



Ministry of Housing,
Communities &
Local Government

The Future Homes and Buildings Standards: 2023 consultation on changes to Part 6, Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for dwellings and non-domestic buildings and seeking evidence on previous changes to Part O (overheating)

Summary of responses received and Government response



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March 2026

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Executive summary

The UK Government is committed to reaching net zero carbon emissions by 2050. Given the significant contribution that our homes and buildings make to national emissions, improving their energy efficiency is central to this ambition. While the challenges in reducing emissions from buildings are considerable, new-build is an area where meaningful progress can and must be made.

This document sets out the Government's response to the Future Homes and Buildings Standards consultation on proposed changes to energy efficiency and ventilation requirements for new homes and buildings set out in Part L (Conservation of fuel and power) and Part F (Ventilation) of Schedule 1 to the Building Regulations and to Approved Documents relating to Part L and Part F, as well as the call for evidence on Part O (Overheating). The consultation also included proposals relating to work to existing buildings, which are covered in this response where relevant.

At the same time as the publication of this document, regulations have been laid in Parliament which amend the Building Regulations 2010 and the Building (Registered Building Control Approvers etc.) (England) Regulations in order to implement the Future Homes and Buildings Standards. Updated Approved Documents, which provide the statutory guidance accompanying the Building Regulations, have also been published. The regulations and amended guidance will come into force on 24 March 2027, subject to transitional provisions.

The Future Homes and Buildings Standards will make sure that new homes and non-domestic buildings¹ are future-proofed with low carbon heating and high levels of energy efficiency. Homes and buildings constructed to these standards will not require retrofitting to become zero carbon in use once the electricity grid is fully decarbonised.

The following pages provide a top-level summary of the changes being made as a result of the FHBS consultation. For full details of the changes, the relevant chapter of the consultation response should be consulted, as well as the FHBS statutory instrument, explanatory memorandum, new Approved Documents and the approved calculation methodologies.

¹ In this document, references to "non-domestic buildings" mean building work covered by Approved Document L, Volume 2 (buildings other than dwellings). This includes non-dwelling parts of mixed-use buildings, where the ADL2 applies to those parts rather than to the whole building.

Chapter 3: Performance requirements for new buildings

We proposed different options for the overall performance requirements of the notional buildings for new dwellings and new non-domestic buildings.

- ✓ We have set the fabric and services for the dwelling notional building (for dwellings not connected to heat networks) as presented in Option 1 at consultation, but with a different approach for solar provision.
- ✓ For new dwellings (and buildings containing dwellings), we have created a new functional requirement for the provision of renewable electricity generation.
- ✓ We have set the non-domestic notional building to include the installation of photovoltaic panels equivalent to 40% of the actual building's foundational area for both top-lit and side-lit spaces.
- ✓ For dwellings connected to heat networks, compliance will be demonstrated using the heat network approach set out in Chapter 8, including comparison against a standardised 'low carbon heat network' notional building (for communal networks) and a revised sleeving route (for district networks).

Chapter 4: Metrics

We proposed continuing to use the same performance metrics to assess compliance with the Future Homes and Buildings Standards.

- ✓ We have confirmed that Target Emissions Rate, Target Primary Energy Rate and Fabric Energy Efficiency will continue to be used to set the performance requirements for new dwellings.
- ✓ We have confirmed that Target Emissions Rate and Target Primary Energy Rate will continue to be used to set the performance requirements for new non-domestic buildings.
- ✓ Voluntary delivered energy reporting via the BREL report, where the Home Energy Model is used, will increase awareness and use of this metric going forward.

Chapter 5: Updated guidance and minimum standards

We proposed amendments and additions to the guidance in the Approved Documents relating to minimum standards for the energy efficiency of both fabric and fixed building services for new dwellings and non-domestic buildings.

- ✓ We have updated the Approved Documents in line with consultation proposals (with minor amendments in some cases), including guidance on: minimum building services efficiencies and controls; heat pump controls; fixing operational and maintenance information to heat pumps; and insulation for building heat distribution systems.
- ✓ We have modified the proposed guidance on limiting heat loss from low carbon heating systems to provide greater clarity.
- ✓ We have revised the definition of fixed building services to include lifts, escalators and moving walkways in relation to new buildings (except new individual dwellings).
- ✓ We have not revised guidance on the sizing of hot water vessels or for dwellings and non-domestic buildings with low energy demand that are not exempt from the Building Regulations.

Chapter 6: Material Change of Use

We proposed illustrative ways of uplifting the standards for dwellings created through a Material Change of Use (MCU) to protect consumers from high bills and reduce emissions as far as practical, while capitalising on building work already being done.

- ✓ We have retained current limiting standards to ensure adequate level of performance and minimum standards of energy efficiency for MCU dwellings.
- ✓ We have updated guidance to help ensure Home User Guides are provided to MCU dwelling owners.
- ✓ We consulted on illustrative approaches to setting MCU energy efficiency standards, including potential whole-building and elemental standards, and in future we plan to undertake a further consultation on energy efficiency standards for dwellings created through MCU.

Chapter 7 Real-world performance of homes

We consulted on what more could be done to reduce the gap between expected and measured performance in new homes to build upon measures introduced through the 2021 uplift to Part L.

- ✓ We intend to publish a call for evidence and consider research on the energy performance gap and building performance evaluation.
- ✓ We have decided not to proceed with a Future Homes Standard brand.
- ✓ We have amended guidance on commissioning and installation of fixed building services in Approved Documents F and L, including clarifying the importance of following manufacturers' instructions for heat pump installations, on-site electricity storage systems, and highlighting the role of competent persons schemes when installing a heat pump or mechanical ventilation.
- ✓ We have not extended Regulation 42 (mechanical ventilation airflow testing) to work in existing buildings and have updated guidance on commissioning of hot water storage vessels.
- ✓ We have clarified routes for certifying fixed building services installations and set out available enforcement options where work does not meet the required standards.
- ✓ We have strengthened Home User Guide requirements and guidance, including through the introduction of Regulation 40C to support provision of information to homeowners in an appropriate format.

Chapter 8 Heat Networks

We consulted on how the Future Homes and Buildings Standards should apply to dwellings and buildings connected to heat networks.

- ✓ We have amended our approach to heat networks and outlined in the Approved Documents two routes for a new dwelling or building other than a dwelling (including mixed-use buildings) connected to a new or existing heat network to demonstrate compliance.
- ✓ Temporary heating solutions that are used before the building or dwelling is connected to a heat network will need to be low carbon.
- ✓ We will keep the Approved Documents under review and consider whether updates are needed to align with other relevant legislation impacting the carbon emissions of heat networks in future.

Chapter 9 Smart meters

We proposed referencing guidance on good practice to ensure smart meters can be installed and commissioned in domestic new builds in Approved Document L.

- ✓ The Government has published updated voluntary smart metering good practice guidance for developers, builders, architects and all those involved in the specification of metering locations in new buildings. Technical clarifications have been incorporated to address connectivity and placement issues.
- ✓ The scope of the guidance has been extended to cover all new buildings, not just new build dwellings. As such, the guidance has been referenced in both Approved Document Part L Volume 1: Dwellings and Volume 2: Buildings Other Than Dwellings as a document for recommended consideration.
- ✓ The Government will continue to monitor smart meter installation outcomes for new builds and re-evaluate the approach if necessary.

Chapter 10 Accounting for Exceptional Circumstances

We consulted on whether relaxations or exemptions should be allowed in exceptional circumstances where the Future Homes and Buildings Standards may not be achievable.

- ✓ We have decided not to permit relaxations or dispensations of Regulation 26 (CO² emission rates for new buildings) at this stage.
- ✓ The Government will continue to monitor the need for relaxations or dispensations and has consulted separately on proposals to support local authority building control capacity.

Chapter 11 Legislative changes to the energy efficiency requirements

We proposed legislative amendments to make sure the Building Regulations reflect the dual aims of reducing greenhouse gas emissions and conserving energy.

- ✓ We have amended Part L1 of Schedule 1 of the Building Regulations to require that reasonable provision be made for reducing greenhouse gas emissions (in addition to the conservation of fuel and power).
- ✓ We have not revoked Regulations 25A (consideration of high-efficiency alternative systems for new buildings) and 25B (nearly zero-energy requirements for new buildings) of the Building Regulations.

Chapter 12 A review of our approach to setting standards

We proposed adopting the new Home Energy Model to demonstrate compliance of new dwellings with the Future Homes Standard and consulted on the continued use of notional buildings and minimum standards.

- ✓ We have made available an updated version of the Standard Assessment Procedure (SAP) for housebuilders to use for compliance with the FHS, known as SAP 10.3. This will be available as an approved calculation methodology alongside launch of the FHS.
- ✓ We expect the new Home Energy Model to become an approved calculation methodology no earlier than 3 months after this consultation response is published and we will work closely with industry to give them advance notice. Once HEM is an approved calculation methodology, either HEM or the SAP 10.3 system can be used for compliance with the Future Homes Standard during this 'dual running' period. The dual running period should last for no less than 24 months from when HEM becomes available for use.
- ✓ HEM remains our methodology of choice for the future for new dwellings to show compliance with the Building Regulations, and we are committed to a smooth transition to HEM as the sole methodology at the earliest opportunity after the 24 months of dual running.
- ✓ We have retained the notional building approach for new dwellings, alongside targeted updates to improve how factors such as building fabric are accounted for in compliance calculations.
- ✓ We will carry out a comprehensive review in 2026 of the National Calculation Methodology used to demonstrate compliance with the Building Regulations for non-domestic buildings (including mixed-use buildings) and will keep other calculation methods under review as part of this work.

Chapter 13 Transitional arrangements

We consulted on the proposed timeline and transitional arrangements for implementing the Future Homes and Buildings Standards.

- ✓ We intend that the Future Homes and Buildings Standards will come into force on 24 March 2027, for non-higher-risk building (non-HRB) work followed by a 12-month transition period. For such building work to be completed to the previous version of Part L relevant documents will need to have been submitted to the relevant authority by 24 March 2027 and construction will need to commence on the relevant building by 24 March 2028 (unless other transitional provisions apply).
- ✓ We have set alternative arrangements for Higher-Risk Buildings (HRB). The amending regulations will come into force for Higher-Risk building work (including a stage of HRB work) or work to an existing HRB on 24 September 2027. A valid Gateway 2 application must have been submitted before that date for such work to be completed to 2021 version of Part L (the application must not have been rejected before that date or be rejected or lapse on or after that date).
- ✓ The 2013 transitional arrangements, which (together with the related 2021 transitional arrangements) allowed continued use of the 2010 version of Part L on some large sites are being changed so that to continue building any remaining dwellings or a particular building to the 2010 standards work must be started before 24 March 2028. This change will not apply to HRBs.
- ✓ Some other transitional arrangements will also apply, as outlined in Chapter 13.

Chapter 14 Part O

We sought views and evidence on Part O of the Building Regulations from housebuilders who had experience applying the new overheating requirement to real projects.

- ✓ The Building Safety Regulator is considering what can be done to address common issues highlighted in the call for evidence.
- ✓ The Government will proceed with a full technical review of Approved Document O.

Chapter 1 – Introduction

Net zero emissions and climate change

- 1.1 The Government remains committed to achieving net zero emissions by 2050. This goal is supported by a series of interim targets set out in successive Carbon Budgets, which chart a pathway to decarbonisation. In 2025, the Climate Change Committee recommended a reduction of emissions of 87% relative to 1990, by 2040, the middle year of the Seventh Carbon Budget period.² Improving the energy efficiency of new builds, and transitioning away from volatile fossil fuels to clean heat sources, is an important part of this.
- 1.2 While there are significant challenges in improving the energy efficiency of and reducing the carbon emissions from our buildings, this is a key area where we must make significant progress. In 2021, there was an uplift to Part L (Conservation of fuel and power) and Part F (Ventilation), which came into effect on 15 June 2022 (subject to transitional provisions). As a result, new dwellings and non-domestic buildings are now expected to produce significantly lower carbon emissions compared to those built to the 2013 standards. Part O was introduced at the same time, which sets out a new requirement to mitigate overheating risk in new residential buildings.
- 1.3 While the changes made in 2021 were a step in the right direction, further action is needed to accelerate progress towards achieving net zero by 2050. The Future Homes and Buildings Standards will therefore introduce more ambitious requirements for energy efficiency and heating in new dwellings and non-domestic buildings. Buildings constructed to these new standards will be designed to achieve zero carbon emissions in use as the electricity grid continues to decarbonise. Under the Future Homes Standard, dwellings are expected to have reduced running costs compared to the typical existing dwelling and, alongside previous improvements to ventilation and energy efficiency standards, will have reduced risk of damp and mould, excess cold and heat, and improved air quality.

Supporting the Government's Plan for Change

- 1.4 Alongside its environmental goals, the Government is committed to national growth and renewal, with a target to deliver 1.5 million new homes during this Parliament. This ambition is not only about increasing the number of homes, but about ensuring they are high-quality, affordable, and sustainable. The energy efficiency improvements outlined in this consultation response are central to achieving that vision.
- 1.5 These changes will ensure that new homes are built with low-carbon heating, high levels of energy efficiency, and, in most cases, solar panels. By improving building

² [Seventh Carbon Budget, Climate Change Committee \(2025\)](#)

performance and embracing innovation, we can cut carbon emissions, enhance climate resilience, and protect consumers from rising energy costs – while strengthening the UK’s energy security through clean, homegrown power.

Building Safety and the Grenfell Tower Inquiry Report

- 1.6 The Grenfell Tower Inquiry Phase 2 Report, published in September 2024, concluded that the tragedy that led to the entirely avoidable deaths of 72 innocent people was the result of a culmination of decades of failures by central government and by those in positions of responsibility within the construction industry. The Inquiry called for the government to learn from this tragedy and to prioritise the safety of residents in all aspects of building standards.
- 1.7 As the Future Homes and Building Standards have been developed, it has therefore been important to understand potential health and safety risks. We have considered numerous aspects relating to safety, such as the importance of ventilation and the risks of overheating, throughout our analysis of the consultation responses. Government will continue to keep the safety and standard of buildings under review.

Chapter 2 - Overview of consultation

- 2.1 The Future Homes and Buildings Standards consultation was published in December 2023, seeking views on plans for a further update to the energy efficiency requirements for new homes and buildings. The consultation closed in March 2024.
- 2.2 The minimum energy efficiency requirements for new homes and non-domestic buildings are set through Part L (conservation of fuel and power) of Schedule 1 (requirements) to the Building Regulations and Part 6 (energy efficiency requirements) of the Building Regulations. The consultation set out technical proposals for changes to the Building Regulations, the associated Approved Document guidance and calculation methods.

Consultation Responses

- 2.3 There was a high level of engagement with this consultation, and we would like to thank everyone that took the time to respond, often with detailed supporting evidence. All views submitted have been carefully considered as part of the analysis.
- 2.4 A total of 2,421 responses were received from a range of organisations, representative and trade bodies, industry professionals, academics and individuals. Responses were provided via Citizen Space, the platform on which the consultation was hosted, and by email. Eight email submissions were excluded as they fell entirely outside the scope of the consultation, meaning that 2,413 responses were included in the final analysis.
- 2.5 Table 1 provides a breakdown of responses by stakeholder type. Note that the totals do not directly match the number of individual responses, as some respondents did not specify a stakeholder category and those responding via the online survey were able to identify as belonging to more than one category.

Table 1 Number of consultation responses by type or organisation

Respondent Type	Number of responses
Member of the public	1747
Builder / Developer	63
Building Control Approved Inspector	4
Competent Persons Scheme Operator	7
Designer / Engineer / Surveyor	144
Architect	122

Energy sector	56
Installer / Specialist sub-contractor	28
Local Authority	64
Housing Association	26
Manufacturer / Supply chain	126
National representative or trade body	75
Professional body or institution	31
Property Management	10
Research / Academic organization	21
Other	86

2.6 A large number of email responses were identical and addressed only a small number of questions. To account for this, for each question, we have presented both the percentage of total responses and the percentage of respondents who answered that specific question. As a result, many questions show a high proportion of 'Unanswered' responses. These email responses have been fully considered in the analysis of the relevant questions.

2.7 This response provides a summary of the feedback received on the 95 consultation questions and sets out the Government's decision and next steps for each issue. The question numbers used throughout align with those in the original consultation document. Questions 1–6 are not included, as they relate to personal data.

Approved Documents

2.8 The finalised versions of Approved Document L, Volume 1: Dwellings; Approved Document L, Volume 2: Buildings other than dwellings and Approved Document F, Volume 1: Dwellings are available online through the following links:

Approved Document L, Volume 1 and Approved Document L, Volume 2:
<https://www.gov.uk/government/publications/approved-document-l-2026>

Approved Document F, Volume 1:
<https://www.gov.uk/government/publications/approved-document-f-2026>

- 2.9 The draft versions of Approved Document L, Volume 1: Dwellings; Approved Document L, Volume 2: Buildings other than dwellings; and Approved Document F, Volume 1: Dwellings which accompanied the consultation are still available online. These are for information only and should not be used for compliance purposes. They can be accessed through the following link:
<https://www.gov.uk/government/consultations/the-future-homes-and-buildings-standards-2023-consultation>

Timetable for implementation

- 2.10 At the same time as publishing this document, regulations have been laid in Parliament, which will amend the Building Regulations 2010 and the Building (Registered Building Control Approvers etc.) (England) Regulations 2024, which, along with new statutory guidance, will implement the Future Homes and Buildings Standards. There is a 12-month period before the new regulations and guidance come into effect (subject to transitional provisions), on 24 March 2027, for non-higher-risk building (HRB) work (and on 24 September for HRB work and work to existing HRBs) to allow industry time to prepare.
- 2.11 Further information on the transitional arrangements put in place to support this implementation timeline can be found in the Government response to Question 78, in Chapter 13 of this document.

Chapter 3 - Performance requirements for new buildings

- 3.1 The energy performance of buildings has an important contribution to make to meeting the government’s target of net zero emissions by 2050, and the way that homes and non-domestic buildings perform can also impact the energy bills occupants incur and the comfort they feel.
- 3.2 Through the Building Regulations, the government sets whole-building, minimum energy performance requirements. Performance requirements for new homes and non-domestic buildings are set using a notional building approach. We modelled different building specifications to produce the proposed notional buildings that we presented in the Future Homes and Building Standards consultation. The three major variables across these specifications were heat source, solar photovoltaic (PV) panels and fabric.

Question 7: Which option for the dwelling notional buildings (for dwellings not connected to heat networks) set out in The Future Homes Standard 2025: dwelling notional buildings for consultation do you prefer?

This question presented respondents with two options for the notional building specification for dwellings not connected to heat networks. Both options included a high efficiency air source heat pump and good fabric standards. Option 1 included solar PV panels, a wastewater heat recovery system, increased airtightness and a decentralised mechanical extract ventilation (dMEV) system. Option 2 did not include those elements. The consultation set out that Option 1 would lead to higher carbon and bill savings, but with a higher capital cost; while Option 2 would lead to lower additional build costs but be less beneficial in terms of consumer bills, although these would nonetheless be lower than bills in typical existing dwellings.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q7
Option 1	2196	91.0%	96.8%
Option 2	72	3.0%	3.2%
Not Answered	145	6.0%	-

Question 8: What are your priorities for the new specification? Please provide any additional comments to support your view on the notional building for dwellings not connected to heat networks.

This question allowed respondents to select multiple options. Of the 2413 total respondents, 1035 selected at least one option.

Response	Number of times selected	Percentage of responses to Q8 selecting this option
Low capital cost	167	16.1%
Lower bills	749	72.4%
Carbon savings	953	92.1%
Other	203	19.6%

Key themes:

- 3.3 The main point raised by respondents who preferred Option 1 was support for the inclusion of solar panels, with some comments that using available roof space might reduce the need to employ solar panels elsewhere.
- 3.4 Other common points raised by respondents who preferred Option 1 were the importance of reducing pressure on the national electricity grid (with some advocating for the inclusion of battery storage in the standards) and the importance of minimising energy bills. Respondents said that it is important to set high standards now to avoid retrofitting in the future and some felt that neither option is ambitious enough. Amongst those who felt the options were not ambitious enough, higher fabric standards were often suggested.
- 3.5 The most common concern raised by respondents who preferred Option 2 was that the proposed solar panel coverage in Option 1 is not achievable in practice for certain house or roof types e.g. houses with dormer windows. These concerns were predominantly raised by respondents who identified as builders/developers and manufacturing/supply chain. As part of this, some concerns were raised about the challenging impact of the notional building assuming south-facing solar panels.
- 3.6 Concerns were also raised about the capital costs of the proposed specifications, particularly Option 1, and the resulting impact on small housebuilders and on housing supply. Some respondents said that maintenance and replacement costs (particularly for solar panels) should be accounted for when assessing the cost of each option.
- 3.7 The importance of keeping the standards technology neutral and not focusing too heavily on air source heat pumps, was also raised.

Government Response to Q7 and Q8:

- 3.8 We have set the fabric and services for the dwelling notional building (for dwellings not connected to heat networks) as presented in Option 1 at consultation. We have taken a different approach for solar provision – but in such a way as to achieve broadly the same outcomes as intended by Option 1. This means that, compared to Option 2, dwellings built to the Future Homes Standard will have a higher capital cost, and also when compared to the cost of building to the current standards, but will aim to deliver greater bill and operational carbon savings.
- 3.9 As outlined elsewhere in this document, this notional building has been produced in formats suitable for both the Standard Assessment Procedure (SAP) and Home Energy Model (HEM) to accept. Providing a notional building for both models has necessitated a number of minor differences. In particular, whereas HEM is able to create a heat pump in the notional building, which is optimally sized to the dwelling, this functionality cannot readily be included in SAP. The heat pump used in the SAP notional building, therefore, is set with a coefficient of performance (COP) of 2.5 for all dwellings. The full specification for the Future Homes Standard notional buildings is contained in Appendix R of the SAP 10.3 specification, and in the HEM notional building specification documentation that will be published for HEM.
- 3.10 While the Government have decided to include solar in the Future Homes Standard, a different approach has been taken on solar than that presented in the original consultation. Instead, we plan to introduce a new legal requirement (subject to Limits on Application) to install a system for renewable electricity generation when a building, which is or contains a dwelling, is erected. The system can be installed on the building or within its curtilage. This system will need to be designed to enable generated electricity to be available for use by residents of the dwellings and to produce a reasonable output of electricity, taking into account the design of the building and its surroundings. This new requirement will be supported by Approved Document guidance setting out that the Secretary of State considers that the requirement will be met if solar panels to the equivalent area of 40% of each dwelling's ground floor area are installed (though it will be possible for other methods to be used). The guidance will also set out circumstances where a lower level of solar PV would still be sufficient to meet the requirement, taking account of the building's design and surroundings. This is because feedback to the consultation, and our further investigations, revealed that including solar PV panels in the notional building at the level suggested in consultation Option 1 would have been an impractical standard to meet in many situations and would, therefore, have either required substantial costly roof redesigns, or increased the demand for relaxations and dispensations, thereby undermining the aim to maximise solar generation overall.
- 3.11 A draft of the proposed new legal requirement text and Approved Document guidance was tested with stakeholders in a four-week survey that was shared with representatives from the development, solar, energy and sustainable construction industries.

