proposal is to recommend an increase of 0.30 ach through additional ventilation provisions, thereby increasing the air exchange rate to 0.45 ach. This is similar to the ventilation provisions recommended for new homes leakier than 5.0 m³/(h.m²) @ 50 Pa, which allows for an infiltration rate of 0.15 ach.

⁹ The Low Energy Building Database is a repository of low-energy building information created to help inform the planning and development of low energy new build and refurbishment. The database incorporates properties that participated in the Retrofit for the Future programme funded by Innovate UK. www.lowenergybuildings.org.uk

¹⁰ An approximate 'rule-of-thumb' estimate of air infiltrations rates can be derived from the air permeability data. The approach in SAP is to divide the 50 Pa air permeability result (Q₅₀ – approximate to the air leakage rate n₅₀) by 20. This provides an approximation of the average distribution of infiltration rates.

- c. **Category C:** The air change rate from applying these measures is expected to be very significantly reduced and result in a level below 0.15 ach. In such scenarios, it is proposed to adopt the default ventilation provisions recommended for new homes where no infiltration rate is assumed.
- 3.10 In some cases, there may already be purpose-provided natural or mechanical ventilation provisions in the existing property. These can be counted towards the ventilation provisions identified necessary for Category B and C.

Replacing windows only

- 3.11 The Approved Document currently specifies that where the original windows are not fitted with background ventilators, and the room is not ventilated adequately by other means, it is good practice (not reasonable provision) to fit background ventilators, or an equivalent means of ventilation.
- 3.12 To help control condensation and improve indoor air quality, the proposal now makes reasonable provision to include additional ventilation when replacing existing windows which either have no background ventilators, or where the size of the background ventilators in the existing window is not known. The Approved Document specifies different minimum equivalent areas of background ventilators tailored to the type of room in the dwelling and the type of ventilation system.

Testing and commissioning of mechanical ventilation

- 3.13 Regulation 44 of the Building Regulations currently requires that that where mechanical ventilation is provided or extended in an existing dwelling, the developer should give to building control a notice that the ventilation system has been commissioned according to a process described in Approved Document F (and the accompanying Domestic Ventilation Compliance Guide). This only applies to mechanical ventilation that can be tested and adjusted, for example continuous mechanical extract ventilation and mechanical supply and extract ventilation, but not intermittent extract fans. It does not require that the developer provides the results of any air flow rate testing which is required in Regulation 42 for new dwellings only and applies to all types of mechanical ventilation (continuous and intermittent).
- 3.14 It is considered that new or extended mechanical ventilation in a retrofit should be subject to the same rigour as for systems installed in new dwellings. Regulation 42 is proposed to be extended to existing buildings such that all new or extended mechanical ventilation is subject to air flow rate testing and the results provided to building control. Note that this does not apply if an existing intermittent fan is replaced with another (i.e. a like-for-like replacement).
- 3.15 It is important to verify that the designed air flow rates are delivered to help ensure adequate ventilation provision is provided. Furthermore, given the new guidance on the necessary ventilation provisions to accompany a domestic energy efficiency retrofit, it would be expected that mechanical ventilation will be more commonly installed.

Addition of a habitable room (not including a conservatory) to an existing dwelling

- 3.16 The Approved Document recommends ventilation provisions when a home is extended. It is proposed to specifically amend the guidance where the additional room is connected to an existing habitable room, and that after the building works the existing habitable room still has window openings to outside with at least background ventilator area of 5000mm². In which case, as currently, there should be both (i) background ventilators between the two rooms and (ii) background ventilators between the additional room and outside. The sizes of these background ventilators are proposed to increase from a minimum of 8000mm² to 10000mm² in both cases to provide additional ventilation.
- 3.17 Note that the guidance for other situations, where a habitable room (including a conservatory) or wet room is added to an existing dwelling, generally references guidance for new dwellings. It is proposed to continue to reference the guidance for new dwellings in such situations and, thus, the ventilation provisions recommended will be impacted by any amendments made for new dwellings.

Refurbishing a kitchen or a bathroom

- 3.18 The Approved Document provides options for ventilation provisions where a wet room is added to an existing dwelling. If adopting intermittent extract, a background ventilator of 5000mm² is now recommended compared to 2500mm² currently to provide additional ventilation.

Performance based ventilation standards

- 3.19 Our stage 1 consultation assessed the underlying assumptions on ventilation rates based on the latest available evidence. Appendix B (Performance based ventilation) of the draft Approved Document F has not changed since stage 1 and therefore we are not inviting any further comments in this consultation.