- 3.12 Overall, respondents to this survey were supportive of the creation of the new functional requirement. There were, however, concerns raised – especially by developers and housebuilders – about the loss of design flexibility if solar PV were to be removed from the notional building and covered instead by the functional requirement.
- 3.13 Following the survey, and further engagement with industry on specific points of policy development, we have decided to adopt the new functional requirement (with some drafting changes e.g. to require the system to be installed on the building or within the boundaries of the curtilage of the building), subject to Limits on Application, and associated Approved Document guidance.
- 3.14 We agree, however, that a certain level of design flexibility should be retained, and the 40% coverage target in the Approved Document is not intended to result in the simplification of all roofscapes in order to maximise solar coverage. The Approved Document, therefore, gives examples of where architectural or design features might prevent 40% coverage being met and where, therefore, a lower percentage coverage is considered to be reasonable. This is supported by guidance on how to calculate the amount of solar PV coverage that can be installed on a roof accounting for various common design features.
- 3.15 Where reasonable amounts of renewable electricity cannot be generated by a system installed on the building, taking account of the building's design and surroundings, it will not be necessary for any solar panels (or other system for renewable energy generation) at all to be installed. The Approved Document guidance sets out that if 720kWh per year cannot be produced by solar panels installed on the available roof space, it will be appropriate for no solar panels to be installed. 720kWh per year is roughly equivalent to less than 2 PV panels.
- 3.16 We have decided to exempt buildings which have a storey at least 18m above ground level (as defined in the regulation) that contain one or more dwellings, an institution or a room used for residential purposes from this new functional requirement. In the consultation we proposed that buildings above 50m would be exempt. We have reduced the threshold to 18m to mirror the height threshold for Higher-Risk Buildings³ used as part of the Building Safety Regime. The exemption (or Limit on Application) applies to buildings that are 'relevant buildings' for the purpose of Regulation 7(4) of the Building Regulations 2010.
- 3.17 Survey feedback also raised concerns that the functional requirement would preclude all forms of 'microgrids'. We have included a limit on application so that the functional requirement will not apply in relation to a building where equivalent renewable electricity generation output is available to the building from a directly connected system for renewable electricity generation. This system must not be on or within the boundaries of the curtilage

³ Higher-Risk Buildings are buildings that are at least 18 metres in height or 7 storeys, contain at least 2 residential units, or are a care home or hospital.

of the building and designed to enable generated electricity to be available for use by residents of the dwellings.

Question 9: Which option for the dwelling notional buildings for dwellings connected to heat networks set out in The Future Homes Standard 2025: dwelling notional buildings for consultation do you prefer?

This question presented respondents with two options for the notional building specification for dwellings connected to heat networks. Both options had the same fabric standards, heat network emission standard, primary energy standard, and heat network. Option 1 included improved air tightness, wastewater heat recovery for multi-storey dwellings, mechanical ventilation, and high efficiency solar panels for buildings 15 storeys and below, while Option 2 did not. The consultation therefore set out that Option 1 would lead to higher carbon and bill savings, but with a higher capital cost, while Option 2 would lead to lower carbon savings, an increase in bill costs but a lower capital cost.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q9
Option 1	2155	89.3%	96.8%
Option 2	72	3.0%	3.2%
Not Answered	186	7.7%	-

Key themes:

- 3.18 As with Question 7, the main comment made by respondents who preferred Option 1 was an expression of their support for solar panels. Other key points raised by those who preferred Option 1 also mirrored those provided in response to Question 7, including that we must minimise energy bills and the pressure on the electricity grid, and that we must set high standards now to avoid the need to retrofit in the future.
- 3.19 Concerns raised by those who preferred Option 2 also mirrored the comments provided in response to Question 7, including that the proposed solar panel coverage may be difficult to achieve in some situations and that the proposed increase in capital costs may have negative impacts.
- 3.20 With regards to heat networks, some respondents felt that the standards (particularly the seasonal Coefficient Of Performance (COP)⁴ and heat losses) may not be possible to achieve in practice. However, other respondents said that the heat loss standards need to be more ambitious. Comments were made that other types of heat network and heat source should be considered, including 3rd generation heat networks, heat networks powered by waste heat,

⁴ The seasonal Coefficient of Performance (COP) is a measure of the efficiency of a heat source over a year. It is expressed as the ratio of useful heat delivered to the energy used to produce it, with a higher COP indicating a more efficient system.

and heat networks powered by ground source heat pumps. The importance of aligning with heat network zoning regulations and other heat network regulatory frameworks was also raised.

Government Response to Q9:

- 3.21 The approach to achieving compliance for heat networks, including ‘sleeving’ of heat networks, is described in Chapter 8. We have decided that a heat network notional building, as consulted on, remains appropriate to be used in circumstances where the sleeving route is not taken. We have not included solar PV in the notional building for heat networks and instead have adopted the same approach to renewable energy generation as for dwellings not connected to heat networks (see the Government response to Questions 7 and 8 for more details on the new functional requirement which we have introduced).

Question 10: Which option do you prefer for the proposed non-domestic notional buildings set out in the NCM modelling guide?

This question presented respondents with two options for the notional building specification for non-domestic buildings. Option 1 described a specification with solar PV panel coverage equivalent of 40% of the building’s foundation area for side-lit spaces and 75% for top-lit spaces. Option 2 described a specification with solar PV panel coverage equivalent to 20% of foundation area for side-lit spaces and 40% for top-lit spaces. Both options included good fabric standards, low carbon heating (a heat pump for side-lit spaces and radiant electric heating in top-lit spaces), enhanced efficacy of lighting and enhanced heat recovery efficiency.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q10
Option 1	2034	84.3%	97.9%
Option 2	44	1.8%	2.1%
Not Answered	335	13.9%	-

Question 11: What are your priorities for the new specification?

This question allowed respondents to select multiple options. Of the 2413 total respondents, 912 selected at least one option.

Option	Number of times selected	Percentage of responses to Q11 selecting this option
Low capital cost	109	12.0%
Lower bills	624	68.4%
Carbon savings	848	93.0%
Other	110	12.1%

Key themes:

- 3.22 Many respondents felt that the increased solar PV requirements of Option 1 were necessary to successfully reduce emissions, with some stating that using available roof space might reduce the need to employ solar panels elsewhere. A small number of respondents called for greater ambition than Option 1, suggesting both higher solar PV requirements and more demanding fabric performance standards.
- 3.23 When asked to suggest other priorities beyond low capital costs, lower bills, and carbon savings, many respondents highlighted occupant health, comfort, and safety. Examples included indoor air quality, natural light levels, damp and mould control, thermal comfort in both winter and summer, and fire safety.
- 3.24 Several respondents raised concerns about the technical feasibility of achieving the proposed level of solar PV coverage in Option 1. The most frequently cited issue was the challenge of installing solar panels on top-lit spaces while still accommodating essential roof features. These include safe access routes, space for maintenance, plant and equipment and the need for rooflights to provide natural daylight. Many felt that achieving 75% solar PV coverage under these conditions would not be practical.
- 3.25 This concern was shared by a range of stakeholders, including developers, roofing contractors, rooflight manufacturers, and representatives from the solar industry. Respondents emphasised the importance of rooflights, particularly in larger buildings, for supporting occupant health and comfort. They noted that removing or reducing rooflights to meet solar PV targets could lead to increased reliance on artificial lighting, raising energy costs that might not be fully offset by on-site generation.
- 3.26 To address these challenges, some respondents suggested introducing flexibility in how solar PV requirements are applied. This included allowing exemptions where rooflights or other necessary features reduce available roof

space, adopting a less prescriptive approach, or lowering the overall coverage requirement.

3.27 Other concerns about the proposed level of PV coverage in Option 1 included:

- Difficulties in securing connections from Distribution Network Operators (DNOs) could limit the feasibility of installing solar PV arrays on large non-domestic buildings.
- Clearer fire safety guidance should support the design and installation of solar systems, as large solar arrays and battery energy storage systems can pose risks to building occupants and responding firefighters.
- Meeting both Biodiversity Net Gain (BNG) requirements and high levels of solar PV coverage could be unachievable on-site, potentially forcing reliance on costly off-site BNG offsets.
- The increased build costs associated with the proposed PV levels could affect the financial viability of mixed-use developments. This was seen as particularly challenging for schemes including care homes or schools.
- Buildings with limited solar exposure should not be forced to meet the same PV targets.
- Concerns were raised about how solar PV requirements would apply to buildings with both domestic and non-domestic uses, such as blocks of flats with ground-floor commercial units or retirement housing with communal facilities.
- It was noted that non-domestic buildings vary widely in form and function, and therefore PV requirements should be informed by viability assessments across different building archetypes.

Government Response to Q10 and Q11:

3.28 We have set the notional building to include solar PV panels equivalent to 40% of the actual building's foundation area for both top-lit and side-lit spaces for non-domestic buildings. For side-lit spaces, this is the level that was proposed in Option 1 at consultation. For top-lit spaces, this is the level that was proposed in Option 2.

3.29 Exceptions are provided for unheated buildings with low or no electricity consumption, since they would be unable to benefit from electricity generated from PV panels, and for certain buildings which are at least 18 metres in height – those which are “relevant buildings” for the purpose of regulation 7(4) of the Building Regulations 2010 since there may be a conflict with the required safety assessment for electrical installations. The exclusion of PV panels from the notional building for these two building types does not prohibit the installation of PV panels if they are technically feasible and can be installed safely, and a developer chooses to do so. We also note feedback on the importance of fire safety considerations for larger solar installations and battery energy storage systems, and expect designers and installers to ensure

systems are specified and installed safely in line with relevant requirements and guidance.

- 3.30 The lower PV expectation for top-lit buildings has been chosen to address the concerns raised by consultees around the physical requirements for rooflights and safe maintenance access. Furthermore, having a standard level of PV coverage across all non-domestic buildings (both top-lit and side-lit) provides clarity for building designers and building control officers. Building Regulations do not prohibit the installation of a higher level of PV panels than the notional building includes, provided it is technically feasible in the individual circumstance, can be safely installed and the developer chooses to do so.
- 3.31 The PV coverage for top-lit buildings matches the PV coverage in the notional building in the 2021 version of Part L. However, stakeholder feedback has indicated the level of PV coverage installed under the 2021 standards is often lower than that of the notional building, as developers often choose to reduce the PV coverage and compensate by installing a higher performing heating source (e.g. heat pump rather than gas boiler). The Future Buildings Standard will require low carbon heating sources to be used regardless of PV coverage, meaning that we expect to see an increase in PV installations compared to top-lit buildings constructed to the 2021 standards.
- 3.32 The notional building approach will still retain some level of flexibility, however. Alternative forms of renewable electricity generation can be installed, or energy savings (for example, through improved fabric performance or more efficient building services) can be balanced against the generation estimated for PV panels. In the case of buildings where there are physical limits as to the amount of panels that can be installed on a roof or where adjustments need to be made in view of excess generation, this flexibility will generally allow building designers to reduce PV coverage where required, while still complying with the requirements of the notional building.

Chapter 3: Summary

We proposed different options for the overall performance requirements of the notional buildings for new dwellings and new non-domestic buildings.

- ✓ We have set the fabric and services for the dwelling notional building (for dwellings not connected to heat networks) as presented in Option 1 at consultation. We have taken a different approach for solar provision.
- ✓ We have created a new functional requirement for the provision of renewable electricity generation on new dwellings.
- ✓ We have set the non-domestic notional building to include the installation of photovoltaic panels equivalent to 40% of the actual building's foundational area for both top-lit and side-lit spaces.
- ✓ For dwellings connected to heat networks, compliance will be demonstrated using the heat network approach set out in Chapter 8, including comparison against a standardised 'low carbon heat network' notional building (for communal networks) and a revised sleeving route (for district networks). We have set the fabric and services for the dwelling notional building (for dwellings not connected to heat networks) as presented in Option 1 at consultation, but with a different approach for solar provision.

Chapter 4 – Metrics

- 4.1 Currently, performance requirements for individual homes and non-domestic buildings are set using a combination of complementary metrics. For homes, these metrics are the Target Emission Rate (TER), target primary energy rate (TPER) and fabric energy efficiency (FEE). For non-domestic buildings, the metrics used are the TER and TPER.
- 4.2 In the consultation, 5 policy outcomes were proposed for the metrics used for the Future Homes and Future Buildings Standards. In order of priority, these were:
- 1) **Protect occupants** against high energy bills.
 - 2) **Reduce energy demand of homes** and non-domestic buildings by requiring high performing building fabric and building services in new buildings, thereby improving energy security.
 - 3) **Reduce total operational carbon emissions and produce net-zero ready buildings** by requiring low-carbon heating and increasing general electrification of buildings.
 - 4) **Are simple to understand and use by industry and provide developers with flexibility** in meeting consumer preference regarding design, form and operation. Our primary audience for these metrics is building control bodies, developers and system designers. We do not intend for these metrics to be used by home buyers, occupants or landlords, where other metrics such as those used by Energy Performance Certificates (EPCs) may be more appropriate.
 - 5) **Consider peak electricity demand** to reduce costs associated with national and local grid infrastructure upgrades.

Question 12: Do you agree that the metrics suggested above (TER, TPER and FEE) be used to set performance requirements for the Future Homes and Buildings Standards?

This question sought views on the most appropriate metrics for assessing building performance under the Future Homes and Buildings Standards. Respondents were asked whether the existing metrics (TER, TPER, FEE) should be retained or whether alternative approaches, such as delivered energy, would provide a more effective means of measuring energy efficiency.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q12
Yes	343	14.2%	42.6%
Yes, and I want to provide views on the suitability of these metrics and/or their alternatives.	112	4.6%	13.9%
No, I think delivered energy should be used.	279	11.6%	34.6%
No, I think FEE should be changed.	10	0.4%	1.2%
No, for another reason.	62	2.6%	7.7%
Not Answered	1607	66.6%	-

Key themes:

- 4.3 There were mixed views amongst respondents. Of those who supported the retention of the existing metrics, many noted their familiarity with the current system and its alignment with established industry practices. They viewed the existing metrics as effective in guiding building performance assessments and meeting regulatory requirements.
- 4.4 However, some respondents expressed a preference for delivered energy. This alternative was seen by some as providing a clearer and more direct measure of energy consumption, reflecting the energy actually delivered to buildings and consumed by end-users. It was argued that this metric better aligns with real-world performance and could drive more targeted energy efficiency improvements.
- 4.5 Some respondents suggested that other adjustments to the current framework, such as amendments to the FEE metric, could address some of the concerns raised while retaining the broader structure of the existing approach. Common suggestions included expressing FEE as an absolute target based on space heating demand, rather than a comparison to a notional building. Others

proposed that the FEE metric should include an estimate for unregulated energy use, or that it should better reflect the benefits of modern ventilation systems. These changes were suggested as ways to improve clarity, comparability, and alignment with real-world building performance.

Government Response to Q12

- 4.6 We have decided to retain the existing metrics (TER, TPER and FEE) for setting performance requirements under the Future Homes and Buildings Standards. These metrics are well-established, align with industry practices, and are already embedded in our approved calculation methodologies.
- 4.7 Following feedback from the consultation, we have also decided to introduce delivered energy as a voluntary reporting metric for new dwellings. Housebuilders will be able to choose if they wish for the delivered energy of their dwelling to be captured in the dwelling's Building Regulations England Part L (BREL) report. This voluntary approach will allow new homeowners to see this data on their BREL and increase awareness of the metric and how much energy a new house may reasonably be expected to use without imposing further compliance obligations at this stage.
- 4.8 This approach balances the benefits of the established metrics with some of the advantages of delivered energy. Retaining TER, TPER, and FEE ensures continuity, alignment with existing calculation methodologies, and minimal disruption for industry, whilst allowing those who wish to start using delivered energy as a voluntary reporting metric too.

Chapter 4: Summary

We proposed continuing to use the same performance metrics to assess compliance with the Future Homes and Buildings Standards.

- ✓ We have confirmed that Target Emissions Rate, Target Primary Energy Rate and Fabric Energy Efficiency will continue to be used to set the performance requirements for new dwellings.
- ✓ We have confirmed that Target Emissions Rate and Target Primary Energy Rate will continue to be used to set the performance requirements for new non-domestic buildings.
- ✓ Voluntary delivered energy reporting via the BREL report, where the Home Energy Model is used, will increase awareness and use of this metric going forward.

Chapter 5 - Updated guidance and minimum standards

- 5.1 In addition to setting whole-building performance requirements, the Approved Documents include additional guidance for the energy efficiency of both fabric and fixed building services. This additional guidance helps secure delivery of the performance requirements in practice, by including minimum standards for individual elements of the building and building services.
- 5.2 Alongside the consultation, we published a draft Approved Document L, Volume 1: Dwellings and a draft Approved Document L, Volume 2: Buildings other than dwellings that outlined proposed changes to this guidance. We sought feedback on this updated guidance.

Question 13: Do you agree with the proposed changes to minimum building services efficiencies and controls set out in Section 6 of draft Approved Document L, Volume 1: Dwellings?

This question sought feedback on changes to standards relating to building services. These included an uplift in minimum standards for mechanical ventilation systems and comfort cooling, and alignment of minimum standards for heat pumps with Ecodesign standards. Other changes included uplifts to the minimum efficacy standards for lighting.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q13
Yes	448	18.6%	71.5%
Yes, and I want to provide additional suggestions or information to support my view.	86	3.6%	13.7%
No	93	3.9%	14.8%
Not Answered	1786	74.0%	-

Key themes:

- 5.3 Some respondents supported the proposed minimum services standards, but others advocated higher Coefficient of Performance (COP) standards for heat pump technologies, and integration with other heat-generating technologies.
- 5.4 Specific concerns were also raised that the proposed maximum Specific Fan Powers (SFP) for distributed mechanical ventilation systems were set too low. Respondents thought that they may be very challenging to achieve or have

other negative impacts such as on acoustic performance. Likewise, concerns were raised that the Seasonal Energy Efficiency Ratio (SEER) for comfort cooling was set at an unrealistic level.

- 5.5 Changes to lighting standards were supported by many respondents, although some felt they could be extended further. Suggestions were made that specialist and innovative lighting may struggle to meet the proposed standard, highlighting the need to make allowance for innovative types of lighting technologies (as already included in Approved Document L2).

Government Response to Q13

- 5.6 We acknowledge the desire to set high heat pump standards, and that some heat pumps on the market can achieve better performances than those outlined in Table 6.1 of the version of Approved Document L1 published at consultation. However, we continue to believe the guidance presented at consultation appropriately describes the expected minimum standards for evidencing compliance with Part L. No changes to the standards in Table 5.1 have been made following consultation.
- 5.7 We accept the concerns raised about the guidance on the performance levels for distributed mechanical ventilation systems, and for comfort cooling. The performance levels described in guidance for demonstrating compliance have been revised. The maximum SFP for continuous dMEV systems has been raised to 3.5 W/l.s (in Table 5.4) and the minimum SEER for comfort cooling has been lowered to 4.6.
- 5.8 We also recognise the need to make provision for innovative temperature light sources, and text has been added to the guidance on the performance level for high excitation purity sources and tuneable LED devices (to align with text in Approved Document L2).

Question 14: Do you agree with the proposal to include additional guidance around heat pump controls for homes, as set out in Section 6 of draft Approved Document L, Volume 1: Dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q14
Yes	524	21.7%	81.6%
Yes, and I want to provide additional suggestions or information to support my view.	82	3.4%	12.8%
No	36	1.5%	5.6%
Not Answered	1771	73.4%	-

Key themes:

- 5.9 The guidance in the consultation-stage draft of Approved Document L1 provided additional recommendations for controls, including how manufacturer and third-party controls interact. There were some specific responses to simplify and clarify the language in Table 6.2 relating to the interaction between original and third-party controls.
- 5.10 The majority of respondents agreed with the proposed additional guidance, but a small number of respondents expressed concerns, particularly in relation to smart controls:
- Some respondents emphasised that controls should be suitable for all users and set at a level which was not dependent on smartphone or internet access. Other respondents were keen for this smartphone or internet access to be set in minimum standards. Others queried whether the specifics of heating controls should be set within the Approved Documents at all, given that it is an area of rapid technological change.
 - Smart controls were considered by some respondents to not deliver genuine energy savings, and some stated that savings should be sought from other aspects of the dwelling (e.g. fabric improvements).

Government Response to Q14

- 5.11 We have retained the additional guidance proposed in the consultation, with a minor change to the wording in Table 6.2 relating to additional heat pump controls, to clarify how additional controls should act to enhance functionality without reducing the capabilities of the original equipment manufacturer controls. In reaching this decision, we considered concerns about controls being suitable for all users, including views about reliance on smartphone or internet access. The guidance is intended to provide additional recommendations on how manufacturer and third-party controls interact and does not seek to prescribe specific technologies or interfaces.
- 5.12 While we acknowledge that a small number of concerns were expressed about the suitability of smart controls, these views represented a small minority of responses and were sometimes in conflict with one another. For example, some respondents advocated for controls that operate independently of smartphones, while others supported standards that rely on smartphone integration. Having considered these views, we have retained the proposed guidance, including because it supports clarity on how manufacturer and third-party controls should interact and helps to ensure that additional controls do not reduce the capabilities of original equipment manufacturer controls. This approach is also consistent with the majority view in favour of retaining the proposed guidance.