Question 16

Do you agree with the proposed approach for ventilation provisions when installing energy efficiency measures as in Section 3?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 17

Do you agree with the proposal in Section 3 to include additional ventilation when replacing existing windows which either have no background ventilators, or where the size of the background ventilators in the existing window is not known?
--

a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 18

Do you agree with the changes proposed in Section 3 for ventilation provisions when adding a new habitable room (not including a conservatory) to an existing dwelling?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 19

Do you agree with the changes proposed in Section 3 for ventilation provisions when Refurbishing a kitchen or a bathroom?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 20

Do you agree with the proposal that mechanical ventilation (including both continuous and intermittent ventilation) should be tested when installed in existing homes?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Chapter 4. Part L Changes for Non-Domestic Buildings

Background

4.1 As described in paragraph **Error! Reference source not found.**, the Energy Performance of Buildings Directive (EPBD) has recently been amended¹¹. We have set out proposals in this consultation to align with the latest changes to the requirements in the Directive for new and existing non-domestic buildings, in the following areas:

- Self-regulating devices
- Building automation and control systems
- Technical building systems

4.2 As explained in the further considerations section on page 3, our future consultation 2B will provide full energy efficiency proposals for non-domestic buildings. This consultation will only look at intermediate amendments to align with the revised EPBD.

Self-regulating devices

4.3 A self-regulating device is a device or system that automatically controls the output of heating and/or cooling emitters to independently control the temperature in each room, (or, where justified, a heating and/or cooling zone ¹²) where heating and/or cooling is provided by a fixed building service.

4.4 In order to align with the third subparagraph of article 8(1) of the EPBD (EU) 2018/844 we plan to introduce a new regulation in the Building Regulations 2010 as follows

- to ensure that when a building is erected it must be equipped with self-regulating devices for the separate regulation of the temperature in each room or designated heating zone of the building unit, where technically and economically feasible.
- to ensure that when a heat generator, such as a boiler, is replaced in an existing building, it must be equipped with self-regulating devices for the separate regulation of the temperature in each room or designated heating zone of the building unit, where technically and economically feasible.

¹¹ EPBD DIRECTIVE (EU) 2018/844 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency

¹² A heating and/or cooling zone is a treated area of a building (i.e. an area with either heating or cooling or both) which is on a single floor and has homogenous thermal parameters and homogenous temperature regulation requirements. This can include adjacent spaces which are not physically separated from each other.

- 4.5 A common way of achieving this requirement in practice would be having thermostats in each room to independently control the heating and cooling of the emitters in that room. These are often already installed as standard practice.
- 4.6 Suggested guidance for non-domestic buildings is provided in the draft amendments to Approved Document L2A and L2B that accompanies this consultation package.

Building Automation and Control Systems

- 4.7 A building automation and control system is a term used for a centralised system installed to monitor and control a building's environment and services i.e. its heating, ventilation, air conditioning, lighting and other systems (such as security alarms and lifts).
- 4.8 In order to align with articles 8(1), 14(4) and 15(4) of the EPBD (EU) 2018/844 we plan to introduce a new regulation in the Building Regulations 2010 such that:
- If a new building has a space heating or air-conditioning system with an effective rated output of greater than or equal to 290 kW, a building automation and control system must be installed to specifications as per below.
 - If an existing building has a space heating or air-conditioning system with an effective rated output greater than or equal to 290kW, a building automation and control system being replaced or installed should meet the specifications below.
- 4.9 A building automation and controlled system installed in a new or existing building to meet the requirements in the paragraph above must be capable of carrying out all of the following functions.
- a. Fully complies with **EN ISO 16484**.
 - b. Continuously monitors, logs, analyses and allows for adjusting energy use.
 - c. Benchmarks the building's energy efficiency, detects losses in efficiency of technical building systems, and informs the person responsible for the facilities or building management about opportunities for energy efficiency improvement.
 - d. Allows communication with connected technical building systems and other appliances inside the building and be interoperable with technical building systems across different types of proprietary technologies, devices and manufacturers.

NOTE: A **BS EN 15232** Class A Rated type system would meet these requirements.

- 4.10 Where a building automation and control system is installed, as well as meeting the requirements above, its control capabilities should be appropriate for the building, its expected usage, the expected technical knowledge of the building automation and control system user, and the building services specification. The system should be appropriately sized.