Question 15: Do you agree that operating and maintenance information should be fixed to heat pump units in new homes?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q15
Yes	531	22.0%	76.8%
Yes, and I want to provide additional suggestions or information to support my view.	118	4.9%	17.1%
No	42	1.7%	6.1%
Not Answered	1722	71.4%	-

Question 16: Do you think that the operating and maintenance information set out in Section 10 of draft Approved Document L, Volume 1: Dwellings is sufficient to ensure that heat pumps are operated and maintained correctly?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q16
Yes	371	15.4%	38.9%
Yes, and I want to provide additional suggestions or information to support my view.	65	2.7%	6.8%
No	517	21.4%	54.2%
Not Answered	1460	60.5%	-

Key themes:

- 5.13 There was a general consensus that operating and maintenance information should be fixed to heat pump units in new homes. This information should be simple and understandable to those with no technical knowledge. It was felt that this is important because heat pumps are a novel technology that marks a shift away from traditional heating systems with which homeowners may be familiar.
- 5.14 Respondents warned that affixing instructions directly to the heat pump may be impractical and create accessibility issues if a homeowner cannot physically reach their heat pump. It was suggested that instructions should be available online (via QR code or web address) or included in the Home User Guide.

- 5.15 Some responses highlighted that vulnerable occupants may need greater support to use and operate heating systems effectively and tailored support should be available.
- 5.16 54.2% of respondents to Question 16 indicate that they do not believe that the operating and maintenance information set out in the draft Approved Document is adequate. Many of these responses raise concerns that are beyond the scope of the question, and instead address wider systemic issues surrounding heat pumps, such as issues with public education, the skill level of installing technicians, digital integration and support, and financial and operational concerns.

Government Response to Q15 and Q16

- 5.17 We have chosen to proceed with the proposal to fix operational and maintenance information to heat pumps. We recognise that additional methods of providing information (e.g. online) may be suitable for some users, but consider that provision of a physical document represents the most appropriate and accessible format for providing this information. A physical document provided on or with the unit guarantees that basic operation and maintenance information is always present, regardless of internet connectivity, digital literacy, or technology access. We also recognise concerns that affixing information directly to a heat pump may be impractical in some cases, including where the unit is not easily reachable. The guidance will therefore support information being provided in a way that is visible and accessible to occupants, with the Home User Guide acting as a secondary reference point. We have also considered views that some occupants, including vulnerable users, may need additional support to operate heating systems effectively. While the Approved Document guidance sets out the information that should be provided, we expect installers and suppliers to present this information in a clear and usable way for occupants and, where appropriate, to signpost users to further help and support. Overall, we consider that a physical format provides a clear and reliable baseline that is available to all occupants.
- 5.18 Operational and maintenance information for heat pumps is also included in the Home User Guide, which is a physical document already used and accessible to homeowners. This document offers a secondary reference point and reduces any risk of inaccessibility due to equipment location.

Question 17: Do you agree with the proposed changes to Section 4 of draft Approved Document L, Volume 1: Dwellings, designed to limit heat loss from low carbon heating systems?

This question sought feedback on our proposal to add guidance on pipework insulation, Heat Interface Units and the placement of heat pumps, and introduce new minimum standards for hot water storage vessel insulation.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q17
Yes	412	17.1%	74.8%
Yes, and I want to provide additional suggestions or information to support my view.	62	2.6%	11.3%
No	77	3.2%	14.0%
Not Answered	1862	77.2%	-

Key themes:

- 5.19 Some respondents welcomed the proposed additional guidance, but some respondents pushed for more stringent minimum standards for heat losses and better alignment with other 3rd party standards, including the Passivhaus standard. These suggestions included raising fabric standards other than those associated with low-carbon heating systems.
- 5.20 Specific concerns were raised that the proposed minimum U-value for floor coverings was inappropriate and would preclude some suitable floor coverings and restrict design flexibility. It was argued that designs could effectively provide heat with a variety of different floor coverings, including those with higher thermal transmittance than proposed in the consultation.
- 5.21 Other concerns included that the proposed insulation requirements would cause practical problems with placement of pipes and ducts and may lead to longer pipe-runs. The necessity of this insulation within the heated envelope was also specifically questioned.
- 5.22 Many respondents welcomed the proposed standards for cylinder insulation, but others questioned their suitability. It was argued that excessive insulation standards may be counter-productive in some circumstances and would cause practical issues with installation of excessively large cylinders.
- 5.23 Concerns were also raised that the recommended minimum distances for the installation of heat pumps may conflict with some safety requirements.

Government Response to Q17

- 5.24 We have modified some of our proposals following the comments made and the evidence provided in the consultation.
- 5.25 There was evidence from the consultation that the proposed guidance for pipework insulation had been misinterpreted. The guidance has been clarified, to remove some repetition and ambiguity.
- 5.26 We accept the concerns raised about hot water cylinder insulation, including allowing flexibility to install where space is constrained, and have decided not to change the expected standards from those included in the 2021 Approved Document. The cylinder insulation in the notional building is set at a higher level than the originally proposed minimum standards, and we believe these, combined with Ecodesign product standards, will provide sufficiently high-performing cylinders. We have added some additional text to the Approved Document highlighting that overheating risks may be reduced by using enhanced cylinder insulation.
- 5.27 To maintain design flexibility, the wording around the performance of floor coverings, as used in conjunction with underfloor heating systems, has been modified and now indicates that the overall design needs to take account of the thermal resistance of the floor covering, rather than setting a specific U-value. Third party guidance is also referenced.
- 5.28 Wording around heat pump distance has also been amended to reflect concerns raised through the consultation.

Question 18: Do you agree with the proposed sizing methodology for hot water storage vessels for new homes?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q18
Yes	352	14.6%	74.4%
Yes, and I want to provide additional suggestions or information to support my view.	45	1.9%	9.5%
No	76	3.1%	16.1%
Not Answered	1940	80.4%	-

Key themes:

- 5.29 Approved Document L1 proposed a methodology for sizing of hot water storage vessels and invited comments on the suitability of these methods. While 83.9% of respondents to this question answered “Yes” these were often provided with

caveats, which were wide-ranging and complex. This indicated strong support for a change of some description to the proposed sizing methodology, but it does not entirely indicate agreement with the proposed changes outlined in the consultation.

- 5.30 Some respondents recognised that traditional hot water storage systems are oversized, leading to unnecessary energy usage, which could be mitigated by optimised sizing and leveraging renewable sources like solar power.
- 5.31 Others emphasised the use of solar thermal and heat pump technologies to reduce reliance on conventional energy sources, advocating for systems that include automatic controls for periodic pasteurisation to manage legionella risks without constant high-temperature maintenance.
- 5.32 Other responses highlighted innovations such as thermal batteries over traditional water tanks due to their superior heat retention.
- 5.33 A variety of concerns were raised relating to the proposed guidance for sizing of hot water vessels. These included:
- That the guidance was too prescriptive, and prevented flexibility to account for known occupancy
 - That the proposed guidance was not suitable for some types of system
 - That the basis of guidance relied on outdated assumptions from BS 8588
 - That the temperature and reheat times used within the method proposed in the Approved Document were inappropriate

Government Response to Q18

- 5.34 Following consultation, we understand that while most respondents agreed with the proposed changes in principle, many of the respondents who selected “Yes” in the consultation did so with caveats, and the concerns that were raised were significant. We appreciate all responses provided to this question, which have helped to shape our understanding and will continue to inform the path forward in this area. The lack of a clear consensus, in combination with a range of concerns in relation to the new proposals, means that we have decided not to proceed with the proposed revision to guidance on sizing of hot water vessels for new dwellings. The guidance remains as included in the 2021 version of Approved Document L1 with minor drafting changes only.

Question 19: Do you agree with the proposed changes to minimum building services efficiencies and controls set out in Section 6 of draft Approved Document L, Volume 2: Buildings other than dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q19
Yes	396	16.4%	86.5%
Yes, and I want to provide additional suggestions or information to support my view.	36	1.5%	7.9%
No	26	1.1%	5.7%
Not Answered	1955	81.0%	-

Key themes:

- 5.35 Respondents emphasised the need for dynamic regulation that keeps pace with innovation, suggesting that regulations should take a technology-agnostic approach. This would avoid unintentionally favouring specific types of technology, for example, particular heat pump technologies.
- 5.36 Many respondents highlighted the importance of simple and clear guidance on new standards, suggesting that complex language is inaccessible and acts as a barrier to effective implementation and compliance.
- 5.37 Some respondents expressed concern that the new standards were not sufficiently comprehensive or ambitious enough. Specifically, suggesting that the omission of some newer or rarer technologies could lead to regulatory gaps and miss opportunities to encourage significant advancements in energy efficiency.
- 5.38 Respondents stressed the importance of integrating various service systems through effective controls that do not compromise each other's functionality. The use of Building Automation and Control Systems (BACS) was highlighted as essential for managing building efficiency comprehensively.
- 5.39 Respondents raised concerns over the economic feasibility of implementing the proposed changes, highlighting that the extent of energy savings needed to outweigh the potential cost to the end-user of implementing the new systems.
- 5.40 A small number of respondents suggested that the proposed lighting efficacy standards were inappropriate, being both technically outdated and potentially having the unintended impact of causing high blue-light levels that are harmful to occupier health and the local ecology.

Government Response to Q19

- 5.41 We have generally proceeded with the proposed changes to minimum building services efficiencies and controls with minor amendments to some areas to reflect the feedback received in the consultation.
- 5.42 We have updated the guidance on heat pump controls to clarify how additional controls should act to enhance functionality without reducing the capabilities of the original equipment manufacturer controls.
- 5.43 We have amended the guidance on minimum building services efficiencies and controls to reflect that boilers and Combined Heat and Power (CHP) systems are unlikely to be present in new buildings, given the guidance on carbon intensity of fuel used for heat.
- 5.44 We have updated the guidance on lighting controls for internal lighting in hotel bedrooms to better reflect industry best practice, removing reference to timer switches.
- 5.45 Following the close of the consultation, we engaged with key stakeholders in the lighting industry to address concerns about technical feasibility and potential impacts on health and ecology. As a result of this, we have revised the proposed minimum standards to set them at a level that ensures standards remain practical while supporting innovation. These revised standards provide reassurance for industry and maintain a balance between energy efficiency, ecology, product diversity, and user health considerations.
- 5.46 We have amended the energy efficiency classes for lifts to reflect the range of lift types and uses.

Question 20: Do you agree with the proposed guidance on the insulation standard for building heat distribution systems in Approved Document L, Volume 2: Buildings other than dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q20
Yes	401	16.6%	88.9%
Yes, and I want to provide additional suggestions or information to support my view.	24	1.0%	5.3%
No	26	1.1%	5.8%
Not Answered	1962	81.3%	-

Key themes:

- 5.47 Respondents expressed a desire for more rigorous standards, particularly better U-values and increased thickness, and more comprehensive coverage to ensure the inclusion of previously overlooked aspects, such as valves and fittings.
- 5.48 A few respondents criticised the ambiguity of making generic references to BS 5422:2023 and, instead, called for references to specific tables to avoid potential confusion.
- 5.49 Respondents indicated a preference for aligning the new standards with existing industry standards for the purposes of simplicity and consistency.
- 5.50 Many respondents highlighted the need for stringent enforcement of the standards, particularly with respect to insulation, with some suggesting in-use testing and legislation to mandate compliance as solutions.
- 5.51 Some respondents highlighted that regulations which focus disproportionately on energy efficiency and carbon reduction may compromise indoor air quality, suggesting that the two considerations need to be balanced to not impact occupier health.
- 5.52 Respondents raised concerns about the environmental impact and safety of insulation materials, advocating for regulations to encourage the use of non-toxic and recyclable materials.

Government Response to Q20

- 5.53 We have proceeded with the guidance on the insulation standard for building heat distribution systems proposed in the consultation, including referencing BS 5422:2023. We consider this provides an appropriate approach that is aligned with established industry practice and supports consistency for designers and installers. We also note feedback on the need for comprehensive coverage, including components such as valves and fittings, and the desire for greater clarity in how the guidance should be applied. We will continue to review the information provided within Approved Document L, Volume 2: Buildings other than dwellings, including whether further clarification is needed to support effective application and compliance.
- 5.54 We recognise concerns about ensuring that measures to improve energy efficiency and reduce carbon emissions do not compromise indoor air quality. Guidance on air quality and ventilation requirements is provided within Approved Document F, Volume 2: Buildings other than dwellings, and should be considered alongside the Part L guidance when designing and installing building services.

Question 21: Do you agree that the current guidance for buildings with low energy demand which are not exempt from the Building Regulations, as described in Approved Document L, Volume 2: Buildings other than dwellings should be retained without amendment?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q21
Yes	352	14.6%	84.8%
Yes, and I want to provide additional suggestions or information to support my view.	17	0.7%	4.1%
No	46	1.9%	11.1%
Not Answered	1998	82.8%	-

Key themes:

- 5.55 Many respondents agreed with the proposal and did not provide additional comments. Some respondents stated that all buildings, even those with low energy demand, should meet the required energy efficiency standards and be equipped with fossil-fuel free heating.
- 5.56 There was also some concern expressed that buildings with low energy demand may be converted for higher energy demand use in the future. While some respondents suggested this as a reason why no buildings should be exempt, others suggested there should be greater control and oversight over conversions to ensure energy efficiency standards are improved when this change of use occurs.
- 5.57 In addition to these general concerns, some respondents requested more specific guidance for the following:
- More guidance on what constitutes as a low energy building, such as a definition with thresholds and methods for assessing whether thresholds are met.
 - Clarification on how guidance applies to spaces inside buildings that fit into this definition, and advice on modelling these exempt areas.
 - Guidance on where developers may use this section as a loophole to avoid compliance, and how to prevent this.
 - There should be greater oversight of this process with no automatic exemptions. Building Control should be presented with justification of why the standards should not be met on a case-by-case basis.

Government Response to Q21

5.58 We appreciate the feedback highlighting the need for clear definitions, oversight, and safeguards against misuse of exemptions. After careful consideration, we have decided to retain the existing guidance for buildings with low energy demand which are not exempt from the Building Regulations without amendment.

5.59 We consider that the current guidance remains proportionate for buildings with genuinely low regulated energy use, while ensuring that the relevant requirements continue to be met where Part L applies. We note the feedback for clearer definitions and thresholds, greater clarity on how the guidance applies to relevant spaces within buildings and how these should be modelled, and safeguards against misuse. We also recognise concerns about future changes of use to higher energy demand, and where a building is subsequently altered or undergoes a material change of use, the relevant Building Regulations requirements will apply to the work being carried out.

Question 22: Do you agree that lifts, escalators and moving walkways in new buildings (but not when installed withing a dwelling) should be included in the definition of fixed building services?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q21
Yes	425	17.6%	91.2%
Yes, and I want to provide additional suggestions or information to support my view.	25	1.0%	5.4%
No	16	0.7%	3.4%
Not Answered	1947	80.7%	-

Question 23: Do you agree with the proposed guidance for passenger lifts, escalators and moving walkways in draft Approved Document L, Volume 2: Buildings other than dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q21
Yes	337	14.0%	90.1%
Yes, and I want to provide additional suggestions or information to support my view.	21	0.9%	5.6%
No	16	0.7%	4.3%
Not Answered	2039	84.5%	-

Key themes:

- 5.60 Only a small number of respondents disagreed with the proposal for lifts, escalators and moving walkways in new buildings to be included in the definition of fixed building services. These respondents argued that the proposal was not necessary or was impractical. For example, these installations may be too specialist for building control inspectors to test for compliance.
- 5.61 Of the respondents who supported this proposal, a number of qualifying points were raised:
- There should be recognised activity types within the NCM so that lifts, escalators and moving walkways can be properly accounted for within compliance calculations.
 - Other non-regulated loads should also be included. Examples of this included swimming pools; saunas/steam rooms/spas; fire suppression systems; commercial catering; and wine cellars.
 - More consideration is needed to make sure fire safety is not compromised. The definition of a passenger lift that specifically excludes firefighting lifts needs to be clarified to make sure that any lift intended to be used by firefighters is exempt. Furthermore, the guidance must clarify whether evacuation lifts would fall under this definition and, if so, precautions must be taken to avoid a detrimental effect on the performance of provisions intended for fire safety.
 - Care needs to be taken not to negatively affect lifts that are used for disabled access. There was a suggestion that disabled access lifts that are used infrequently should be exempt. Detailed guidance was requested on this.
 - There was a suggestion that this proposal should also apply to new lifts being installed in existing shafts/buildings, or where lifts are being modernised.

- 5.62 In response to Q23, a number of specific concerns regarding the proposed guidance were raised:
- The definition of a lift should mirror that in the Lifts Regulations and Machinery Regulations.
 - The weight limit of 2000kg should be re-considered. Respondents felt that the guidance should not be limited to passenger lifts below 2000kg as other lifts also consume energy and need regulating. Test procedures for lifts with a maximum load greater than 2000kg should be provided.
 - Several respondents felt that the requirements were too challenging, in particular the following: class A efficiency for passenger lifts <2000kg; class A+ efficiency for all escalators and moving walkways; and 105 luminaire lumens per circuit watt for average light source efficacy. It was suggested that alternative standards should be provided for hydraulic lifts, and lifts with relatively low usage.
 - Landing lighting should be illuminated when a lift arrives at an unoccupied landing level, either through the lift control circuits or by 'presence detection' as the lift doors open.
 - There should be practical examples of the types of documents that building control should request to verify compliance.
 - There should be clarification of whether lift companies can continue to have test data certified by a notified body over a UKAS accredited body.

Government Response to Q22 and Q23:

- 5.63 We have decided to proceed with the revision to the definition of fixed building services to bring lifts, escalators and moving walkways into scope of the regulations.
- 5.64 The standards proposed in Approved Document L2 have been revised to allow for an Energy Efficiency Rating of B for passenger lifts (which will primarily be hydraulic lifts) travelling less than 25m or at speeds of less than 1.6m/s. The proposed standard of A is retained for other lifts.
- 5.65 The proposed standard for commissioning will not be progressed, as it is considered disproportionate for minimum standards in the Approved Documents following consultation. The existing guidance on commissioning of fixed building services, and provision of information will, however, now apply to lifts, escalators and moving walkways.
- 5.66 Guidance has also been simplified and clarified following consultation feedback.
- 5.67 The definition of passenger lift has also been aligned with other pre-existing standards and excludes evacuation lifts and lifts for use by firefighters.

Question 24: Do you have any further comments on any other changes to the proposed guidance in draft Approved Document L, Volume 2: Buildings other than dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q24
Yes	97	4.0%	15.3%
No	365	15.1%	84.7%
Not answered	1951	80.9%	-

Key themes:

- 5.68 This question provided respondents with an opportunity to give any further comments on the draft guidance. Only 4% of respondents to the consultation wished to provide further insights. The low level of response to this question signals that most respondents were satisfied with the range of questions asked in this section of the consultation and had few additional concerns or suggestions beyond what they already provided on earlier questions.
- 5.69 Respondents used this question as an opportunity to raise general comments about draft Approved Document L, Volume 2: Buildings other than dwellings. These comments included:
- Solar panels should be compulsory on all new non-domestic buildings.
 - The fabric standards should be more ambitious. In mixed use buildings, fabric performance targets should align with Approved Document L Volume 1: Dwellings.
 - Alternative standards/guidance should be followed. This included suggestions that Passivhaus should be adopted as an alternative means of compliance, or that Microgeneration Certification Scheme (MCS) guidance should be followed.
 - Photographic evidence of build quality should be provided to building owners, as is the case with domestic buildings.
 - Guidance should be simplified for Building Control officers, for example, by including clear summary sections and diagrams.
 - Building occupants should be required to publish annual reports on how efficiently they operate a building.
 - Guidance should cover embodied carbon.
 - Microgrids should be considered.
 - The Approved Documents need to be more supportive of innovation from developers.

- Waste-water heat recovery should be mandated in all buildings with showers.
- Further guidance should be provided on ventilation, including on active ventilation, and with an emphasis of the health benefits.

5.70 Specific concerns regarding draft Approved Document L, Volume 2: Buildings other than dwellings included:

- Guidance on external lighting is too strict and unfairly prohibits all external lighting.
- Captive keycard controls in hotels should not be considered as an equivalent compliance option to occupant sensing or automatic controls, and alternative more technology-neutral wording should be used.
- There should be better consideration of passive solar design and how natural light in buildings benefits health and wellbeing. There was a feeling that the standards are contradictory and fail to encourage taking advantage of natural solar heat gains.
- Building on the above, several comments expressed concerns around the treatment of rooflights within the guidance. For example, the definitions of rooflights and roof windows in Appendix A should be expanded; and the calculation method and limiting value of rooflights should be re-considered.
- Some respondents felt that the draft guidance fails to address thermal bridges. There is a need to align modelling within the NCM and Simplified Building Energy Model (SBEM) with domestic modelling where thermal bridges are properly measured and applied.
- The use of BACS should be replaced with Building Energy Management System (BEMS) to align with UK industry practice.
- Buildings with an HVAC load of >70kW should be mandated to follow the ISO 52120 principles of a class A control system.
- Guidance around SFP should be clarified with reference to current technical standards, such as BS EN ISO 16890:2016.
- Guidance around potable hot water pipes and Legionella risk controls should be clarified.
- Guidance around which sections MHVR systems fitted with heaters and/or coolers need to comply with should be clarified.

Government Response to Q24:

5.71 Amendments made in response to any of the other issues raised by this question are outlined in the sections relevant to the issues raised elsewhere in this document.

Chapter 5: Summary

We proposed amendments and additions to the guidance in the Approved Documents that sets minimum standards for the energy efficiency of both fabric and fixed building services.

- ✓ We have updated the Approved Documents in line with consultation proposals (with minor amendments in some cases), including guidance on: minimum building services efficiencies and controls; heat pump controls; fixing operational and maintenance information to heat pumps; and insulation for building heat distribution systems.
- ✓ We have modified the proposed guidance on limiting heat loss from low carbon heating systems to provide greater clarity.
- ✓ We have revised the definition of fixed building services to include lifts, escalators and moving walkways in relation to new buildings (except new individual dwellings).
- ✓ We have not revised guidance on the sizing of hot water vessels or for dwellings and non-domestic buildings with low energy demand that are not exempt from the Building Regulations.

Chapter 6 - Material Change of Use

- 6.1 A Material Change of Use (MCU) is a conversion of a building from one purpose to another. Currently, the minimum standards set for a dwelling created under an MCU are lower than those for a new dwelling and are regulated separately from those of newly built dwellings. In the consultation, we proposed illustrative ways of uplifting MCU standards to protect consumers from high bills and reduce emissions as far as practical, while capitalising on building work already being done.
- 6.2 Currently, the Approved Document guidance provides minimum standards at an elemental level for MCU. This means minimum standards are set for each part of the building fabric (e.g., roofs, floors, walls) and for the building services (e.g., heating, ventilation). In the consultation, we sought feedback on whether we should move to setting whole-dwelling performance targets for MCU and the potential scope of the MCU standard.
- 6.3 This chapter sets out the key themes found in the responses to questions 25 to 39, with the government response to these questions set out at the end of the chapter starting at paragraph 6.53.