- 4.11 Suggested guidance for non-domestic buildings is provided in the draft addendum to Approved Document L2A and L2B that accompanies this consultation package.

On-site electricity generation systems

- 4.12 In order to align with article 8(1) of the EPBD (EU) 2018/844 we plan to introduce new minimum standards (efficiencies and controls) when an on-site electricity generation system is installed in a building. Suggested guidance for non-domestic buildings is provided in the draft consultation version of Approved Document L2A and L2B.
- 4.13 Information about the energy performance of the system must also be provided to the building owner.

Energy performance of Technical Building Systems

- 4.14 A technical building system is a term used for a fixed building service (such as equipment for space heating, space cooling, ventilation, domestic hot water, lighting), building automation and control, on-site electricity generation or a combination of these.
- 4.15 In order to align with the existing Regulation 40, and the new article 8(9) of the EPBD (EU) 2018/844, we plan to introduce a new regulation in the Building Regulations 2010 such that when a Technical Building System is installed in a new or existing non-domestic building, the energy performance of the technical building systems must be assessed and documented.
- 4.16 Suggested guidance for non-domestic buildings is provided in the draft addendum to Approved Document L2A and L2B that accompanies this consultation package.

High-efficiency alternative systems

- 4.17 Regulation 25A of the Building regulations requires that before construction of a new building starts, the person undertaking the work must carry out an analysis that considers and takes into account the technical, environmental and economic feasibility of using high-efficiency alternative systems in the construction. We propose to amend the existing requirements to align with the amended Article 6 of the EPBD (EU) 2018/844 by removing the list of example systems. This is not considered a policy change as the analysis is still required to be carried out.
- 4.18 Approved Document L2B provides guidance that when a building undergoes a major renovation this may represent an opportunity to consider and take into account the technical, environmental and economic feasibility of installing high-efficiency alternative systems. To align with Article 7 of the EPBD (EU) 2018/844, we have also added that this may also be an opportunity to consider healthy indoor conditions, fire safety and risks related to intense seismic activity.

Question 21

Do you agree with the proposed approach for Self-Regulated Devices as in section 11 (approved document L2A) and section 15 (approved document L2B)?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 22

Do you agree with the proposed specifications for Building Automation and Control Systems (BACS) as in section 11 (approved document L2A) and section 15 (approved document L2B)?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 23

Do you agree with the proposed new standards for Building Automation and Control Systems (BACS) and On-Site Electricity Generation as in section 11 (approved document L2A) and section 15 (approved document L2B)?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 24

Do you agree with the proposed approach to mandate for the assessment and provision of information for Technical Building Systems as in section 7 (Approved document L2A) and section 14 (Approved Document L2B)?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Chapter 5. Mitigation of Overheating risk in New Dwellings

Background

- 5.1 Overheating in homes occurs when the local indoor thermal environment presents conditions in excess of those acceptable for human thermal comfort or those that may adversely affect human health.
- 5.2 Overheating in buildings has been highlighted as a key risk for the health and productivity of people and businesses in the UK. It is estimated that there are about 2,000 heat-related deaths each year in England and Wales. This number is expected to triple to over 7,000 by the mid-century, as a result of climate change¹³.
- 5.3 MHCLG commissioned research to assess the risk of overheating of new homes in England. Dynamic thermal modelling showed that all dwelling typologies investigated (including both houses and flats) evaluated across five geographical locations failed to comply with overheating criteria. The degree to which dwellings exceeded the criteria varied significantly by typology and location¹⁴.
- 5.4 As part of this review, the Welsh Government commissioned research to extend MHCLG's study to new homes in Wales.
- The assessment has been carried out according to the CIBSE TM59 methodology.
 - Future weather data from Cardiff has been used, recognising that this may represent a reasonably worse case.
 - The weather data adopted is intended to be representative of the time period 2011-2040 and represents specific climate change assumptions (high emissions, 50 percentile scenario) in line with CIBSE's TM59 methodology. It aims to represent a moderately warm summer (i.e. warmer than a typical year) with around a 1-in-7 chance of a similar weather event occurring.
 - The overheating risk has been assessed based on 'Category I buildings'. This means it assumes that the dwellings have a high probability of being occupied by vulnerable and fragile persons. The first or subsequent occupant of the dwelling may fall into this category. This results in the risk criteria being more stringent.
- 5.5 This research showed that two dwelling types are at particular risk
- a. Flats - due to inherent limitations in removing heat gains (reduced 'stack' effect which pulls cooler outdoor air in through openings in a lower storey and allows warmer internal air to rise out of the building)
 - b. Homes more generally that do not have adequate cross-ventilation to remove heat gains.