Question 25: Should we set whole-building standards for dwellings created through a material change of use?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q25
Yes	557	23.1%	84.5%
No, an elemental standard should be set with an option to use a notional building if the designer prefers.	83	3.4%	12.6%
No, for another reason	19	0.8%	2.9%
Not Answered	1754	72.7%	-

Key themes:

- 6.4 The main comments made by respondents who supported the proposal were that whole-building standards would help reduce the energy bills of MCU dwellings and the need for future retrofitting. Several respondents said that the standard of MCU dwellings desperately needs improving and that MCU dwellings should be required to meet the same or similar standards as newly constructed dwellings.

- 6.5 A common point raised by those who both supported and opposed the proposal was that the standards should support the re-use of existing buildings.
- 6.6 There were mixed views on whether heritage buildings and those in conservation areas should be subject to the same standards as other buildings, with some advocating that they should, while others said that these building types will face specific challenges, warranting exemptions or relaxations.
- 6.7 A common concern was that the proposed standards would be difficult to meet in many situations, as there are lots of aspects of MCU buildings that are beyond the builder/developer's control. Concerns were also raised that the proposed approach may not be the most effective for ensuring adequate air quality and ventilation, or for promoting occupant health.
- 6.8 The most common suggestion among those who disagreed with the proposal was that elemental standards should be used instead of a notional building approach. Other suggestions included that older buildings should be treated differently from newer buildings; that whole-building standards should be used where feasible, with elemental standards applied where it is not feasible; and that whole-building and elemental standards should be used together.
- 6.9 A concern was raised that, whatever approach is used, all carbon-saving technologies need to be better recognised by the models and there should be recognition that secondary heating can form a much bigger part of the heating strategy than is currently assumed.

Question 26: Should the proposed new MCU standard apply to the same types of conversion as are already listed in Approved Document L, Volume 1: Dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q26
Yes	234	9.7%	41.6%
No, standards should also apply to non-dwelling accommodation	259	10.7%	46.1%
No, the standard should be clearer that it applies to houses of multiple occupation	44	1.8 %	7.8%
No, for another reason	25	1.0%	4.4%
Not Answered	1851	76.7%	-

Key themes:

- 6.10 A common view was that the MCU standards should apply to all MCU accommodation, regardless of the specific type of conversion. Among these respondents, there were some suggestions that there should be a list of which types of conversions are exempt, rather than a list of which are included.
- 6.11 Very few specific building types were suggested beyond those already proposed in the consultation. In terms of multiple-occupancy accommodation, both flats and shared houses were mentioned. Some respondents also suggested that temporary accommodation should be included.
- 6.12 As with Question 25, there were mixed views on whether heritage buildings and those in conservation areas should be subject to the same standards as other building types. Also similar to Question 25, some respondents said that the standards for MCU dwellings should be the same as, or similar to, those for newly constructed dwellings.

Question 27: Should different categories of MCU buildings be subject to different requirements?

As with new homes, there are three main variables for improving energy efficiency and reducing emissions from MCU buildings: heat source, fabric and energy generation. However, the opportunity to improve these three variables will vary across building type. This question sought views on whether MCU buildings could be categorised, with different categories of building subject to different requirements.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q27
Yes	413	17.1%	81.8%
No	92	3.8%	18.2%
Not Answered	1908	79.1%	-

Key themes:

- 6.13 A common view, primarily among respondents who supported the proposal, was that factors such as the use, height, and age of the building can impact its ability to meet the standards, and that these factors therefore need to be accounted for.
- 6.14 A common view among those who opposed the proposal was that a consistent standard should be applied to all MCU dwellings to ensure fairness and consistency, and to make it easier for industry to understand and implement.
- 6.15 As with the responses to Questions 25 and 26, some respondents who opposed the proposal said that MCU dwellings should not receive any leniency and should meet

the same or similar standards as newly constructed dwellings. In a similar vein, some respondents said that they opposed the proposal because all MCU dwellings should be required to be low carbon and energy efficient.

- 6.16 Some concerns were raised that having different categories would lead to exploitation, with some buildings subject to lower standards than are acceptable. A small number of respondents thought that a universal standard should be set, but that a tightly controlled exemptions process could be put in place for situations where meeting the standards is not possible due to practical or cost-related reasons.

Question 28: Which factors should be taken into account when defining building categories?

This question allowed respondents to select multiple options. Of the 2413 total respondents, 504 selected at least one option.

Option	Number of times selected	Percentage of responses to Q28 selecting this option
Height of the building	369	73.2%
Floor area of the building	339	67.3%
Expertise of those carrying out the work	158	31.3%
Whether the conversion is a part or whole-building conversion	330	65.5%
Other	99	19.6%

Key themes:

- 6.17 Common suggested factors to be taken into account (beyond those already proposed in the consultation) were the typical use of the building and the type of occupant. Other common suggestions included whether the building is a heritage building or in a conservation area; the layout or size of the building; the age of the building; the existing condition of the building and heating system; the form factor of the building; the type of building materials and/or construction approach used; and the orientation of the building.
- 6.18 Concerns were raised about the ‘expertise of those carrying out the work’ being taken into account when defining building categories. Some concerns were also raised about the height of the building being taken into account.
- 6.19 Similar to the responses to Question 27, some respondents said that the standards should be the same for all building types, with some concerns raised that having different standards could lead to exploitation and poor quality.

Question 29: Do you agree with the illustrative energy efficiency requirements and proposed notional building specifications for MCU buildings?

We presented two illustrative notional specifications, one for a low-rise MCU and one for a mid-high-rise MCU, which included improved fabric, solar PV panels and low carbon heating. This question asked respondents whether they agreed with these proposed specifications.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q29
Yes	353	14.6%	70.5%
No	148	6.1%	29.5%
Not Answered	1912	79.2%	-

Question 30: If you answered no to the previous question, please provide additional information to support your view.

This question allowed respondents to select multiple options. Of the 2413 total respondents, 173 selected at least one option.

Option	Number of times selected	Percentage of responses to Q30 selecting this option
Too stretching	18	10.4%
Not stretching enough	94	54.3%
Not economically viable	20	11.6%
Not practical/technically feasible	27	15.6%
Other	57	32.9%

Key themes:

- 6.20 A concern among respondents who did not agree with the proposed notional building specification was that the proposed requirements were not ambitious enough. There was some support for more stringent U-values and an overall 'fabric first approach'. The proposed standards for various building elements were mentioned as being too poor including that of walls, roofs and windows, as well as the overall air tightness value. Conversely, a handful of respondents expressed concerns that the air tightness requirements would be unfeasible for existing buildings.
- 6.21 Some respondents expressed mixed views on the inclusion of Electric High Retention Storage Radiators. Concerns highlighted the availability of off-peak 7h tariffs, which would render Electric High Retention Storage heaters costly if not

available. Other respondents advocated for heat pumps as the default option in the notional building due to improved efficiency.

- 6.22 Other respondents made suggestions to ensure the notional building specification strikes a balance between efficiency and practical application. This included developing a two-level notional building specification or setting the notional specification based on existing construction type.

Question 31: Do you agree with using the metrics of primary energy rate, emission rate and fabric energy efficiency rate, if we move to whole dwelling standards for MCU buildings?

We proposed that the performance requirements for a building undergoing a Material Change of Use (MCU) be expressed through the same metrics as new dwellings.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q31
Yes	350	14.5%	53.0%
Yes, and I want to provide additional suggestions or information to support my view.	43	1.8%	6.5%
No	267	11.1%	40.5%
Not Answered	1753	72.6%	-

Key themes:

- 6.23 Many respondents supported the application of these metrics to MCU buildings, citing the benefits of consistency with the standards applied to new dwellings. There was agreement that this would create a more streamlined and understandable regulatory approach, ensuring that MCU buildings meet equivalent energy efficiency and carbon reduction standards as those for newly constructed homes.
- 6.24 Respondents highlighted that using these metrics would support the goal of reducing energy consumption and emissions from buildings, as they would provide clear and measurable targets for energy performance.
- 6.25 However, some concerns were raised about the application of these metrics to MCU buildings, especially given the diversity in building types and functions. MCU buildings often involve the conversion of non-residential structures into residential or mixed-use purposes, which can present unique challenges. Respondents suggested that the energy performance requirements for such buildings may need to consider the varied energy demands across different uses within the building.
- 6.26 A key concern raised by respondents was the need to ensure that the metrics used would be sufficiently flexible to accommodate the complexity of these conversions. Respondents suggested that, while applying the same metrics to MCU buildings as

for new dwellings was a positive step, additional guidance or flexibility in how the metrics are applied might be necessary to ensure that all building components, such as residential, commercial, or industrial sections, are accurately assessed.

6.27 The primary energy metrics were generally well-received as tools for assessing overall energy consumption and carbon impact. However, some respondents highlighted that these metrics may not fully capture the real-world energy use in MCU buildings, particularly when energy use differs across various building functions. In this context, there was a call for consideration of additional metrics, such as delivered energy, to provide a clearer picture of operational energy consumption and to ensure that energy performance reflects actual usage. Delivered energy was viewed as offering a more direct and practical measure of energy efficiency, allowing for a clearer comparison between design predictions and actual energy use post-occupancy.

Question 32: Under what circumstances should building control bodies be allowed to relax an MCU standard?

In the consultation, we recognised that it may not be possible for all MCU buildings to be designed to meet the illustrative notional building targets. Specific reasons we said may warrant relaxation included the technical or practical feasibility of achieving the standards; that space is affected outside of the dwelling; and consideration of historic and transitional dwellings. This question asked for respondents' views on how best to provide developers and building control bodies with flexibility to achieve the best outcome for each individual MCU building.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q32
None	346	14.3%	64.7%
Building control bodies should be able to relax under the following circumstances (provide details)	189	7.8%	35.3%
Not Answered	1878	77.8%	-

Question 33: Do you have views on how we can ensure any relaxation is applied appropriately and consistently?

This question allowed respondents to select multiple options. Of the 2413 total respondents, 453 selected at least one option.

Option	Number of times selected	Percentage of responses to Q33 selecting this option
There should be guidance on circumstances where relaxation of the notional building standard may be appropriate.	243	53.6%
There should be monitoring of how relaxation is applied.	187	41.3%
Only formal relaxation or dispensation through the local authority should be possible.	267	58.9%
Other	61	13.5%

Key themes:

- 6.28 The majority of respondents indicated that they believe that there are no circumstances in which a building control body should be able to relax MCU standards.
- 6.29 Many respondents indicated that listed buildings and/or those with historic significance and/or those in conservation areas should be exempt.
- 6.30 A significant number of responses, primarily from members of the public, suggested that there should be dispensations based on technical unfeasibility.
- 6.31 Multiple responses suggested wellness or safety risks as grounds for relaxation of MCU regulations. The majority of these responses did not provide specific detail on what such risks may mean in practice, though some concerns around HRBs, overheating, and the types of materials encountered in MCU buildings were raised.
- 6.32 A significant number of responses suggested that situations where there are restrictions on outside space which may negatively impact accessibility, such as narrow paths and access alleys outside buildings, may warrant an exemption from the MCU standards.

Question 34: Should a limiting standard be retained for MCU dwellings?

Currently, where an individual element cannot technically, functionally or economically achieve the minimum standards in the Approved Documents, additional guidance is provided, which references the requirements of Part C standards for moisture and states that generally retained elements should not have a U-value higher than 0.7 W/m²K to prevent interstitial and surface condensation. If there is a permitted relaxation of an MCU whole-building standard, minimum limiting standards for building fabric performance may need to be retained to ensure poor quality conversions are not built, even when the whole-building standard cannot be met.

Response	Number of Responses	Percentage of All Responses	Percentage responses to Q35
Yes	218	9.0%	47.6%
No, it is too strict.	21	0.9%	4.6%
No, it is not strict enough.	121	5.0%	26.4%
No, there is not enough information.	91	3.8%	19.9%
No, for another reason.	7	0.3%	1.5%
Not Answered	1955	81.0%	-

Question 35: If a limiting standard is retained, what should the limiting standard safeguard against?

A basic set of limiting standards could help safeguard against condensation and mould. More stringent limiting standards could reduce energy demand and reduce household bills.

This question allowed respondents to select multiple options. Of the 2413 total respondents, 485 selected at least one option.

Option	Number of times selected	Percentage of responses to Q35 selecting this option
Risk of moisture, damp and mould	465	95.9%
High energy demand and energy bills	281	57.9%
Other	51	10.5%

Key themes:

- 6.33 A handful of respondents were concerned that allowing an MCU whole building standard to be relaxed could give Local Authorities too much regional flexibility, potentially allowing some elements to remain uninsulated and be offset elsewhere - leading to individual element failure.
- 6.34 A small number of responses suggested limiting standards should also safeguard against poor indoor air quality, poor thermal comfort and overheating, and that they should ensure the wellbeing of occupants and protect against inadequate standards of installation and commissioning.
- 6.35 Other suggestions for the limiting standards included that they should be used to help future-proof dwellings, reduce fire risks/ improve fire safety and safeguard against poor daylighting and noise issues.

Question 36: Do you wish to provide any evidence on the impacts of these proposals including on viability?

We recognise that, whilst higher standards will increase comfort and reduce bills, there will be a commensurate increase in build costs to achieve these standards. This question asked for evidence on how proposed improvements in standards for MCU buildings would impact viability and deliverability of housing developments as well as benefits for occupants and electricity grid resilience.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q36
Yes	30	1.2%	6.8%
No	414	17.2%	93.2%
Not Answered	1969	81.6%	-

Key themes:

- 6.36 Several respondents highlighted the need to balance the financial viability of developments and housing supply needs with the health, wellbeing and comfort of occupants. Respondents acknowledged these proposals could raise the cost of MCU developments, but highlighted that a holistic approach to viability should be taken and include consideration of the benefits to occupants such as accessibility and preventing damp, mould and overheating.
- 6.37 Respondents mentioned the high cost of remediation works needed on poor quality MCU developments.
- 6.38 A couple of respondents noted that reducing the energy (by taking a fabric first approach) – and therefore cost – needed to heat a home might encourage more occupants to heat their homes appropriately.

- 6.39 A couple of respondents noted that MCU standards should not be universally applied and instead advocated for flexibility within the standards to account for a variety of construction types in existing buildings.

Question 37: Do you agree that a BREL report should be provided to building control bodies if we move to energy modelling to demonstrate compliance with MCU standards?

This question asked respondents to give opinions on whether the use of Building Regulations England Part L (BREL) reports should be extended to properties that have undergone an MCU. The BREL is produced by approved energy modelling software and provides building control bodies with the same information in the same format for every building. The BREL could be evidenced using photographic evidence.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q37
Yes	163	6.8%	32.7%
Yes, and photographic evidence is needed.	290	12.0%	58.2%
Yes, and I'd like to provide further information.	32	1.3%	6.4%
No	13	0.5%	2.6%
Not Answered	1915	79.4%	-

Key themes:

- 6.40 A common theme among respondents who believed BREL reports should be required for MCU was that extra information should be included on BREL reports. The suggested extra information included Energy Use Intensity, Space Heating Demand, information on thermal imaging of the building, and information on post-construction testing of the building.
- 6.41 Several respondents stated that MCU BREL reports should, in some way, be distinguishable from new home BREL reports.
- 6.42 Among those who thought BREL reports should not be required for MCU, some respondents believed MCU is too complicated and unique for a BREL report. Examples given included that, if photos were needed, it could be difficult or impossible to photograph all the equivalent details required in a new home BREL report.

Question 38: Do you agree that consumers buying homes created through a material change of use should be provided with a Home User Guide when they move in?

To address the discrepancies in quality and performance between MCU dwellings and new builds, we proposed extending the application of Home User Guides to include properties that have undergone an MCU.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q38
Yes	575	23.8%	91.0%
Yes, and I'd like to provide further information.	54	2.2%	8.5%
No	3	0.1%	0.5%
Not Answered	1781	73.8%	-

Key themes:

- 6.43 A common view, which was held across many stakeholder groups, was that the Home User Guide for MCU dwellings should be more specific than that of a typical new build dwelling.
- 6.44 Written responses also showed a desire for parity between new build owners and MCU owners, with some responses suggesting that it was only right for both groups to receive Home User Guides.
- 6.45 While there were some respondents who expressed concerns about requiring MCU developers to provide a Home User Guide, these responses did not argue that the Home User Guide is unnecessary, but rather highlighted that developers who take on MCU builds rather than large-scale new developments may have limited capacity and resource to create a robust Home User Guide for each of their unique developments.

Question 39: Do you agree that homes that have undergone an MCU should be airtightness tested?

Airtightness testing is already required for newly erected homes under Regulation 43 of the Building Regulations 2010. We consulted on whether MCU homes should be airtightness tested, and how this could be done.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q39
Yes	500	20.7%	85.2%
Yes, and I'd like to provide further information.	64	2.7%	10.9%
No	23	1.0%	3.9%
Not Answered	1826	75.7%	-

Key themes:

- 6.46 An overwhelming majority of respondents agreed that homes that have undergone an MCU should be airtightness tested. This question had a relatively low proportion of respondents who chose to provide additional written information in support of their response.
- 6.47 Some of the reasons given in favour of airtightness testing were that it can help to:
- Deliver energy efficiency and carbon savings.
 - Ensure an appropriate ventilation strategy is implemented
 - Ensure good workmanship and good quality homes
 - Provide more information to the consumer
 - Identify failures in safety for aspects such as fire compartmentalisation
- 6.48 Some respondents felt that any targets for airtightness would need to be appropriate for the building type and be balanced against ventilation requirements, to prevent issues with mould or damp.
- 6.49 A small number of respondents noted that testing adds unnecessary costs and complexity and is too onerous. However, responses in support of testing argue that the costs of testing are low and the market is mature.
- 6.50 A small number of responses commented on the value of an airtightness requirement itself. There was approximately an equal split between respondents that thought the airtightness value should be the same as for new build, and those that thought it should be lower.

- 6.51 A small number of respondents highlighted the importance of airtightness testing being conducted by a competent person.
- 6.52 A few respondents suggested exemptions should be put in place based on the type of building fabric as a 'leakier' building may be appropriate in some scenarios. Exemptions were also suggested for scenarios where proof of purchase/installation can be shown to verify airtightness.

Government Response to Q25 to Q39:

- 6.53 We have retained current limiting standards to ensure adequate level of performance and minimum standards of energy efficiency for Material Change of Use dwellings.
- 6.54 We have updated Approved Document L Volume 1: Dwellings to clarify requirements relating to the provision of maintenance and operation information to owners of dwellings created through an MCU, and to make clear that Home User Guides should be provided.
- 6.55 We will undertake a further consultation on energy efficiency standards for MCU to seek views on more detailed policy proposals. This includes further consultation on:
- Pursuing the option to have an optional whole-dwelling performance target approach alongside a stronger elemental standard.
 - Reviewing the scope of which types of building conversion MCU standards apply to, in particular, homes of multiple occupancy and temporary accommodation.
 - Reviewing the circumstances when building control bodies are allowed to relax an MCU standard. Exploring options to limit the reasons which warrant relaxation of the standards to minimise local authority workload.
 - Further development of the proposal to apply the BREL and airtightness standards to MCU.
- 6.56 Many consultation responses emphasised goals such as encouraging reuse, improving standards, and reducing future retrofit needs. An uplifted elemental standard, alongside an optional whole-building standard, will align with these goals allowing improved standards while accommodating the wide range of buildings under MCU. We will develop an optional whole-building standard by merging the two notional specifications presented in the consultation.
- 6.57 We will develop a compliance tool to enable compliance via an optional whole building standard and a consultation version of this tool will be included in the further consultation. We will also reconsult on the proposed uplifted elemental standard and, alongside this, carry out a full impact assessment of this policy.
- 6.58 We will continue developing our proposal to extend the regulations so that dwellings created through an MCU are airtightness tested. We will consult on the specific

details of this as part of the wider further consultation on energy efficiency standards for MCU.

- 6.59 We are grateful for the detailed feedback provided through the responses to these questions. While the changes outlined above address some immediate clarifications, we recognise that many of the key themes raised require further consideration. Rather than seeking to resolve all issues at this stage, we will use these responses to shape our future approach. Further consultation will provide an opportunity to test more detailed proposals and ensure that any future standards are practical, proportionate, and aligned with industry capability. We encourage stakeholders to continue engaging with this process so that the final policy reflects both regulatory objectives and real-world implementation challenges.

Chapter 6: Summary

We proposed illustrative ways of uplifting the standards for dwellings created through a Material Change of Use to protect consumers from high bills and reduce emissions as far as practical, while capitalising on building work already being done.

- ✓ We have retained current limiting standards to ensure adequate level of performance and minimum standards of energy efficiency for MCU dwellings.
- ✓ We have required Home User Guides to be provided to MCU dwelling owners.
- ✓ We consulted on illustrative approaches to setting MCU energy efficiency standards, including potential whole-building and elemental standards, and we will undertake a further consultation on energy efficiency standards for dwellings created through a MCU.

Chapter 7 - Real-world performance of homes

- 7.1 Several studies of new homes suggest that measured energy performance once occupied can be worse than the energy performance expected at the design stage.
- 7.2 We implemented several measures through the 2021 uplift to Part L to improve building performance in homes. In the Future Homes and Buildings Standards consultation, we explored what more can be done to close the gap.

Performance testing new homes

- 7.3 We are keen to encourage developers to focus on build quality and to collect more data about the extent to which new homes are underperforming. We did not present detailed proposals for how performance testing and a Future Homes Standard brand would operate in practice, but instead sought views and evidence on these concepts to help us develop firm proposals.

Question 40: Do you think that we should introduce voluntary post occupancy performance testing for new homes?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q40
Yes	541	22.4%	65.0%
Yes, and I'd like to provide further information.	209	8.7%	25.1%
No	82	3.4%	9.9%
Not Answered	1581	65.6%	-

Key themes:

- 7.4 While most respondents supported the introduction of voluntary post-occupancy testing, there were a range of views on how this should be implemented. Many respondents in favour also stated that they believed post-occupancy testing should either be mandatory or move to becoming mandatory, following a period of voluntary testing.
- 7.5 One of the main themes throughout the responses was the desire for the proposal to have greater clarity. It was noted in the consultation that this was not a final proposal; however, many respondents said they could not comment fully without further detail on aspects such as how data would be collected, whether data would

be made public, how poor-performing properties would be dealt with, and the exact testing method.