¹³ https://www.theccc.org.uk/wp-content/uploads/2015/06/6.736_CCC_ASC_Adaptation-Progress-Report_2015_FINAL_WEB_250615_RFS.pdf

¹⁴ <https://www.gov.uk/government/publications/research-into-overheating-in-new-homes>

Building Regulations

- 5.6 Part L1(a)(ii) of the Building Regulations already requires that provisions should be made to limit heat gains in buildings. However, this is solely aimed at conserving energy use and avoiding CO2 emissions associated with active cooling rather than the health and comfort risks to occupants.
- 5.7 It is proposed that a new part of the Building Regulations (Part S) is introduced which is focussed overheating risk. It is to comprise two requirements:
- (1) *Dwellings shall be designed and constructed in such a way to provide reasonable mitigation from the risk of summertime overheating, and*
 - (2) *any mitigation measures shall be safe, secure and reasonably practical for occupants.*

and a regulation requiring information to the owner:

The person carrying out the work shall not later than five days after the work has been completed give sufficient information to the owner about any system(s) the building uses to mitigate overheating risk and their maintenance requirements so that the system(S) can be operated effectively in a practical, safe and secure manner.

- 5.8 This complements Part L of the Building Regulations in that the preferred means of mitigating overheating is through passive means as far as practicable. This aligns with the Welsh Government intention to bring forward legislation to adopt a 95% carbon reduction target by 2050.
- 5.9 The focus of this proposal is on dwellings. The intention is to consider extending Part S to capture other residential buildings, such as care homes and student accommodation, when Part L for non-domestic buildings is next reviewed (consultation stage 2B).

Assessing compliance with Requirement S1

- 5.10 Based on the Welsh-specific modelling detailed above, it is assumed that many new houses sufficiently comply with this new Requirement without the need for any specific mitigation measures.
- 5.11 Therefore, the focus of the guidance in the draft Approved Document S (which accompanies this consultation) is for two dwelling types:
- Flats
 - Houses (e.g. terraced, semi-detached and detached houses, bungalows) which do not have two or more parallel aspects to facilitate cross-ventilation.
- 5.12 Two alternative approaches are proposed to demonstrate compliance for these two dwelling types

- A simplified method which specifies specific mitigation measures
- A dynamic thermal analysis method

5.13 The first approach is a simple and low-cost process, which does not require any additional modelling. The second approach provides a more flexible alternative means of demonstrating compliance through the use of dynamic thermal modelling.

Simplified method

5.14 The simplified method has been developed using modelled results from dynamic thermal analysis (part of the research undertaken by the Welsh Government described above). It provides prescriptive approaches to reduce overheating risk derived from dynamic thermal modelling which demonstrates that these measures achieve the CIBSE TM59 overheating risk criteria.

5.15 The guidance in the draft Approved Document S is presented in two tables, both of which should be followed.

- The first table identifies alternative options to minimise solar gains. The solutions include maximum glazing areas to minimise summer solar gains; it will be the responsibility of the design team to ensure that adequate daylight levels are still achieved if maximum glazing areas are used. We recognise that larger windows are a selling point of new homes, so alternative options are provided in terms of glazing areas.
- The second table relates to opening areas for heat removal. Heat can be removed using a combination of openable windows and ventilation louvers.

Dynamic thermal analysis method

5.16 SAP Appendix P is currently used in Part L to assess whether the dwelling design has sufficiently limited the effects of heat gains in summer. Whilst this approach is considered sufficient for the purpose of assessing energy use, the SAP methodology has limitations of predicting the frequency and intensity of periods of elevated internal temperature and thus the overheating risk in dwellings.

5.17 The dynamic thermal analysis method uses CIBSE's TM59 Design methodology for the assessment of overheating risk in homes to demonstrate compliance. This requires the use of dynamic thermal modelling rather than SAP.

5.18 This approach provides greater design flexibility to the developer than the simplified method. This approach uses the dwelling location, materials' properties, window areas and orientation, air change rates and prescribed occupancy scenario to calculate the risk of overheating. It allows for greater flexibility in the selection of risk mitigation measures to meet the overheating criteria, while prioritising passive measures.