- 7.6 Some respondents queried what a suitable sample rate for large developments might be.
- 7.7 Some respondents were wary about the proposed HEM being used in a post-occupancy testing regime, given its novelty. Respondents suggested that results from testing could be fed back to HEM to inform its development.
- 7.8 The possibility of post-construction, rather than post-occupancy, testing was also raised. Views on this varied, with some respondents believing it should be carried out instead of post-occupancy testing and others saying it should be carried out in addition.
- 7.9 Several respondents raised the idea that post-occupancy testing data could be shared with government. Some expressed concern that developers who voluntarily submit performance reports could be penalised if the figures reveal underperformance. Conversely, developers who opt not to test might have dwellings with even worse performance, but this would remain unknown and without penalty. In this circumstance, they felt that developers who opted into a voluntary post-occupancy testing regime may be taking a risk by sharing this data.

Government Response to Q40:

- 7.10 In recognition of the desire for greater clarity on a proposal for voluntary building performance evaluation, the Government intends to expand the evidence base to support the development of a voluntary system of testing.
- 7.11 In the consultation, we stated an intention to consult again on firm proposals for performance testing new dwellings ahead of future implementation. We intend to publish a call for evidence on the energy performance gap and building performance evaluation, which will focus on how to achieve a cost-effective, easy-to-adopt, non-intrusive post-construction or post-occupancy testing method.
- 7.12 The Building Safety Regulator have planned research into post-construction testing. We intend to use the findings of this research, along with the feedback from the call for evidence, to develop our understanding of the nature of the energy performance gap and to inform future policy.

Question 41: Do you think that the government should introduce a government-endorsed Future Homes Standard brand? And do you agree permission to use a government-endorsed Future Homes Standard brand should only be granted if a developer's homes perform well when performance tested? Please include any potential risks you foresee in your answer.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q41
Yes	302	12.5%	48.9%
Yes, and I want to provide additional suggestions or information.	73	3.0%	11.8%
Yes, but I think there are risks associated with introducing a government-endorsed brand.	139	5.8%	22.5%
No	103	4.3%	16.7%
Not Answered	1796	74.4%	-

Key themes:

- 7.13 The majority of respondents were in favour of a Future Homes Standard brand. However, a significant proportion of respondents wished to add additional information to their response. This high level of caveating indicates that while incentivisation for performance testing is favoured by respondents, there are significant reservations surrounding the implementation of a brand.
- 7.14 Several suggestions related to the ambition of a brand. Some felt that a brand should only be applicable to dwellings that go beyond the minimum requirements of the Future Homes Standard. Others indicated that they would prefer the Government to endorse a preexisting brand that industry already trusts, like Passivhaus or the Building Research Establishment's Home Quality Mark.
- 7.15 Some responses indicated that EPC reform would be a preferable way for the Government to be involved with communicating the energy performance of homes to consumers, and that a government-endorsed brand may create confusion.
- 7.16 Many responses outlined the risks they felt were associated with a potential brand, including:
- A brand would be less effective if not well enforced.

- A brand could be perceived to be less trustworthy if not controlled through an independent body.
- Consumers could be misled to believe that dwellings with branding are being built to higher standards than dwellings without it, when the focus of the brand appears to be quality assurance through performance testing.
- The name of the 'Future Homes Standard Brand' may become quickly outdated.

Government Response to Q41:

- 7.17 After carefully considering the responses received, the Government will not proceed further with a Future Homes Standard brand.
- 7.18 While we recognise that the majority of respondents were in favour of incentivisation for performance testing, there was a great deal of uncertainty in responses on how a brand could be implemented. We consider that this lack of consensus about the function and purpose of a brand is an indication that any government endorsement of a brand would not offer a meaningful incentive for developers to engage in performance testing of dwellings. Furthermore, the reference to the large number of pre-existing brands in responses indicates that adding to this range may simply create confusion.

Commissioning fixed building services

- 7.19 Fixed building services, including ventilation and heating systems, must be checked and adjusted following installation to ensure they operate safely and efficiently. In the consultation, we proposed several amendments to Approved Document L, Volume 1: Dwellings and Approved Document F, Volume 1: Dwellings to improve the commissioning and checking process for fixed building services in new and existing homes.

Question 42: Do you agree with the proposed changes to Approved Document F, Volume 1: Dwellings to improve the installation and commissioning of ventilation systems in new and existing homes?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q42
Yes	384	15.9%	75.4%
Yes, and I'd like to provide further information.	73	3.0%	14.3%
No	52	2.2%	10.2%
Not Answered	1904	78.9%	-

Key themes:

- 7.20 A number of respondents had specific comments about the proposed guidance. In particular, that the draft guidance limiting dMEV ductwork to 2m was problematic. Respondents felt that this ruled out dMEV for certain building types, notably mid-terrace housing, and that it would have significant impacts on design flexibility. It was argued that dMEV systems can work well with longer duct lengths, as long as the system is designed, installed and tested correctly. Several respondents felt that rigid, semi-rigid and occasional flexible ducting should be permitted in cases where straight-line ducting runs cannot be accommodated. A handful of examples were provided of instances where flexible ducting may be required.
- 7.21 Several respondents felt that the additional testing requirements would be unreasonably expensive, for example stating that calibrated powered flow hoods are costly, and installers would be required to purchase additional pressure testing equipment.
- 7.22 Respondents were supportive of the use of a Competent Persons Scheme to address the lack of skills in the industry for installation and/or testing.
- 7.23 There were concerns around enforcement. Suggestions to mitigate this included that the commissioning party should be independent from the housebuilder; that building control should perform spot-checks; and that providing evidence of commissioning or accredited installation should provide benefits to the DER within HEM.
- 7.24 In addition to these, the following technical concerns and suggestions were raised by respondents:
- The proposed 50mm insulation criterion for ductwork would make it difficult for ductwork to run in floor voids. The difference in requirements of 50mm within conditioned space and 25mm within the unheated space was questioned.
 - Isolators are currently mistakenly being used as on/off switches, and these should be better labelled to avoid this.
 - The wording within the draft Approved Document should be amended for the following: to clarify expectations for access points for cleaning ductwork (paragraph 1.16); to clarify expectations for access to filters for continuous mechanical ventilation with heat recovery (MVHR) (paragraph 1.83); to specify that terminals refers to those on MVHR systems to avoid confusion with Positive Input Ventilation systems (paragraph 4.13d); and to record SFP (Annex C).
 - In paragraph 1.92, it should allow for the manufacturer's proprietary connectors to be used as a means of providing the seal if installed according to the manufacturer's instructions.
 - In paragraph 1.88, the wording "appropriately sized ductwork" should be specified at 3m/sec.

- Limit values for PM2.5 should be introduced. More generally, there should be greater emphasis on air quality for the health and comfort of occupants within the wording of Approved Document F.
- MVHR should be required for highly airtight dwellings as natural ventilation with intermittent extraction is not suitable.

7.25 Beyond these technical comments, there was a general sentiment that lack of occupant understanding of how to operate ventilation systems negatively impacts performance of these systems.

Government Response to Q42:

- 7.26 A number of amendments have been made to Approved Document F. The guidance on ductwork has been revised. In order to address the concerns about design flexibility, there is no longer an explicit maximum length for dMEV ductwork, but guidance has been introduced to increase the evidence required for ductwork lengths over 2m, and to state that design verification must be provided by a suitably competent person. To support this, for systems incorporating duct lengths greater than 2m, the Approved Documents give guidance that it would be beneficial for design calculations and drawings to be provided. Guidance is also included on how and when flexible ductwork should be used in standard installations. Designers can provide alternative ventilation options for non-standard situations, where accompanied by appropriate supporting evidence.
- 7.27 Taking account of consultation responses about regulatory burden of the proposed requirements, Government has decided not to introduce new measurement criteria (static pressure testing) for mechanical ventilation systems. The guidance does, however, cite powered flow hoods as the approved testing equipment for measuring air flowrates, as proposed in consultation. Powered flow hoods give a more accurate reflection of the performance of the fan compared to other types of testing equipment.
- 7.28 The Approved Document guidance emphasises the need for installers to be suitably competent to carry out the work. Typically, this will mean that those installing and commissioning ventilation systems should be a member of a Competent Person Scheme or an equivalent body. For lower risk work, such as installing a single intermittent extract fan, there is an expectation that whilst the installer does not need to be a Competent Person Scheme member, they should have received adequate training. In parallel, Government is working with industry stakeholders, via the Future Homes Hub, to establish the appropriate parties for designing, installing and commissioning domestic ventilation systems, supporting clear lines of responsibility and effective implementation.
- 7.29 We acknowledge the concerns raised in relation to the proposed 50mm insulation criterion for ductwork, and the difference between 50mm within conditioned space and 25mm within unheated space. This approach has been retained because there is a significant risk of condensation and resulting mould growth on poorly insulated surfaces (such as air intake ductwork) within heated spaces. This risk is exacerbated where ductwork is located in inaccessible areas such as within floor voids.

- 7.30 We note the concerns that isolators are being used as on/off switches, and thank consultation respondents for their feedback. This is principally an issue for manufacturers.
- 7.31 With respect to drafting, the wording within the Approved Document has been amended where required.
- For paragraph 1.16, expectations for access points for cleaning ductwork have been clarified.
 - For paragraph 1.83, expectations for access to MVHR filters have been clarified.
 - For paragraph 1.88, to maintain design flexibility across different dwelling types and systems, the text requires that ducting and the external air terminal can achieve the desired flow rates, rather than prescribing a fixed air velocity.
 - For paragraph 1.92, the text specifies that duct connections should be ‘adequately sealed,’ which permits proprietary connectors to be used.
- 7.32 On limit values for PM2.5, Government has been working with the Committee on the Medical Effects of Air Pollutants (COMEAP) and the Air Quality Expert Group (AQEG), to understand what further information and research is needed on indoor air quality to inform decisions about appropriate regulatory approaches to indoor air quality.
- 7.33 On MVHR for highly airtight dwellings, Table 1.6 in the Approved Document specifies that the guidance only covers natural ventilation for less airtight buildings.

Question 43: Do you agree with the proposal to extend Regulation 42 (mechanical ventilation air flow rate testing) to the installation of mechanical ventilation in existing homes as well as new homes?

The consultation explained that extending Regulation 42 to work in existing dwellings would mean that air flow rate testing would have to be conducted as part of the commissioning process for centralised mechanical extract ventilation (cMEV) and centralised mechanical ventilation with heat recovery (cMVHR) systems in existing homes, as well as new homes. Notice of the results of the test would have to be given to the building control body within 5 days.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q43
Yes	394	16.3%	77.6%
Yes, and I'd like to provide further information.	62	2.6%	12.1%
No	52	2.2%	10.2%
Not answered	1905	78.9%	-

Key themes:

- 7.34 While the majority of respondents were supportive of extending Regulation 42 to the installation of mechanical ventilation in existing dwellings, there were a number of common concerns raised by respondents:
- One of the most common concerns was that this would be unfair to the homeowner, increasing costs for the end user and discouraging them from installing mechanical ventilation. One suggestion to mitigate this was that the proposal should apply to whole building installations only and should not prevent simple installations fitted by homeowners.
 - It was pointed out that, as many existing dwellings already have adequate ventilation, the need for mechanical ventilation is lower than in highly airtight new builds.
 - There were concerns that this regulation would be challenging to enforce, as Building Control are unlikely to be notified when new ventilation systems are installed into existing dwellings.
 - The practical challenges of installing mechanical ventilation systems in existing buildings was highlighted by many respondents, especially due to the challenges associated with ductwork installation. A handful of respondents noted that this was more possible in dwellings created through a Material Change of Use, but challenging in existing dwellings.
 - Some respondents commented on the connections with PAS 2035 (“Background Ventilation Assessment of Existing Dwellings” by the Insulation Assurance Authority) and suggested that this approach should be recognised within Approved Document F.

Government Response to Q43:

- 7.35 Although the majority of respondents agreed with the proposal, there were noteworthy responses which set out the additional regulatory burden this would introduce in relation to small domestic installations. We recognise, however, that in some circumstances, such as installing a full cMEV, flow rate testing might be necessary to ensure that the system meets Requirement F1(2) and Regulation 44 (commissioning). Government has decided not to extend Regulation 42 to work in existing buildings, but we have introduced additional guidance on the expected levels of flow rate testing for relevant work in existing buildings.
- 7.36 It will be for the relevant building control body to determine what testing is needed to demonstrate compliance with Part F in existing dwellings, in discussion with the person carrying out the work.
- 7.37 In response to the recommendation for Approved Document F to recognise PAS 2035 we wish to highlight that PAS 2035 is already referenced in the current version of the Approved Document as a means to assess the background ventilation in an existing dwelling, as follows “Following BSI 2035 is considered to be an adequate

means of demonstrating compliance with paragraph 3.6”. This note will be retained in the 2026 edition.

Question 44: Do you think the guidance on commissioning hot water storage vessels in Section 8 of draft Approved Document L, Volume 1: Dwellings is sufficient to ensure they are commissioned correctly?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q44
Yes	318	13.2%	83.9%
Yes, and I'd like to provide further information.	25	1.0%	6.6%
No	36	1.5%	9.5%
Not Answered	2034	84.3%	-

Key themes:

- 7.38 There was strong support among respondents for the draft guidance on commissioning hot water storage vessels.
- 7.39 There were few concerns raised by a small number of respondents that indicated a general level of dissatisfaction with commissioning but did not directly relate to the proposed guidance. Some respondents noted that a lack of skills was a more significant barrier to commissioning than the quality of the guidance provided. Another note made was that improvements should be made to the guidance available on commissioning hot water storage vessels, but this should not be through the Building Regulations, and this should instead be addressed by industry.
- 7.40 Multiple respondents indicated that the guidance should include information on storing hot water at lower temperatures.
- 7.41 A number of highly technical concerns and suggestions were made by individual respondents:
- Section 7 should give guidance on common real-world operating conditions and what the most efficient settings would be for hot water storage.
 - The Approved Document should give an overview of the basic requirements of referenced documents.
 - The Benchmark procedure should be referenced for commissioning cylinders.
 - Approved Document G should be referenced for hot water.

- A copy of the installation and commissioning certificate should be made available to the homeowner.
- The term “thermal stores” should be used rather than “hot water storage vessels” to allow for commissioning heat batteries.
- There should be a clearer explanation of accepted softening methods.
- The guidance should go further and encourage seasonal commissioning or a check after the first year of operation.
- BS 7593 (the British Standard code of practice that provides guidance on the preparation, commissioning, and maintenance of domestic central heating and cooling water systems) should be referenced.
- Paragraph 8.2 within the draft Approved Document should reference the CIBSE Domestic Heating Design Guide specification criteria sheet.
- Paragraph 8.8b within the draft Approved Document should recommend considering non-chemical inhibitor based methods of corrosion prevention if these are recommended by the manufacturer.
- The information provided within the proposed commissioning plan in paragraph 8.3 may duplicate information already provided to Building Control via the BREL report.
- There was concern that the documents referenced in paragraph 8.9 in the draft Approved Document focus on non-domestic buildings, including Approved Code of Practice L8. It was suggested that these should not be used as a reference in guidance for dwellings. There should be more appropriate guidance on legionella control in lower temperature heating systems in order to support allowing lower storage temperatures.

Government Response to Q44:

- 7.42 We are grateful for comments received in response to this question. Many comments cited useful guidance or alternative methods of meeting the Building Regulation requirements.
- 7.43 The Approved Documents provide ways of meeting the Building Regulations in normal circumstances. To keep the guidance clear and concise, we have not been able to cite all of the alternative guidance suggested by respondents in the Approved Document, even though many of the suggestions could be viable means of complying.
- 7.44 We also acknowledge the common concerns raised such as the need for clearer guidance on commissioning practices and storing hot water at lower temperatures, but to maintain clarity and conciseness, these have not been incorporated into the Approved Document.
- 7.45 As a result, the Approved Document text has been kept broadly as presented at consultation stage.

Question 45: Are you aware of any gaps in our guidance around commissioning heat pumps, or any third-party guidance we could usefully reference?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q45
Yes	93	3.9%	23.0%
No	311	12.9%	77.0%
Not Answered	2009	83.3%	-

Key themes:

- 7.46 A recurring theme amongst respondents was the competence and registration of heat pump installers and those commissioning and testing installations. A significant number highlighted the shortage of technically competent installers.
- 7.47 Respondents called for clearer, more accessible user guidance for heat pumps, noting that current manuals are often too complex for the average consumer.
- 7.48 Another common issue cited was incorrect sizing of systems and the lack of a common established method for sizing heating systems.
- 7.49 There was strong support for incorporating third-party and manufacturer-specific guidance into commissioning protocols.
- 7.50 Respondents also emphasised the importance of seasonal commissioning. Suggestions also included mandatory post-commissioning follow-ups, such as scheduled check-ins or recorded handovers, to ensure systems operate correctly and users fully understand them.
- 7.51 Several existing resources were suggested. CIBSE guidance, particularly Commissioning Code M, was noted for its relevance to system design and commissioning practices.
- 7.52 A number of respondents suggested referencing a standard commissioning checklist for heat pumps in Approved Document L. The MCS installer handover checklist was cited, as well as the Heat Pump Association’s commissioning checklist. The Benchmark Installation Standard was also suggested.

Government Response to Q45:

- 7.53 Sizing heat pump systems correctly is vital to reduce the risk of inefficiency and high operating costs. The Approved Document sets out guidance on sizing heating systems effectively.
- 7.54 We have cited the need to provide a commissioning checklist as evidence that commissioning has been carried out correctly. The Approved Document references

MCS and Heat Pump Association documents as examples of how this can be provided.

- 7.55 The Approved Document makes the competence standards for those carrying out testing and commissioning of heat pump installations much clearer. There is an expectation that the person carrying out the commissioning and testing is a member of an organisation which regularly assesses their competence and performance. This includes relevant competent person schemes.
- 7.56 We also are grateful for the feedback regarding the accessibility of user guidance for consumers, as well as suggestions on seasonal commissioning, post-commissioning follow-ups, and other resources such as CIBSE guidance and industry checklists, and these areas will inform the path forward as we continue to monitor best practice and technological developments.

Question 46: Do you think the guidance for commissioning on-site electrical storage systems in Section 8 of draft Approved Document L, Volume 1: Dwellings is sufficient to ensure they are commissioned correctly?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q46
Yes	299	12.4%	83.5%
Yes, and I'd like to provide further information.	27	1.1%	7.5%
No	32	1.3%	8.9%
Not Answered	2055	85.2%	-

Key themes:

- 7.57 The guidance presented at consultation included a reference to the MCS standard MIS 3012. Concerns were raised about potential regulatory barriers and the cost of professional membership if MCS membership is required to access the standard. The guidance was also seen by some as being too inflexible.
- 7.58 Concerns were also raised that technology is evolving quickly, and that the MIS standard may not be sufficiently future-proofed.
- 7.59 The Institution of Engineering and Technology (IET) Code of Practice for Battery Storage Systems was cited by a number of respondents as an additional relevant reference.
- 7.60 Some respondents highlighted the need for better installer training, and the need for guidance on installation of battery energy storage systems.
- 7.61 Some respondents highlighted other technologies like vehicle-to-grid systems, and connections to urban microgrids that should be considered.

Government Response to Q46:

- 7.62 We have revised the guidance to make it clear that following the manufacturer's instructions is important. We have cited the MIS standard as one way of meeting the commissioning requirements, but we recognise that other methodologies may be suitable, and that the Approved Document guidance should be flexible to account for evolving technology.
- 7.63 We also note the feedback on emerging technologies such as vehicle-to-grid systems and urban microgrids, and the importance of installer training and clear guidance on battery energy storage system installation. These areas will be kept under review as technology and best practice continue to evolve.

Question 47: Do you agree with proposed changes to Approved Document L, Volume 1: Dwellings and Approved Document F, Volume 1: Dwellings to (a) clarify the options for certifying fixed building services installations and (b) set out available enforcement options where work does not meet the required standard?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q47
Yes	326	13.5%	80.3%
Yes, and I'd like to provide further information.	58	2.4%	14.3%
No	22	0.9%	5.4%
Not Answered	2007	83.2%	-

Key themes:

- 7.64 While there was general support for the proposed changes set out in this question, of those who did not agree with the proposed changes the principal concern was that Building Control do not have the required in-house expertise to validate heat pump and ventilation installations. One respondent noted that it is costly for Building Control to seek external expertise or train staff to do this. It was therefore suggested by some respondents that self-certification by an installer who is a member of a relevant competent person scheme should be the only available route.
- 7.65 However, it was also suggested that the self-certification route would require more rigorous auditing. Some suggestions included mandatory random monitoring by an independent body, or a set percentage of projects being audited by a competent person from Building Control.
- 7.66 In a similar vein, some respondents noted that even installers under competent person schemes may have insufficient skills to safely self-certify their installations. For example, the training required for competent person schemes can be brief, can be too general and not specific to new build, and can be biased

towards certain technologies while overlooking others. Several respondents noted that there is currently no certification scheme for the requirements in Approved Document F for mechanical ventilation.

- 7.67 There were also concerns about the capacity of current competent person schemes, with respondents warning that more efforts are needed to increase the number of participants in these schemes. Comparisons were made to the role played by Gas Safe, suggesting that while MCS might serve a similar function, it currently lacks the capacity to do so effectively.
- 7.68 A number of other concerns and suggestions were raised by a small number of respondents:
- It should be clarified within the core AD that ventilation falls into fixed building services.
 - Membership of professional institutions and bodies that already have criteria to assess competency should be used.
 - The updated Minimum Technical Competencies should be published to support the competent person schemes.

Government Response to Q47:

- 7.69 We have made significant amendments to the Approved Documents to state that a competent person scheme should be used when undertaking a heat pump or mechanical ventilation installation.
- For installing mechanical ventilation and air condition systems in dwellings, there are currently four registered competent person schemes: BESCA, Blue Flame Certification, Certsure and Napit.
 - For installing renewable technologies, including heat pumps, there are currently six registered competent person schemes: APHC, BESCA, Certsure, HETAS, NAPIT and OFTEC.
- 7.70 Government will be monitoring the performance and capacity of schemes closely, and will be keeping the guidance under review.

Home User Guides

- 7.71 As part of the 2021 uplift to Part L, Approved Document L, Volume 1: Dwellings was updated to specify that for new dwellings a Home User Guide should be provided to the homeowner that contains advice on ventilation; heating and domestic hot water; on-site electricity generation; and overheating. In the consultation, we proposed ways to ensure that the information developers are required to provide homeowners is useful and accessible.

Question 48: Do you think the additional information we intend to add to the Home User Guide template, outlined above, is sufficient to ensure home occupants can use their heat pumps efficiently?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q48
Yes	297	12.3%	67.5%
Yes, and I'd like to provide further information.	76	3.1%	17.3%
No	67	2.8%	15.2%
Not Answered	1973	81.8%	-

Key themes:

- 7.72 Most respondents felt that the proposed additional information is sufficient to ensure that occupants can use their heat pumps efficiently.
- 7.73 Some respondents felt that the written information provided in the Home User Guide is not sufficient to ensure that occupants can operate a heat pump. These respondents tended to advocate for additional support to be offered by the developer, such as a supplemental walkthrough by a member of the customer care team.
- 7.74 A small number of respondents expressed concerns that did not relate to the quality of the additional information proposed, instead focusing on the wider usefulness of the Home User Guide. These responses indicated a belief that home users do not read information provided in a written format and therefore cannot be effectively encouraged to comply with the guidance it provides.
- 7.75 Several respondents suggested that there ought to be greater emphasis within the guides on breaking habits and changing behaviours that are associated with living in a house that has a gas boiler. This was especially felt by respondents who categorised themselves as responding from trade bodies or as national representatives.
- 7.76 Several responses indicated concerns that the additional information may be difficult for a non-expert audience to understand.

Government Response to Q48:

- 7.77 Having considered the responses to the consultation, the Government will proceed with integrating the proposed information into the Home User Guide template, to ensure that the information that we provide to developers remains up to date and useful for integration into the documentation that they provide to buyers.

- 7.78 We understand that many developers already provide additional support to their buyers in the form of property walkthroughs at completion. Some developers also offer a follow-up visit some months later to refresh the advice given at handover and to provide further seasonal guidance. This follow-up visit presents an opportunity for developers to advise homeowners on how to use their homes effectively for the upcoming season, such as preparing for summer if the initial property walkthrough occurred in winter. The Government's view is that this is excellent practice within industry, and we advocate for developers to continue providing these services to their buyers.
- 7.79 We maintain that the Home User Guide is a useful document that can be referenced at the occupant's leisure, as customer care helplines and other similar sources of support from developers are not always immediately available. We consider the provision of a written guide, in conjunction with in-person walkthroughs of properties, to be best practice for enhancing the understanding of occupants.
- 7.80 The Government appreciates that heat pumps need to be used differently to gas boilers. We consider that the information recommended to be added to the Home User Guide template about the use of hot water cylinders and thermal stores is an appropriate addition, which will help homeowners to better understand the differences between a home that is heated by a heat pump instead of a more traditional gas boiler.
- 7.81 It is important that the information communicated to a homeowner about the most efficient use of their home is easy to understand. The Home User Guide addresses complex topics, such as the operation of heat pumps and ventilation systems, which inherently limits how simple the guidance can be. Nonetheless, we consider that the information we provide in the Home User Guide is appropriate, informative, and strikes a balance between technical accuracy and accessibility.

Question 49: If you are a domestic developer, do you use, or are you planning to use, the Home User Guide template when building homes to the 2021 uplift? Please give reasons in your response.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q49
Yes	55	2.3%	58.5%
No	39	1.6%	41.5%
Not Answered	2319	96.1%	-

Key themes:

- 7.82 In responses from those that use the Home User Guide template, a common theme was that the template offers a good benchmark for high standards and consistency in the information being expressed to occupants.

- 7.83 Another common viewpoint expressed was that the template provides a good starting point for home user documentation, and that they have used it or will use it to frame the documentation that they create.
- 7.84 In written responses, many respondents expressed that they choose to create their own Home User Guide documentation rather than rely exclusively on the template, although most of these respondents still use the information provided in the template in their own guides. The reasons for this vary, such as wanting to provide a more concise guide or information that is more specific to the homes they build.
- 7.85 Response to this question was low, but this is to be expected, given that it only requested responses from developers.
- 7.86 Some concerns were cited as reasons for not using the Home User Guide template, and these included:
- Lack of user friendliness
 - Complexity of language in the template
 - Adherence to a template making it difficult for developers to offer specific, useful detail about their homes

Government Response to Q49:

- 7.87 The Government welcomes the range of views from respondents on this topic. Some respondents expressed a preference for creating their own guidance. We are reassured that many respondents do use the Home User Guide template as a reference point for the creation of their own home user documentation.
- 7.88 We understand that the Home User Guide template is seen by some respondents as unfriendly for occupants, particularly in relation to the text heaviness of the document. While we maintain that the template contains information that is helpful in the running and maintenance of new build homes, we understand that developers may prefer to communicate information in their own guides in a range of ways that they are best placed to create, such as diagrams and photographs of their homes.
- 7.89 Using the Home User Guide template is not a legal requirement but rather an approved method of compliance with Regulations 39, 40, 40A and 40B of the Building Regulations. There is no requirement to follow the layout, format or example text used in the template.
- 7.90 Instead, we encourage developers to use the guidance in the template to meet these requirements in the manner that best suits their needs. This could be as minimal as using the template as a benchmark to evaluate the effectiveness of their own guidance, or as full as adopting the template in its entirety. In doing so, developers should also ensure that any guidance they produce is clear, accessible and user friendly for occupiers, so that information about how to best operate their home is easy to understand and apply.

Question 50: Do you have a view on how Home User Guides could be made more useful and accessible for homeowners and occupants, including on the merits of requiring developers to make guides available digitally? Please provide evidence where possible.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q50
Yes	262	10.9%	57.8%
No	191	7.9%	42.2%
Not Answered	1960	81.2%	-

Key themes:

- 7.91 There was strong support expressed in response to this question for the digitising of Home User Guides. However, some of these responses expressed the opinion that, for accessibility reasons, a hard copy of the guide should also be provided. A key concern about digital guides was the potential for there to be a lack of communication between landlords and tenants regarding manuals like the Home User Guide. If a digital guide is the only option available, it is less likely that this will be provided to a tenant, who will then not have the information they need to run their home efficiently.
- 7.92 Some respondents took the idea of a digital guide further by suggesting ways that the guide could be enhanced, including:
- QR code stickers somewhere in the home to provide a direct link to the Home User Guide.
 - Audio-visual enhancement to the Home User Guide through diagrams and video tutorials.
- 7.93 Broadly, ideas for improvement also focused on the usability of the guide, taking this opportunity to express their concerns about the Home User Guide. Some respondents felt that the guide should prioritise layperson understanding and were concerned that with additions to the Home User Guide, it may become overly technical and not user friendly.
- 7.94 Some respondents suggested that if Home User Guides are not tailored enough to individual homes, the guide will not be useful to occupants.
- 7.95 A key theme was that the overall quality of the Home User Guide as a product could be enhanced through the provision of a government-run central digital storage database. This was frequently mentioned alongside the industry concept of a Building Passport, sometimes referred to as a Property Logbook.

Government Response to Q50:

- 7.96 The Government has carefully considered the range of responses to this question and welcomes views on ways that the usefulness and accessibility of the Home User Guide can be enhanced.
- 7.97 To improve the accessibility of the Home User Guide, the Government has taken forward measures through the addition of Regulation 40C to the Building Regulations 2010. This regulation requires developers to provide information to a homeowner in an “appropriate format.” Approved Document L provides the recommended method for compliance with Regulation 40C, and outlines that for the format to be considered appropriate, both a paper and a digital copy of the Home User Guide should be provided or a paper copy is provided and a digital copy is made available.
- 7.98 This requirement has been introduced with the understanding that providing information in a range of ways will enhance the overall reference to the guide, as homeowners tend to refer to different forms of information in different circumstances. Furthermore, certain groups such as the elderly, may be more likely to refer to a paper copy than a digital copy. By requiring that information is provided in an appropriate format, supported by guidance encouraging information to be provided in ways that are accessible to different users, this should help to reduce the risk of any groups being unintentionally deprived of information. This approach should help to ensure that those in the rental sector are not disadvantaged.
- 7.99 To remain in keeping with the rest of the Building Regulations, the format for a digital copy will be left to the developer’s discretion. The Government are aware of some developers who already choose to offer the Home User Guide as a digital document through an online portal on their website, and this often comes accompanied with audio-visual guidance and other helpful tools. We welcome this as an excellent method of communicating information to homeowners digitally.
- 7.100 In cases where developers are choosing to provide digital documentation through their website, some also already choose to place a QR code somewhere in the property. The Building Regulations will remain technology agnostic, but we commend developers who adopt innovative practices to enhance accessibility and convenience for occupants.
- 7.101 The concerns raised around additions to the Home User Guide making it inaccessible to users are addressed in the Government response to Question 49.
- 7.102 While we understand the desire for the Home User Guide to provide tailored guidance that is specific to each individual property, we believe that going so far as to require bespoke guides for each home would impose significant burdens on developers. Instead, as seen in the Home User Guide template, we advocate for comprehensive yet general guidance that can be applied across various properties. This approach ensures that essential information is accessible and useful without overburdening developers or compromising the feasibility of compliance.

- 7.103 We welcome the views that were expressed specifically on the implementation of a building passport or property logbook scheme. These shed light on the desire that exists within industry to streamline access to important information for occupants, across the range of different documentation that comes with buying a new build home. This raises a wider question about the best approach to information delivery, which goes beyond the scope of the consultation’s proposed changes to Part L of the Building Regulations.
- 7.104 The consultation proposed that digital guides may be stored in a government-run central online database searchable by address. However, this suggestion did not fully account for the broader implications of such a system, and we no longer intend to pursue this specific proposal at this stage. In the future, we may consider broader changes to requirements surrounding information delivery, and the potential implementation of a government-maintained central online storage database.

Question 51: Do you think that there are issues with compliance with Regulations 39, 40, 40A and 40B of the Building Regulations 2010? Please provide evidence with your answer.

Regulations 39, 40, 40A and 40B require persons carrying out work to provide sufficient information to homeowners, within 5 days of work being completed, about:

- how to operate and maintain the ventilation system so that it provides adequate ventilation
- how to operate and maintain the fixed building services to use no more fuel and power than is reasonable
- how to operate and maintain systems for on-site electricity generation, such as solar PV panels, to maximise electricity production
- how to operate systems put in place under Part O (overheating mitigation) to protect against overheating

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q51
Yes	112	4.6%	57.4%
No	83	3.4%	42.6%
Not Answered	2218	91.9%	-

Key themes:

- 7.105 Although limited evidence was provided, some respondents commented that compliance was poor. There were some concerns raised that there is a lack of skill in the supply chain to be able to properly produce and understand information required for Home User Guides.
- 7.106 A point raised, which was also evident in responses to Question 52, was that the system needs to be clear on the definitions of “homeowner” and “first occupier”. There will commonly be times when the person to first take possession of

the Home User Information will not be the eventual first occupier. In these cases, some respondents were unclear on how processes might work for handover of home user information and confirmation of receipt before a building completion certificate is issued.

Question 52: Do you think that local authorities should be required to ensure that information required under Regulations 39, 40, 40A and 40B of the Building Regulations 2010 has been given to the homeowner before issuing a completion certificate?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q52
Yes	335	13.9%	76.1%
Yes, and I'd like to provide further information.	59	2.4%	13.4%
No	46	1.9%	10.5%
Not Answered	1973	81.8%	-

Key themes:

- 7.107 While 89.5% of respondents were in favour of the proposed change, it is important to note that the minority view raised significant concerns related to the capacity of the system to accommodate such a change. These included the need to make sure Building Control bodies are resourced to carry out the checks and that those checks do not add unnecessary delays to the handover process.
- 7.108 Similarly, respondents suggested that if this were to be put into place, Building Control bodies would need very clear criteria for what should be in Home User Guides to facilitate these checks being done at speed. This also indicates a concern about administrative burden.
- 7.109 Several respondents suggested that a digital system would be needed to make this process possible to implement.
- 7.110 There were concerns about the practicality of this system. If a dwelling is complete before a buyer is in place, this could cause delays on completion certificates being issued until someone has purchased the property, or it would require a system to be put in place that would allow for a completion certificate to be issued without a buyer. This raised concerns that this would allow some unscrupulous developers to circumvent the process and make it redundant.
- 7.111 A number of respondents who answered “yes” to this question expressed views that were, in practice, requests for improved access to Home User Guides. Respondents gave very similar feedback in their answers to Question 50, which suggests that the approach proposed in this question is not the only mechanism for achieving the intended outcome. Given the significant concerns raised about the administrative burden associated with the option outlined here, it may be possible to

address stakeholders' underlying objective more effectively through the measures considered in response to earlier questions on the accessibility and delivery of Home User Guides.

Government Response to Q51 and 52:

- 7.112 The Government is grateful to all respondents who gave feedback on potential issues surrounding compliance with regulations 39, 40, 40A and 40B of the Building Regulations 2010, and we welcome the considered views on the proposal to provide completion certificates only once local authorities have been notified that Regulations 39, 40, 40A and 40B have been complied with. These views will continue to inform the path forward.
- 7.113 We note that a significant majority of respondents to this question have expressed support for higher levels of enforcement in ensuring that this information is provided. This is an important consideration for us as we continue to explore options for improving compliance and ensuring that homeowners and occupants receive the necessary information.
- 7.114 However, the Government recognises the concerns that respondents have with surrounding the capacity of local authority and building control bodies, and the potential for the proposed process to add delays to handover processes. We consider that the intention of this proposal is to ensure that occupants receive a Home User Guide, and it is important that any measures taken by the government are appropriate and proportionate to the problem that they intend to correct.
- 7.115 We consider that the requirement for a Home User Guide to be provided in an accessible format to the building owner, as outlined in greater detail in the Government response to Question 50, will likely result in more homeowners and occupiers being provided with a usable Home User Guide, without adding significant burden to the administrative process of buying a new home.
- 7.116 In light of this, we have decided to take a proportionate approach by focusing on improving the accessibility and delivery of Home User Guides rather than introducing new requirements for completion certificates at this time.
- 7.117 We may consider broader changes to requirements surrounding information delivery, and the potential implementation of greater oversight in the future.

Chapter 7: Summary

We consulted on what more could be done to reduce the gap between expected and measured performance in new homes to build upon measures introduced through the 2021 uplift to Part L.

- ✓ We intend to publish a call for evidence and consider research on the energy performance gap and building performance evaluation.
- ✓ We have decided not to proceed with a Future Homes Standard brand.
- ✓ We have amended guidance on commissioning and installation of fixed building services in Approved Documents F and L, including clarifying the importance of following manufacturers' instructions for heat pump installations, on-site electricity storage systems, and highlighting the role of competent persons schemes when installing a heat pump or mechanical ventilation.
- ✓ We have not extended Regulation 42 to work in existing buildings and have retained the consultation proposal for guidance on commissioning of hot water storage vessels.
- ✓ We have clarified routes for certifying fixed building services installations and set out available enforcement options where work does not meet the required standards.
- ✓ We have strengthened Home User Guide requirements and guidance, including through the introduction of Regulation 40C to support provision of information to homeowners in an appropriate format.

Chapter 8 - Heat networks

8.1 Heat networks will play an important part of our net zero future in any scenario. In the consultation, we proposed supporting the expansion of heat networks where they are making demonstrable steps to decarbonise. We proposed that new homes and buildings should be allowed to connect to existing and new heat networks where they can demonstrate that they are adding new low carbon technologies, or are able to make use of existing low carbon heat which is currently unused. At a minimum, the heat required by any additional new homes and buildings connected to an existing heat network should match the new or unused existing low-carbon heat generation capacity of the network. We proposed that a sleeving system be used to implement this principle.

Question 53: Do you agree that new homes and new non-domestic buildings should be permitted to connect to heat networks, if those networks can demonstrate they have sufficient low-carbon generation to supply the buildings' heat and hot water demand at the target CO₂ levels for the Future Homes or Buildings Standard?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q53
Yes	471	19.5%	64.9%
Yes, and I'd like to provide further information.	235	9.7%	32.4%
No	20	0.8%	2.8%
Not Answered	1687	69.9%	-

Question 54: Do you agree that newly constructed district heating networks (i.e., those built after the Future Homes and Buildings Standards come into force) should also be able to connect to new buildings using the sleeving methodology?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q54
Yes	310	12.8%	52.5%
Yes, and I'd like to provide further information.	47	1.9%	8.0%
No	234	9.7%	39.6%
Not Answered	1822	75.5%	-

Question 55: Do you agree with the proposed guidance on sleeving outlined for Heat Networks included in Approved Document L, Volume 1: Dwellings and Approved Document L, Volume 2: Buildings other than dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q55
Yes	247	10.2%	49.1%
Yes, and I'd like to provide further information.	18	0.7%	3.6%
No	238	9.9%	47.3%
Not Answered	1910	79.2%	-

Question 56: Do you agree that heat networks' available capacity that does not meet a low carbon standard should not be able to supply heat to new buildings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q56
Yes	584	24.2%	91.7%
No	53	2.2%	8.3%
Not Answered	1776	73.6%	-

Question 57: What are your views on how to ensure low-carbon heat is used in practice?

Question 58. Are there alternative arrangements for heat networks under the Future Homes and Building Standards that you believe would better support the expansion and decarbonisation of heat networks?

Key themes:

- 8.2 Overall, there were mixed levels of support for the heat network proposals. A common concern raised across these questions was that the proposed standards need to be better aligned with other measures to regulate heat networks, such as the upcoming heat network zoning regulations or the Heat Network Technical Assurance Scheme framework, to avoid duplication or confusion.
- 8.3 Some of these respondents felt that the regulation of heat networks should be left to these other mechanisms rather than be included within the Future Homes and Buildings Standards. Some parallels were drawn to the approach adopted by the Scottish Government as part of the New Build Heat Standard, where heat

networks are able to be considered clean heating regardless of the fuel used to power them.

8.4 A number of respondents felt that the proposals set out in the consultation were too challenging or too expensive for heat networks to achieve and therefore would be detrimental to overall decarbonisation progress.

8.5 In contrast, some other respondents were doubtful of the benefits of heat networks more generally and felt that their expansion should not be encouraged. There were calls for more stringent low carbon requirements for heat networks and for higher fabric standards for new homes connecting to heat networks.

8.6 Other general comments around heat networks were raised by a small number of respondents, including that:

- In some pre-existing sites, it may not be possible to accommodate a low carbon plant given space constraints on the site.
- There should be measures to better protect heat network consumers in terms of costs and service quality.
- Temporary heating sources are often used at the outset before a home can be fully connected into a heat network. These temporary sources are unlikely to meet the low-carbon requirements.

8.7 In addition to these general concerns, there were specific concerns and suggestions around the proposed sleeving mechanism:

- Annual consumption should be used rather than peak demand within the sleeving calculation. Reasons given for this included that, while it would allow some fossil fuel plant to be connected, it would only be used during peak periods of demand, and would result in lower bills and may compare favourably to grid emissions at peak times.
- The proposed scheme would lead to a too rapid removal of gas CHP, leading to an increase in CO₂ emissions as gas OCGT/CCGT would be used in the short term.
- The proposal relied on an as-yet incomplete Product Characteristics Database (PCDB) process.
- There was a suggestion that, as spare capacity cannot readily be defined, the sleeving process should only apply to new capacity.
- There was insufficient oversight of the proposed sleeving process, and this could create regulatory loopholes. Suggestions to mitigate this included requiring independent auditing, creating a public register of heat networks, requiring heat networks to submit data on CO₂ emissions annually, and comparing outputs from clean heat generators to heat demand to check what is used in practice.
- It was suggested that the proposed three-year window for a future plant to be connected is too short.

Government Response to Q53-58:

- 8.8 Based on the feedback received, we have amended our approach to heat networks but maintain the option to use 'sleeving' to support connection. These changes are intended to ensure the approach is deliverable in practice, while continuing to support the decarbonisation of heat networks. Under the revised approach, there are two routes for demonstrating compliance for a new building or dwelling connected to a new or existing heat network.
- 8.9 The first is to compare the performance of the building or dwelling to a standardised 'low carbon heat network' notional building. This route is available for single building networks (communal networks). It is anticipated this route may be used where very low carbon district level heat networks can offer heat that outperforms the notional standard, which could therefore be of benefit to the dwelling's overall emissions and primary energy. The methodology for this calculation follows previous iterations of Part L, reflecting the heat network's specific heat generating plant type(s) and efficiencies.
- 8.10 The second route is a variant of the sleeving approach proposed in the consultation and is based on an assessment of the type of thermal energy connected to the dwelling. Under this route, heat network operators can make a declaration that they have the necessary sleeved heat to meet the standard. This declaration needs to be verified by a suitably qualified third party as part of the application to building control. We have removed the guidance relating to maintaining a tally of sleeved capacity via the PCDB.
- 8.11 To comply with this new approach to sleeving, it must be demonstrated that over the course of a year, at least 90% of the thermal energy calculated as delivered to the new building or dwelling by a heat network (in kWh) is provided by low-carbon heat sources, including distribution losses. Up to 10% of thermal energy calculated as delivered to the new building or dwelling by a heat network (in kWh) can be provided by 'other' sources. A defined list of these heat source categories is provided in Tables 1.2 in Approved Document L: Volume 1 (Dwellings) and Volume 2 (Buildings other than dwellings). Where this condition is met, the building or dwelling's carbon factor (gCO₂/kWh) and primary energy factor (kWh/kWh) for heat used in the notional building shall match that used in the calculation of the actual dwelling. The effect of this is to remove any effect of the performance of the heat network from the compliance calculation i.e. the performance of the heat network (other than the sleeved capacity) will not affect whether the compliance targets are hit or not, it will only be the other aspects of the building or dwelling (e.g. insulation, lighting) that make a difference. This approach can only be used by district heat networks supplying multiple buildings. Communal heat network systems, where multiple dwellings or units within one a single building are served from a central heat source in that building, cannot use this route to compliance.
- 8.12 We recognise that when new homes and buildings are constructed with the intention of being powered by a heat network, it is sometimes not possible to connect them to the network immediately. Therefore, a temporary heating solution may be required before the connection is in place. We have set the Future Homes and Buildings Standards at a level which will mean that it will not be possible to demonstrate compliance with the FHBS if fossil fuel temporary

systems are used. This will help to ensure that all new homes and buildings are low carbon, and it will mitigate the risk that ‘temporary’ fossil fuel systems are left in place permanently, leading to a future retrofit burden. To provide some additional flexibility, however, we have extended the period of time available to connect to clean energy sources under the sleeving method to five years (from an originally consulted on three years).