5.19 Active measures such as air-conditioning can only be used where it can be demonstrated that all reasonable passive measures have been applied and fail to adequately mitigate overheating risk. This demonstration should include details of the different combinations of passive measures assessed in the modelling and the

reason(s) that they were not sufficient, including how they performed against the CIBSE TM59 criteria.

- 5.20 The draft Approved Document S sets out modelling assumptions that should be used when this method is adopted. This includes always using the more stringent CIBSE TM59 criteria for more vulnerable occupants, and it provides window opening profiles to be used.
- 5.21 It is proposed that where the Dynamic Thermal Analysis method is adopted, the person carrying out this work should be competent and appropriately trained in dynamic thermal modelling to assess overheating risk (e.g. a Low Carbon Energy Assessor (LCEA) Level 5) and follow the procedures given in CIBSE TM59 Design methodology for the assessment of overheating risk in homes. We are not aware of any existing UK qualification that explicitly relates to dynamic thermal modelling of overheating risk, however LCEA Level 5 implies a knowledge of building physics and the ability to use dynamic thermal modelling software that is suitable for this type of assessment.

Assessing compliance with Requirement S2

Limiting noise and air pollution

- 5.22 External noise and air pollution are material considerations considered when applying for Planning permission. Mitigating measures may be required in the design in order to obtain Planning permission and controlled through a condition imposed on the consent. This may include, for example, the use of non-openable windows which may limited the ability for occupants to ventilate homes to reduce the risk of summer overheating.
- 5.23 Any measures proposed for mitigating overheating in Building Regulations will need to acknowledge any constraints from the Planning approval (e.g. non-openable windows) and also any acoustic/air quality assessments carried out in connection with the Planning application. Note that depending on any constraints, it may make it more challenging to comply with the simplified method and it may be preferable to adopt the dynamic thermal analysis method to identify alternative solutions.
- 5.24 It is proposed that noise levels and the ingress of external air pollution are sufficiently addressed through the Planning system, and any conditions imposed on the consent will need to be considered when designing for mitigation measures. However, this consultation is seeking views on whether any additional acoustic/air quality considerations should be taken into account.

Safety and security

- 5.25 Safety and security concerns may limit the use of openable windows. Overheating risk mitigation measures, such as ventilation grills or louvered shutters, may also have safety issues associated with them. These technical risks must be considered alongside the design considerations being proposed to satisfy the guidance in Approved Document S.

- 5.26 Safety concerns include, for instance, the risk of falling from height through large openings or the risk of entrapment of body parts. Window guarding or window restrictors designed in accordance with Part K and Part N of the Building Regulations can be used to provide protection from falling. Features such as window railings or louvered shutters can be used to secure large openings. Note that where window restrictors are used a safety feature these will reduce the free area of the opening and in turn the ventilation rates achieved.
- 5.27 Larger openings also pose a security risk from theft and burglary. Where windows are easily accessible, such as in case of ground floor rooms, occupants may not feel safe leaving these open overnight. The simplified method, and the modelling assumptions to be used for the dynamic thermal analysis method, are based on providing sufficient ventilation for heat removal when windows are only open in occupied rooms during the daytime and windows are only open with restrictors in bedrooms overnight. Hence, the approach taken to mitigate for overheating has looked to account for security concerns.
- 5.28 It is proposed that the current Building Regulations, together with the assumptions to underpin the overheating mitigation strategy, sufficiently address issues of safety and security, and these will need to be considered when designing for mitigation measures. However, this consultation is seeking views on whether any additional safety or security considerations should be taken into account.

Providing information about Mitigation of overheating risk

- 5.29 When a new dwelling is erected, information about any systems the building uses to mitigate overheating risk must be given to the owner of the building.

Question 25

Do you agree with the proposal to focus both on flats and on houses which do not have two or more parallel aspects to facilitate cross-ventilation?	
a. Yes	
b. No	
c. Unsure	
If no, please explain your reasoning with any evidence to support this.	

Question 26

Do you agree with the proposal to have both a simplified approach which provides prescriptive guidance and an approach based on dynamic thermal analysis to provide greater flexibility?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 27

Do you agree with the prescriptive guidance for the simplified approach which aims to both control solar gains and provide ventilation to remove heat from the home?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 28

Do you agree with the guidance provided for the dynamic thermal analysis?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 29

Do you agree with the proposed knowledge required for undertaking the dynamic thermal modelling?	
a. Yes	
b. No	
c. Unsure	
If not, please explain your reasoning and suggest alternative guidance to help ensure that the modelling is undertaken by a person competent to do so.	