- 8.13 The carbon emissions of certain operational heat networks will likely be regulated in the future through powers introduced by the Energy Act (2023), and subsequent secondary legislation. To avoid situations where the carbon emissions of individual heat networks are regulated through both Building Regulations and other legislation, we intend to review and amend the Approved Documents once other relevant legislation is in place to ensure alignment. At that point, and subject to any further required consultation and policy development, we envisage introducing a third route to compliance for new homes and buildings connected to heat networks. Under this new route, it may, for example, be sufficient to evidence that the heat network supplying the building or dwelling with heat meets a ‘passporting’ condition specified by government. Such a passport could be provided when the heat network’s emissions are being controlled under other legislation, such as a heat network zoning emissions limit.

Chapter 8: Summary

We consulted on how the Future Homes and Buildings Standards should apply to dwellings and buildings connected to heat networks.

- ✓ We have amended our approach to heat networks and outlined in the Approved Documents two routes for a new dwelling or building other than a dwelling (including mixed-use buildings) connected to a new or existing heat network to demonstrate compliance.
- ✓ Temporary heating solutions that are used before the building or dwelling is connected to a heat network will need to be low carbon.
- ✓ We will keep the Approved Documents under review and consider whether updates are needed to align with other relevant legislation impacting the carbon emissions of heat networks.

Chapter 9 - Smart meters

9.1 Smart meters are an important upgrade to our national energy infrastructure and a key enabler of the energy system flexibility needed to achieve the Government's Clean Power 2030 Mission. We consulted on updating guidance that was originally published in November 2020 for developers, builders, architects and all those involved in the specification of metering locations in new buildings. It was proposed that this guidance be updated to provide additional clarity for the construction industry on how to ensure smart meters can be installed and commissioned in their buildings from the outset, focusing on solutions to the most common blockers to achieving this.

Question 59: Do you agree that the draft guidance provides effective advice to support a successful smart meter installation in a new home, appropriate to an audience of developers and site managers?

If not, please provide suggestions for how the draft guidance could be improved. Please provide evidence and sources for your statements where appropriate.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q59
Yes	346	14.3%	88.5%
No	45	1.9%	11.5%
Not Answered	2022	83.8%	-

Key themes:

9.2 The majority of respondents agreed that the draft guidance would be effective in supporting smart meter installations in new build dwellings. Many developers, site managers, and industry professionals stated that they found the guidance useful, providing clear and practical instructions on meter placement and installation procedures, and helping to avoid common installation issues. Respondents also praised the guidance for aligning with existing industry best practices, reducing uncertainty about smart meter placement and installation procedures. Some noted that having a standardised approach helped streamline installation processes across different housing projects, improving efficiency and reducing errors. Others flagged the relevance of the guidance for all buildings - see responses to Question 60 for more detail.

9.3 Some respondents questioned the necessity of the guidance, arguing that smart meters are already widely installed as an industry standard in new buildings. These respondents, mainly large developers and homebuilders, suggested that the installation of smart meters is already a routine part of modern construction. However, others pointed out that smaller developers and independent builders may

lack the same industry standards, leading to inconsistent installation quality and potential compatibility issues for consumers and energy suppliers.

- 9.4 Some major national suppliers and industry stakeholders argued that smart meter installations should be a mandatory requirement in new buildings, rather than relying on voluntary guidance.
- These respondents highlighted concerns that voluntary guidance could result in inconsistent implementation. Without a legal requirement, developers could delay or avoid installations, leading to unequal rollout across new developments.
 - Additionally, some respondents noted that voluntary compliance may result in smart meters being installed incorrectly or in suboptimal locations, particularly where developers lack clear incentives to follow best practice. They argued that regulation would establish a uniform standard, ensuring that smart meters are consistently and correctly installed across all new buildings.
- 9.5 Some respondents suggested that the guidance should have been included within the updates to Part R which came into force in England, subject to transitional arrangements, on 26 December 2022, and which they thought was more suited to the scope of the guidance.
- 9.6 Some respondents suggested refinements to the guidance to address practical installation challenges. Key recommendations included:
- Optimising smart meter placement for better connectivity, particularly in flats (and other Multiple Dwelling Units (MDUs)) where signal interference may occur.
 - Ensuring appropriate spacing between electricity and gas meters to allow proper communication between devices.
 - Providing clear installation instructions for builders to follow best practice and avoid installation errors.
 - Standardising meter locations to ensure ease of access for consumer maintenance teams.

Question 60: Do you agree that voluntary guidance referenced in draft Approved Document L, Volume 1: Dwellings is the best approach to encouraging smart meters to be fitted in all new domestic properties?

If not, is there anything else you think the government should be doing to ensure that smart meters are fitted in all new build properties?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q59
Yes	285	11.8%	68.5%
No	131	5.4%	31.5%
Not Answered	1997	82.8%	-

Key themes:

- 9.7 The majority of respondents agreed that voluntary guidance referenced in draft *Approved Document L, Volume 1: Dwellings* is the best approach for encouraging smart meter installations in new build dwellings. These respondents considered that flexibility is important, as it allows developers to accommodate smart meters in ways that suit different building projects without additional regulatory burdens.
- 9.8 It is worth noting that responses selecting “No” may have represented a number of different views, for example that the guidance should be mandatory, that it should be referenced elsewhere, or that it may not be needed.
- 9.9 Several respondents raised concerns that voluntary guidance may not ensure consistent implementation. Many of these respondents supported a legally binding requirement instead, arguing that without a legal requirement, compliance would vary between developers. This could result in some new builds accommodating smart metering equipment while others do not, leading to an uneven rollout across the housing sector. Lack of enforcement could result in smart meters being installed in suboptimal locations, creating long-term accessibility and connectivity issues.
- 9.10 Developers and energy sector stakeholders warned that relying on market-driven adoption might result in some developers opting out due to perceived costs of accommodating smart metering equipment, which could undermine the policy objective of universal smart meter adoption in new build dwellings.
- 9.11 A small number of respondents provided technical recommendations, focusing on:
- Ensuring smart meters are interoperable, allowing consumers to switch suppliers without losing smart functionality or requiring new equipment. However, this falls outside the scope of the guidance.
 - Addressing location and spacing challenges, particularly in flats where meters need to ensure connectivity.

- Including installation instructions or user guidance to help ensure ease of access and use of smart meters for homeowners.
 - Ensuring compatibility with existing energy network infrastructure to support future innovations in smart home technology.
- 9.12 A number of major national suppliers recommended that the guidance be made mandatory and included in the Building Regulations.
- 9.13 Several respondents raised the relevance of the smart metering guidance for all new buildings. For example, one public body flagged that signal propagation to the Communications Hub is also relevant in non-domestic buildings. They suggested guidance for new builds in both sectors may encourage industry to deliver appropriate solutions. Others flagged the importance of smart meters being installed as standard in all new buildings, citing benefits such as customer access to innovative tariffs, products and services and the importance of smart meters in delivering a more flexible and efficient energy system.
- 9.14 Some respondents raised that smart meters should be mandatory for all new builds, buildings undergoing material change of use, and renovation projects.

Government Response to Q59 and Q60:

- 9.15 The Government has published updated voluntary guidance to ensure smart meters can be installed and commissioned in new builds, following strong support amongst respondents for the proposals in Q59 and Q60.
- 9.16 The updated guidance includes the following minor technical refinements, as informed by the consultation:
- Clearer advice for developers on meter spacing and positioning to support signal propagation and ease of maintenance.
 - Improved alignment with Alternative Home Area Network and Energy Networks Association guidance and recommendations.
 - Strengthened content on avoiding signal obstruction, particularly in flats and MDUs.
 - Updated guidance on minimising signal interference through meter placement.
- 9.17 We have taken these clarifications forward because respondents identified persistent issues in meter placement, spacing, and signal interference. These issues can result in failed installations or poor smart meter connectivity. The updated guidance aims to reduce those risks while remaining practical and easy to use for developers and installers.
- 9.18 We have not acted on some of the more complex technical suggestions at this stage, such as prescribing exact installation layouts. These would require further engagement with technical experts and could extend the scope of the guidance beyond its intended role as a practical support tool. We will revisit these suggestions in future iterations where appropriate, if the monitoring of smart meter

uptake and installation outcomes for new builds indicates that further guidance is needed.

- 9.19 A number of consultation responses focussed on installer practices rather than developer responsibilities. As the smart metering guidance is intended for developers of new builds, such comments were considered out of scope for this update.
- 9.20 The guidance has been referenced in the Part L Approved Document to raise awareness of it and encourage its use. The Government believes that maintaining a voluntary approach remains the most proportionate route for now. A mandatory route would require significant policy and legal changes and could introduce delivery challenges for new builds. However, we will continue to monitor smart meter uptake and installation outcomes for new builds. If voluntary measures prove ineffective, we may re-evaluate this position.
- 9.21 Smart meters are being rolled out to businesses and public sector sites as well as dwellings. Non-domestic smart meter data can enable demand-side response measures and market-wide half-hourly settlement, and supports organisations with their decarbonisation strategies. Energy suppliers are required to provide all smaller organisations with smart meters with free and regular information on their energy use to help them monitor and manage their energy costs⁵.
- 9.22 The Government has considered stakeholder feedback on the applicability of the smart metering guidance to all new buildings. In response, we engaged with technical experts and representatives from the non-domestic sector to assess the applicability of the guidance to non-domestic premises. The advice received noted that the guidance addresses common barriers to smart meter installation and commissioning, supporting the design and construction of buildings to enable reliable smart meter deployment. Whilst non-domestic premises can vary significantly in size, sector and metering arrangements, the technical enablers of successful smart meter deployment included in the guidance are generally relevant when considering the building design of all premises and not specific to a particular type.
- 9.23 In addition, the guidance is intended to future-proof buildings to aid their suitability for smart meters as the market with respect to smart energy services evolves and is therefore relevant for new build design considerations irrespective of current metering arrangements or commercial choices.
- 9.24 Therefore, the Government can confirm that to support developers, architects and all those involved in the specification of metering locations in new buildings, the scope of the smart metering new builds guidance has been amended to cover all new buildings rather than just new build dwellings. To this effect, the guidance has been referenced in both Approved Document Part L, Volume 1: Dwellings and

⁵ [Maximising non-domestic smart meter consumer benefits, improving the data offer and enabling innovation - GOV.UK](#)

Volume 2: Buildings Other Than Dwellings as a document for recommended consideration.

Chapter 9: Summary

We proposed referencing guidance on good practice to ensure smart meters can be installed and commissioned in domestic new builds in Approved Document L.

- ✓ The Government has published updated voluntary smart metering good practice guidance for developers, builders, architects and all those involved in the specification of metering locations in new buildings. Technical clarifications have been incorporated to address connectivity and placement issues.
- ✓ The scope of the guidance has been extended to cover all new buildings, not just new build dwellings. As such, the guidance has been referenced in both Approved Document Part L Volume 1: Dwellings and Volume 2: Buildings Other Than Dwellings as a document for recommended consideration.
- ✓ The Government will continue to monitor smart meter installation outcomes for new builds and re-evaluate the approach if necessary.

Chapter 10 - Accounting for exceptional circumstances

- 10.1 We recognised in the consultation that, as the energy efficiency requirements we set for new buildings becomes stricter, there may be exceptional circumstances where these standards cannot reasonably be applied. Instead of setting less ambitious standards, we proposed that we allow dispensation or relaxation in these exceptional circumstances.
- 10.2 Regulation 26 is the requirement not to exceed the target CO₂ emission rate for the building. Currently, it is not possible to relax Regulation 26. By contrast, almost all other parts of the Regulations can be relaxed or dispensed with where the relevant building control authority judges the requirement to be unreasonable. We sought views on allowing the relaxation of Regulation 26.

Question 61: Do you agree that it should be possible for Regulation 26 (CO₂ emission rates) to be relaxed or dispensed with if, following an application, the local authority or Building Safety Regulator concludes those standards are unreasonable in the circumstances?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q61
Yes	251	10.4%	37.0%
No	427	17.7%	63.0%
Not Answered	1735	71.9%	-

Question 62: [If yes to previous question], please share any examples of circumstances where you think it may be reasonable for a local authority to grant a relaxation or dispensation?

Key themes:

- 10.3 A number of responses noted that, whilst their preferred option would be against providing means of relaxing or dispensing Regulation 26, there may be exceptional circumstances where it may be permissible to allow relaxation under tightly defined guidelines and assessment from qualified bodies.
- 10.4 Some respondents raised issue with the position of local authorities to grant relaxations or dispensations, primarily due to concerns about ensuring sufficient resourcing for the processing and management of a transparent relaxation process.

- 10.5 A variety of potential reasons for relaxation or dispensation were identified in responses, including:
- Where buildings would affect historic or conservation areas.
 - Where existing energy infrastructure limitations exist. This could include remote rural sites that are not connected to the electricity grid, or sites that are unable to obtain grid connections due to local capacity issues.
 - To enable scientific trials towards new energy technologies, such as hydrogen-powered homes.
 - Where sites have been stalled for long-term reasons that are beyond the developer's control.
- 10.6 Specific concerns were raised about how relaxations or dispensations might be required for sites that are unable to achieve the required level of solar panel coverage, or for sites connected to a heat network that are unable to achieve the required heat network standards. These concerns have been addressed in the sections on performance requirements (Chapter 3) and on heat networks (Chapter 8) respectively.

Government Response to Q61 and Q62:

- 10.7 We have decided not to allow Regulation 26 to be relaxed or dispensed with at this stage. While the Future Homes and Buildings Standards raise the ambition for target carbon dioxide emissions, they retain sufficient flexibility to ensure achievability. Notably, the shift to a functional requirement approach for renewable electricity generation in new dwellings addresses many of the concerns raised about sites potentially requiring exemptions. Very few respondents provided legitimate examples of sites that would genuinely necessitate a relaxation or dispensation of some form.
- 10.8 We recognise that meeting the Future Homes and Buildings Standards will be challenging for buildings which do not have access to the national grid. For such developments, a building control body might declare it is reasonable to install a higher carbon heating system. The building, however, must still meet the CO₂, primary energy and fabric energy efficiency requirements.
- 10.9 The Government will continue to monitor the need for relaxations or dispensations. In response to concerns raised in consultation about the resourcing of local authority building control bodies, the Government has also consulted separately on proposals to reform the building control charging framework, including whether local authorities should be able to charge for the consideration of applications to relax or dispense with requirements under sections 8 and 9 of the Building Act ([Building control: charges, notices and certificates - GOV.UK](#)). This consultation has now closed, and the Government response, including next steps, will be set out in due course.

Question 63: Do you think that local authorities should be required to submit the applications they receive, the decisions they make and their reasoning if requested?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q63
Yes	397	16.5%	81.9%
Yes, and I'd like to provide further information.	68	2.8%	14.0%
No	20	0.8%	4.1%
Not Answered	1928	79.9%	-

Question 64: Are there any additional safeguards you think should be put in place to ensure consistent and proportionate use of this power?

Key themes:

- 10.10 Of those who responded to this question, the majority of responses were in favour of requiring local authorities to publish received applications, decisions made, and their reasoning if requested. A significant proportion of responses went further and suggested that decisions on relaxations or dispensations should be made publicly available. However, as per Q61, a number of responses raised concerns regarding the capacity of local authorities to perform such work.
- 10.11 A variety of additional safeguards were suggested to ensure consistent and proportionate use of dispensations or relaxations:
- Government should provide a clear set of examples where relaxations or dispensations would be appropriate to aid developers, local authorities and the Building Safety Regulator in applying powers consistently.
 - There should be open access to evidence and justifications for building control authority decisions, alongside checks by central government and evaluation of the relaxations process.
 - Decision-making authority for dispensations and relaxations should be held only by central government.

Government Response to Q63 and Q64:

- 10.12 As the Government has decided not to permit relaxations or dispensations of Regulation 26 at this stage, there is no requirement for additional reporting or safeguards to ensure consistent and proportionate use of this power. This position would be re-evaluated if relaxations or dispensations were to be introduced in the future.

- 10.13 While some respondents suggested that decision-making authority for Regulation 26 relaxations or dispensations should be centralised within a single body, such as the Building Safety Regulator, the Government does not consider this a viable option. Such an approach would create a significant inconsistency with the way relaxations and dispensations are handled across the wider Building Regulations framework.

Chapter 10: Summary

We consulted on whether relaxations or dispensations should be allowed in exceptional circumstances where the Future Homes and Buildings Standards may not be achievable.

- ✓ We have decided not to permit relaxations or dispensations of Regulation 26 (CO2 emission rates for new buildings) at this stage.
- ✓ The Government will continue to monitor the need for relaxations or dispensations and has consulted separately on proposals to support local authority building control capacity.

Chapter 11 - Legislative changes to the energy efficiency requirements

- 11.1 The Future Homes and Buildings Standards primarily involve changes to the Approved Documents and notional building specification. However, we also consulted on making changes to the Building Regulations to ensure they reflect our dual aims of reducing carbon emissions and conserving energy.

Question 65: Do you agree that Part L1 of Schedule 1 should be amended, as above, to require that reasonable provision be made for the conservation of energy and reducing carbon emissions?

Part L1 of Schedule 1 makes provision for the conservation of fuel and power in buildings by limiting heat gains and losses and providing fixed building services which are energy efficient, have effective controls and have been commissioned correctly. The consultation proposed amending Part L1 of Schedule 1 to better reflect the dual goals of conserving energy and reducing carbon emissions.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q65
Yes	498	20.6%	86.6%
Yes, and I'd like to provide further information.	58	2.4%	10.1%
No	19	0.8%	3.3%
Not Answered	1838	76.2%	-

Key themes:

- 11.2 On the whole, respondents agreed that Part L1 of Schedule 1 should be amended to require that reasonable provision be made for the conservation of energy and reducing carbon emissions.
- 11.3 There were further comments that the proposed amendment does not go far enough. There was concern that the phrasing is too open-ended, with some respondents urging for the use of a stronger word than 'reasonable'. Some respondents asked for statements mandating technologies to be used, such as solar PV, heat pumps and wastewater heat recovery systems, and technologies to be banned, such as gas boilers.
- 11.4 There were several comments beyond the scope of this consultation, such as requests for embodied carbon to be regulated in the Building Regulations.

- 11.5 One respondent felt that the goal of minimisation of greenhouse gas emissions is a political, rather than a technical, objective and thus should not be included in the Building Regulations.

Government Response to Q65:

- 11.6 The Building Regulations will maintain their performance-based approach to meeting the carbon and primary energy targets. This will allow builders and homeowners the flexibility to innovate and select the most practical and cost-effective solutions appropriate in any development. A new approach has been taken for PV installations, which is detailed in Chapter 3.
- 11.7 However, the Government recognises the important role that energy efficient buildings have in reducing carbon emissions from the built environment. Based on the feedback received, we have amended Part L1 of Schedule 1 of the Building Regulations to better reflect the dual goals of conserving energy and reducing carbon emissions.

Question 66: Do you agree that Regulations 25A and 25B will be redundant following the introduction of the Future Homes and Buildings Standards and can be repealed?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q66
Yes	298	12.3%	52.7%
Yes, and I'd like to provide further information.	15	0.6%	2.7%
No	252	10.4%	44.6%
Not Answered	1848	76.6%	-

Key themes:

- 11.8 Respondents were divided in their opinion of whether Regulations 25A and 25B should be repealed. Of those who agreed with the proposal, little commentary was provided.
- 11.9 Architects and designers/engineers/surveyors were the stakeholder groups who most commonly disagreed with the proposal. Of those who disagreed, the principal argument was that the proposed Future Homes and Buildings Standards do not go far enough and will not deliver net zero carbon ready buildings, and therefore Regulations 25A and 25B will still be necessary as a backstop to reinforce the Government's net zero commitments.
- 11.10 Some respondents observed that zero energy (as encouraged by Regulations 25A and 25B) is not the same as zero carbon (as the Future Homes and Future Buildings Standards intend to deliver). It may therefore be worth retaining the regulations as a drive towards lower energy use as well as cleaner energy use.

Government Response to Q66:

- 11.11 The Government is committed to delivering regulations that ensure highly energy efficient homes. In order to meet our target of net zero emissions by 2050, we are committed to setting energy efficiency standards through the Building Regulations that are highly ambitious, achievable and affordable across all sites in all parts of the country, and we maintain that the Future Homes and Buildings Standards will support this commitment.
- 11.12 We have, however, decided not to repeal Regulations 25A and 25B at this time. While consultation responses did not present strong arguments either way, it was considered that retaining these regulations may offer long-term value in certain niche cases. Retaining Regulations 25A and 25B provides a backstop, helping to maintain a baseline level of energy efficiency across all developments.

Chapter 11: Summary

We proposed legislative amendments to make sure the Building Regulations reflect the dual aims of reducing carbon emissions and conserving energy.

- ✓ We have amended Part L1 of Schedule 1 of the Building Regulations to require that reasonable provision be made for reducing greenhouse gas emissions (in addition to the conservation of fuel and power).
- ✓ We have not repealed Regulations 25A (consideration of high-efficiency alternative systems for new buildings) and 25B (nearly zero-energy requirements for new buildings) of the Building Regulations.

Chapter 12 - A review of our approach to setting standards

- 12.1 Currently, to determine the energy performance of new buildings and to demonstrate compliance against performance requirements, calculations of emission rates and primary energy rates must be carried out according to the national calculation methodologies approved by the Secretary of State. For dwellings, this includes fabric energy efficiency rates.
- 12.2 For dwellings in particular, we recognise that the notional building approach is not supported by all stakeholders. In response, and to ensure this approach is aligned with the new proposed HEM, when we published the consultation, we reviewed our current approach to setting standards to understand if it remains appropriate in the context of increasingly low carbon, low energy consumption buildings.
- 12.3 In the consultation, we proposed adopting the new HEM: Future Homes Standard assessment as the approved calculation methodology to demonstrate compliance of new homes with the Future Homes Standard, replacing SAP.
- 12.4 We also proposed that the notional building approach would be retained as the government's primary method for setting standards as there does not appear to be a strong case for moving away from the notional building approach. However, we consulted on a number of changes to the notional building approach, including changes to standardised assumptions; weather; demonstrating compliance in buildings that contain multiple dwellings; the use of secondary heating; and window and door U-value calculations.