Question 30

Do you agree with the proposal for demonstrating that all reasonable passive measures have been applied before including active measures? If not, explain your reasoning and suggest alternative guidance.	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 31

Do you agree that issues of external noise and air pollution, which may affect the use of mitigation measures (e.g. opening windows) are sufficiently addressed through the Planning system?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Question 32

Do you agree that existing Parts of the Building Regulation are sufficient to address safety and security concerns due to the use of openable windows to control for overheating?	
a. Yes	
b. No	
c. Unsure	
If you do not agree, please explain your reasoning with any evidence to support this.	

Chapter 6. Transitional Arrangements

Background

- 6.1 Whenever changes to the Building Regulations or approved standards take place, transitional arrangements apply. When a developer submits a building 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.
- 6.2 Our stage 1 consultation explained our principles to introduce a more stringent set of transitional requirements in 2020 to make sure that developers do not continue to build to older energy efficiency standards for longer than is appropriate. The consultation responses were very supportive of more stringent transitional arrangement.
- 6.3 After considering the responses, we consider that a period of 2 years for transitional provisions is reasonable. The aim of the transitional provisions is to reduce the risk that developers continue to build to older energy efficiency standards for longer than is appropriate. This stage 2A consultation now proposes further details and a firm proposal for the new transitional provisions.

New dwelling Transitional provisions for 2021 for Part L and Part S Mitigating overheating risk

- 6.4 Where a building notice, initial notice or full plans deposit has been submitted to the building control body before the 2021 Part L and Part S amendments come into force, we propose that the transitional arrangements should only apply to individual buildings on which building work has started within a reasonable period. We propose that a reasonable period for this purpose is the period of 2 years from the date the 2021 Part L and Part S amendments come into force.
- 6.5 This would mean that the transitional provisions would provide that where:
- (a) building work on an individual building that has been commenced in accordance with any relevant notification provision (notification of building work being commenced) prior to the coming into force date of the Part L and S amendments; or
 - (b) a relevant notification provision has been complied with in relation to proposed building work and the individual building has commenced within two years of the regulations come into force; or
 - (c) applications submitted prior to 31 July 2014 and commenced building work by 31 July 2015

the 2021 Part L and Part S amendment would not apply.

- 6.6 Therefore, where work has not commenced on a specific dwelling covered by an existing building notice, initial notice, or full plans within a 2 year period of 2021 Part

L and Part S amendments coming into force, that individual building would not benefit from the transitional provisions. As a result building work on that building (and any other buildings covered by a notice or plans where the work had also not commenced within a 2 year period of the legislation coming into force) would need to comply with the 2021 Part L and Part S amendments. Existing building notices, initial notices, or full plans applications already benefiting from transitional provisions applied to earlier changes to Part L energy efficiency standards would not be affected (i.e. applications submitted prior to 31 July 2014 and commenced building work by 31 July 2015).

6.7 This is a more stringent transitional arrangement than has been adopted in the past to try to ensure new dwellings are meeting current standards. Although this may result in different houses in the same development being built to different standards (i.e. Part L 2014 or Part L 2021), we expect housebuilders will be encouraged to build out more quickly on their sites.

Question 33

Do you agree that the transitional arrangements for the energy efficiency changes in 2021 should not apply to individual buildings where work has not started within 2 years of the coming into force date of the 2021 Part L and Part S amendments – resulting in those buildings having to be built to the new energy efficiency standard?	
a. Yes - where building work has commenced on an individual building within 2 years, the transitional arrangements should apply to that building, but not to the buildings on which building work has not commenced	
b. No – the transitional arrangements should continue to apply to all building work on a development, irrespective of whether or not building work has commenced on individual buildings	
c. Unsure	
If no, please explain your reasoning and provide evidence to support this.	

Chapter 7. Feedback on the Impact Assessment

7.1 Building Regulations greatly influence how our buildings are constructed and used. As such, they help to deliver significant benefits to society. Regulation can also impose costs on both businesses and individuals. We have published an Impact Assessment which considers the costs and benefits of the proposed changes to the Building Regulations. The Impact Assessment is an important part of the consultation and consultees are encouraged to read the impact assessment and respond to the question below.

Question 34

The Impact Assessment makes an estimate of the impact of the individual proposals. Do you think these provide a fair assessment of the costs and benefits?	
a. Yes	
b. No	
c. Unsure	
If no agree, please provide evidence of reasonable costs and benefits.	