National Calculation Methodologies for Homes

Question 67: Do you agree that the Home Energy Model should be adopted as the approved calculation methodology to demonstrate compliance of new homes with the Future Homes Standard?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q67
Yes	496	20.6%	69.3%
Yes, and I'd like to provide further information.	155	6.4%	21.6%
No	65	2.7%	9.1%
Not Answered	1697	70.3%	-

Key themes:

- 12.5 Many respondents agreed with the proposal. However, these include several with reservations.
- 12.6 A significant number of respondents, including several from within the construction industry, indicated a desire for HEM to be further developed, added to or altered before it is rolled out for use. This indicates that while there is strong support and goodwill towards HEM, as it stands, there remains work to be done before industry professionals trust the model.
- 12.7 Some respondents expressed concerns about the accuracy of the model.
- 12.8 Some respondents felt that HEM is currently too complex, with some individuals pointing out that assessments using HEM have taken them triple the amount of time that it currently takes in SAP.
- 12.9 Some responses identified the consequences of changing to HEM on the SAP assessment profession. Several indicated that, in their experience, SAP assessors are choosing to leave the industry and retrain, and a similar number indicated that industry would require upskilling alongside the release of HEM.
- 12.10 A group of respondents suggested that HEM should remain under review to ensure that it is fit for purpose.

Government Response to Q67:

- 12.11 HEM has been developed by Government to support achieving net zero and the Clean Energy mission. HEM will drive innovation in new-build products, promote best practices in heat pump installations, and recognise the benefits of zero-bills homes by rewarding the use of smart technologies. We are therefore continuing to pursue the adoption of HEM and transition to it being the sole calculation methodology for Part L in due course.
- 12.12 However, we have listened to feedback from housebuilders, software developers, and energy assessors, and we understand that transitioning to HEM represents a significant change for the industry. In May 2025, the Government therefore took and communicated the decision to make available for use with the FHS an updated version of SAP, known as SAP 10.3, which will be approved for use as an alternative to HEM, and that there will be a period of 'dual running' of the two systems alongside each other. During the 'dual running' period either the HEM or SAP 10.3 system can be used for compliance with the Future Homes Standard, which is designed to give the housebuilding and energy assessor sectors time to transition towards working solely with HEM in future.
- 12.13 HEM remains our methodology of choice for the future, and we are committed to transitioning to HEM as the sole methodology at the earliest opportunity. However, since the decision taken on dual running in May 2025 it has become clear that the HEM ecosystem will not be completed and validated to a sufficient standard by the time of the FHS SI being laid in Parliament (FHS launch) for it to be available initially in the lead in period before the FHS comes into force.

- 12.14 The FHS will launch with only SAP 10.3 being available and HEM will be approved for use as an alternative to SAP 10.3 once it meets the full criteria required of an approved calculation methodology. We expect this to be at least 3 months after publication of this consultation response and will work closely with industry to communicate progress and give notice in advance of HEM becoming an approved calculation methodology.
- 12.15 Once HEM is an approved calculation methodology for the FHS we will enter the 'dual running' period where it will be possible to use either methodology to demonstrate FHS compliance (when it comes into force). We confirm there will be a minimum lifetime for SAP 10.3 of 24 months once the SI is laid, to avoid disruption and give the sector as much certainty as possible as to changes. When it comes to closing SAP 10.3 down we intend to use transitional arrangements that are similar to how transitional arrangements are generally structured for Building Regulation updates, where SAP 10.3 will be authorised for use with Building Control plans filed before a certain date and for EPCs where sites have commenced by a certain date, meaning we expect EPCs produced with SAP 10.3 to continue well past any minimum 24 month SAP 10.3 lifetime.
- 12.16 Final withdrawal dates for the use of SAP 10.3 for compliance with the Future Homes Standard will be confirmed once we are confident that the sector can successfully transition to HEM. We will work with housebuilders and assessors to define the transition to HEM becoming the sole methodology. Regular updates will be provided on progress. Once HEM is sufficiently embedded, we expect to give industry six months' notice before setting a date beyond which SAP 10.3 can no longer be used to file Building Control plans for the Future Homes Standard.

Question 68: Please provide any comments on the parameters in the notional building.

Key themes:

- 12.17 Some respondents disagreed with the approach of using notional buildings. Some respondents noted the standards are too challenging and therefore lack flexibility in delivery. One common area of concern was the way that standards are set for solar panels in the notional building. Concerns relating to solar panels included the following:
- Setting the solar array orientation to the south is too challenging for many homes.
 - Option 1 set too high a standard for either the amount or the efficiency of solar PV.
 - The amount of solar PV in the notional building should be tailored to the design of the house, or the energy assessor should have the ability to decide the most favourable orientation or determine how much roof space is available.
 - There may be conflicts between local place-making and meeting the standards set in the notional building.

- 12.18 However, in contrast to the above, a number of respondents noted that buildings should be designed to meet the requirements rather than trying to fit solar PV into existing designs.
- 12.19 Respondents also suggested other improvements to the notional building, including:
- Using the previous terminology of opening area for the 25% maximum instead of glazing area.
 - Using an off-peak tariff.
 - Setting standards for the MVHR efficiency and duct lengths.
 - Setting standards for cooling capacity.
 - Defining the ground floor area for PV more clearly.
 - Adding very high and medium test calculations under BS14825 for heat pumps.
 - Using different carbon factors for different regions.
 - Improving the modelling approach for blocks of flats.
 - Lowering the insulation standard for hot water cylinders.
 - Aligning the emission factor for heat networks with Heat Network Zoning standards.

Government Response to Q68:

- 12.20 We have proceeded with the dwelling notional building (for dwellings not connected to heat networks) as per consultation Option 1. We consider this approach provides an appropriate balance between ambition and deliverability, and supports energy bills and operational carbon outcomes compared to current standards. The exception is solar, which is handled differently, as described in the Government response to Q7 and Q8. This reflects consultation feedback and our further work which identified that the consulted dwelling notional building approach to solar could be impractical to meet in many situations.
- 12.21 We have also considered suggestions for further refinements to the notional building specification and associated calculation methodology. Suggestions were considered with the aim of balancing ambition and deliverability. Alongside this Government Response, we are publishing the final Approved Documents. Detailed modelling assumptions and supporting guidance will be set out in those documents and in the approved calculation methodology documentation, including any changes made in light of these suggestions. We will keep these points under review, including where further clarification may be needed in future updates.

Question 69: Minimum standards already state that heat pumps should have weather compensation and we would like to understand if stakeholders think this is enough to ensure efficiency of heat pumps under the varying weather conditions across England. Should the notional building use local weather?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q69
Yes	404	16.7%	91.2%
No	39	1.6%	8.8%
Not Answered	1970	81.6%	-

Key themes:

- 12.22 In general, respondents viewed this proposal positively, including heat pump manufacturers who felt that using local weather would better ensure heat pumps were appropriately-sized. It was also felt that this would improve occupant comfort, maximise bill savings and reduce the performance gap between design and reality.
- 12.23 Respondents provided mixed views on how to improve the proposal presented in the consultation:
- It was noted that the climate is changing rapidly and this should be considered.
 - It was noted that the local microclimate is important, affecting factors like wind speed/exposure.
 - There were concerns surrounding the accuracy and availability of data. It was suggested that regional weather, instead of local weather, could be used to overcome this.
 - It was noted that Building Control would need to review individual weather files to ensure robustness.
- 12.24 It was not universally accepted that local weather conditions should be included in the notional building. Some respondents noted that this proposal could disrupt supply chains for little marginal benefit as climate is broadly similar across the country. Heat pump modulating may be sufficient to overcome any small climatic differences.

Government Response to Q69:

- 12.25 We have decided against using local weather in the notional building to calculate performance requirements for heat pumps for now. This decision has been taken in part to maintain consistency between the SAP 10.3 and HEM models during the 'dual running' period. We will continue to keep this issue under review and may pursue changes in a future Part L update.

Question 70: Do you agree with the revised guidance in The Future Homes Standard 2025: dwelling notional buildings for consultation no longer includes the average compliance approach for terraced houses?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q70
Yes	308	12.8%	87.5%
No	44	1.8%	12.5%
Not Answered	2061	85.4%	-

Key themes:

- 12.26 Respondents stated that each dwelling should be of a high standard for all householders. This sentiment was particularly strong regarding the need to minimise utility bills by ensuring that each household receives a full allocation of solar PV.
- 12.27 Some developers accepted this proposal, stating that they never or very rarely use the averaging approach for terraces.
- 12.28 Of the respondents who did not agree with this change, the principal concern was that this would remove flexibility and force more complex designs, ultimately increasing costs.

Government Response to Q70:

- 12.29 We have proceeded with the proposal to remove the average compliance approach for meeting the target emission rate, primary energy rate and fabric energy efficiency rate for terraced housing. This will help to ensure that each dwelling meets the Future Homes Standard, rather than relying on performance being averaged across a terrace, and supports a fair and consistent outcome for occupants. We have updated the guidance in Approved Document L, Volume 1: Dwellings to reflect this.

Question 71: Do you agree with the revised guidance in Approved Document L, Volume 1: Dwellings which states that you should not provide a chimney or flue when no secondary heating appliance is installed?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q71
Yes	356	14.8%	86.0%
No	58	2.4%	14.0%
Not Answered	1999	82.8%	-

Key themes:

- 12.30 Most respondents agreed with the revised guidance, with many highlighting the importance of reducing heat loss and improving airtightness. Many noted that unused chimneys and flues contribute to air leakage, which compromises a building's thermal envelope. Respondents also noted the maintenance benefits of not including chimneys or flues.
- 12.31 Some respondents raised concerns about the cultural and aesthetic role of chimneys, particularly in areas where they are integral to the local architectural style. They noted that eliminating chimneys could detract from the character and visual appeal of certain buildings.
- 12.32 Concerns were also raised about off-grid areas and regions with unreliable electricity supplies. In these areas, respondents suggested that chimneys and flues are essential for ensuring continuous heating and cooking during power disruptions or extreme weather events.
- 12.33 Some respondents pointed out the role of chimneys in providing ventilation within homes, particularly where they are used for ductwork in mechanical ventilation and heat recovery systems.

Government Response to Q71:

- 12.34 In line with the consultation proposal, we have amended the guidance in Approved Document L, Volume 1: Dwellings to state that a chimney or flue should not be provided when no secondary heating appliance is installed. This guidance is intended to improve the energy efficiency and air tightness of new dwellings.
- 12.35 This guidance does not preclude the installation of decorative elements, such as faux chimney stacks, ensuring that the character and visual appeal of new dwellings are maintained.
- 12.36 Additionally, this guidance does not prevent the installation of secondary heating systems. It simply specifies that in the absence of a secondary heating system, a chimney or flue should not be installed. Therefore, concerns regarding off-grid properties and regions with unreliable electricity supplies are not applicable.
- 12.37 Part F of the Building Regulations covers the ventilation requirements for new dwellings, with Approved Document F providing the accompanying guidance. Chimneys and flues are not to be accounted for as part of the ventilation strategy for new dwellings, ensuring that sufficient ventilation is in place regardless of their presence.

Question 72: Do you agree with the proposed approach to determine U-values of windows and doors in new dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q72
Yes	351	14.5%	89.3%
No	42	1.7%	10.7%
Not Answered	2020	83.7%	-

Key themes:

- 12.38 While some respondents were supportive of this proposal, some developers and manufacturers held differing views. Many were supportive, and several responses in the window industry were vocal that there is sufficient capability and capacity ready in the industry, with this already being done in commercial buildings. Of the respondents who supported this proposal, there was a common view that this would reduce the gap between design and real-world performance.
- 12.39 There were some concerns that this proposal would conflict with the Construction Product Declarations, although other responses suggested that there are already allowances for U-value calculations for energy modelling made within BS 14351-1.
- 12.40 Of the respondents who were critical of this proposal, a number of arguments were made:
- Some responses, including from several developers noted that this was impractical, overcomplicated and costly with a minimal improvement to energy performance overall.
 - Small developers may already struggle with the window supply chain, with poor information provided by the industry.
 - There were concerns over the quality of calculations, and a suggestion for the need for an approved calculation method for windows and doors.
 - It was suggested that this proposal would make it likely that smaller windows need to be triple glazed.
 - The change may alter window design and thus may cause issues with planning and place-making.
 - Issues were identified with inclusion of structural elements in the U-value calculation.
 - Developers warned that this could have an overall detrimental effect on energy efficiency because they may choose to use larger windows, and each unit of window would have a poorer thermal performance than a unit of wall.

- There were a few suggestions on alternative approaches, such as a set of standard sizes.

Government Response to Q72:

- 12.41 We have proceeded with the proposed approach to determining U-values of windows and doors in new dwelling, with some modifications to exclude some structural elements from the calculation which consultees identified as problematic with this approach.
- 12.42 We recognise concerns about the potential impacts on cost and practicality for developers, as well as potential implications for window design, planning and place-making. On balance, we consider that this approach will improve consistency and support better alignment between design calculations and real-world performance, and the modifications and supporting guidance are intended to mitigate the issues raised through consultation.

Question 73: Do you agree with the proposal to remove the default y-value for assessing thermal bridges in new dwellings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q73
Yes	299	12.4%	78.7%
Yes, and I'd like to provide further information.	54	2.2%	14.2%
No	27	1.1%	7.1%
Not Answered	2033	84.3%	-

Key themes:

- 12.43 There was strong support for the proposal to remove the default y-value for assessing thermal bridges in new dwellings. Only a minority of respondents provided a written response but, of those who did, a common reason for agreeing with the proposal was to improve building performance and provide more accurate measurements to reduce the performance gap.
- 12.44 Some other common themes or concerns raised by some respondents included:
- Standard details and rules of thumb should be made available to avoid the need for thermal modelling of thermal bridge details, which would be particularly helpful for SMEs.
 - It is unlikely that compliance with Part L 2021 would be reached using the default y-value anyway, so removing this would not have a large impact.
 - All thermal junctions should be modelled or calculated.

- The default y-value could still be useful for initial assessments but not the full calculation.
- Thermal modelling is costly and complex, given that bespoke y-values are not always available. This is a particular concern for small-scale projects and could limit architectural variety – having a default y-value is a simpler option and improves the useability of Part L.
- There may be a lack of suitably qualified individuals to carry out thermal modelling.

Government Response to Q73:

- 12.45 We have proceeded with the proposal to remove the default y-value for assessing thermal bridges in new dwellings in HEM. The SAP methodology, however, will continue to allow the use of y-values.

Question 74: Do you have any information you would like to provide on the homes built to the Future Homes Standard using curtain walling?

Key themes:

- 12.46 A small number of respondents noted that curtain walling should have its own, lesser standard. However, others suggested that curtain walling has poor performance and should not receive any dispensation. It was noted that curtain walling has issues with airtightness, thermal bridging and overheating.
- 12.47 A handful of responses thought that curtain walling should be its own category of façade in HEM. It was also commented that curtain walling should not be considered as separate opaque and transparent elements, as it is important to consider lateral heat transfer between them.
- 12.48 It was generally noted that special guidance may be needed to make sure the standards and definitions for curtain walling are clear. One guide that was recommended by respondents was the CAB/CWCT document on '*The thermal assessment of window assemblies, curtain walling and non-traditional building envelopes*'. Respondents asked for more clarity on the following areas:
- Opaque spandrel panels
 - The test methods used to assess stick systems versus directly glazed systems
 - Thermal bridging, thermally broken frames and detailing

Government Response to Q74:

- 12.49 We have listened to the feedback from respondents, and we recognise that curtain walling can present specific issues when assessing the energy performance for dwellings, including in relation to airtightness, thermal bridging, heat loss and solar gains.

- 12.50 However, we are not introducing a separate category, lesser standard or dispensation for curtain walling through the Future Homes Standard. Curtain walling will continue to be assessed within the overall approach to glazed elements and façades set out in the national calculation methodologies and in Approved Document L, which already covers curtain walling within the relevant limiting standards for windows and glazing. This helps provide a consistent approach rather than introduce bespoke provisions for curtain walling, to avoid unnecessary complexity and ensure assessments remain comparable and based on established calculation methods.

National Calculation Methodologies for Non-Domestic Buildings

Question 75: Do you agree with the methodology outlined in the NCM modelling guide for the Future Buildings Standard?

For non-domestic buildings, there are two routes available for assessing buildings, both of which must be compliant with the National Calculation Methodology. We proposed improvements and updates to this methodology for non-domestic buildings.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q75
Yes	227	9.4%	87.3%
No	33	1.4%	12.7%
Not Answered	2153	89.2%	-

Question 76: Please provide any further comments on the cSBEM tool which demonstrates an implementation of the NCM methodology.

Question 77: Please provide any further comments on the research documents provided alongside the cSBEM tool and which support the development of the NCM methodology, SBEM and iSBEM.

Key themes:

- 12.51 A common theme raised by multiple respondents was that major revisions to the NCM and SBEM, as seen with the upgrade from SAP to HEM, would be welcomed.
- 12.52 There were more general concerns with the suitability of the NCM as an approach. For example, the NCM was not seen as suitable for the requirements for an energy forecast for buildings over 1000m². Alternative suggestions included using the

Passivhaus PHPP or an approach closer to TM54, where actual energy consumption is calculated.

- 12.53 It was suggested that, as SBEM and Dynamic Simulation Modelling (DSM) report different results, only DSM should be used.
- 12.54 The updates to address the fact that the methodology within NCM for SBEM underestimated space heat demand were welcomed by respondents. However, some argued that these updates were not sufficient.
- 12.55 The lighting levels proposed in the notional model were considered too ambitious. It was suggested that the average luminous efficacy of a side lit building be reduced from 150 lm/W to 120 lm/W.
- 12.56 Domestic Annual Heat Pump System Efficiency was welcomed as an improvement by many respondents.
- 12.57 There was a general sentiment that a longer consultation period with further testing of a beta version was needed, alongside continued dialogue with industry.
- 12.58 Beyond these general concerns, the following specific technical comments were made by a small number of respondents:
- The methodology within the NCM for SBEM should align with BS EN ISO 52120-1:2022 standards for Class A Building Controls.
 - Internal heat gain assumptions should be reviewed, as the heating energy predictions differ from the measured heating energy for non-domestic buildings recorded in Display Energy Certificates and the CIBSE Benchmarking tool database.
 - The grid displaced electricity factors should be indicated as a negative value, rather than the same carbon factor as grid supplied electricity.
 - SBEM should be extended to cover blocks of apartments/flats, as SAP was not intended for use in these domestic situations.
 - The NCM should be modified for modelling of wastewater heat recovery to ensure that this is adequately modelled in 3rd party dynamic simulation tools.
 - The g-value applied to the notional building's glazing U-value should be reviewed.
 - A tool to account for heat loss should be considered.
 - Storeroom occupancy should be further reduced.
 - Calculation of total solar transmittance of the window when the solar shading is in use should link to BS EN ISO 52022-1, rather than the obsolete BS EN ISO 13361-1.
 - NCM calculations should allow for a layer of shading in the glazing calculations. The new standard BS EN ISO 52016-4 for automated controls should be referenced.

- The activity database within the NCM should be reviewed as these are poorly-defined, and therefore often selected intuitively.
- Battery storage (electrical or thermal) should be added to the NCM.
- With regards to ventilation, it should be possible to select a more building-type-specific noise sensitive area so that more realistic mechanical ventilation SFP is applied.
- Hot water use across various NCM residential building types should be reviewed, as there is currently very high Domestic Hot Water demand on NCM for certain building types.

Government Response to Q75, Q76 and Q77:

- 12.59 The National Calculation Methodology (NCM) which includes, SBEM, iSBEM and approved DSMs is primarily a compliance tool and is not intended to act as predictive design tool. SBEM is suitable for most simple buildings whilst more complex buildings should use an approved DSM.
- 12.60 We have proceeded with the proposed changes to the NCM guide, SBEM and iSBEM. We welcome the suggested improvements to the NCM and SBEM from respondents and these will be considered as part of the ongoing review of the NCM and associated research programme.
- 12.61 A comprehensive review of the NCM will be carried out in 2026. This review will cover:
- The development and update of all datasets used within the NCM
 - A research programme examining the impact of both climate change and technological innovation on the energy performance of non-domestic buildings
 - Interaction between the code provided for SBEM; third-party DSMs and measured energy consumption
 - Development of a free-to-access version of the NCM, which can provide compliance information and design options
 - Both offline and cloud-based access to all elements of the NCM
- 12.62 We recognise that the average luminous efficacy proposed within the NCM at consultation were too ambitious and we have therefore amended these, reducing the value from 150 lm/W to 105 lm/W.

Chapter 12: Summary

We proposed adopting the new Home Energy Model to demonstrate compliance of new dwellings with the Future Homes Standard and consulted on the continued use of notional buildings and minimum standards.

- ✓ We have made available an updated version of the Standard Assessment Procedure (SAP) for housebuilders to use for compliance with the FHS, known as SAP 10.3. This will be available as an approved calculation methodology for use with the FHS alongside launch of the FHS.
- ✓ We expect the new Home Energy Model to become an approved calculation methodology no earlier than 3 months after this consultation response is published and we will work closely with industry to give the advance notice. Once HEM is an approved calculation methodology, either HEM or the SAP 10.3 system can be used for compliance with the Future Homes Standard during this 'dual running' period. The dual running period should last for no less than 24 months from when HEM becomes available for use.
- ✓ HEM remains our methodology of choice for the future for new dwellings to show compliance with the Building Regulations, and we are committed to a smooth transition to HEM as the sole methodology at the earliest opportunity after the 24 months of dual running.
- ✓ We have retained the notional building approach for new dwellings, alongside targeted updates to improve how factors such as building fabric are accounted for in compliance calculations.
- ✓ We will carry out a comprehensive review in 2026 of the National Calculation Methodology used to demonstrate compliance with the Building Regulations for non-domestic buildings (including mixed-use buildings) and will keep other calculation methods under review as part of this work.

Chapter 13 - Transitional arrangements

- 13.1 The consultation sought views on proportionate transitional arrangements that would provide a reasonable period for industry to adapt to the Future Homes and Buildings Standards, whilst making sure that the momentum towards our net zero targets is maintained. The consultation also sought views on the sunsetting of historical transitional arrangements.

Question 78: Which option describing transitional arrangements for the Future Homes and Buildings Standards do you prefer? Please provide further information or suggest alternative transitional arrangements with your rationale and supporting evidence.

This question asked respondents to choose between two lengths of transitional arrangements. Option 1 described a shorter overall transition of 6 months between laying the legislation and it coming into force, followed by a 12-month transitional period. Option 2 described a slightly longer overall transition with an additional 6 months between the laying of the legislation and it coming into force.

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q78
Option 1	568	23.5%	77.8%
Option 2	162	6.7%	22.2%
Not Answered	1683	69.7%	-

Key themes:

- 13.2 The main concern amongst respondents who preferred Option 1 was that longer transitional arrangements will increase the number of less efficient dwellings and buildings that are constructed. A high number of responses were particularly concerned about allowing more gas boilers to be installed. Respondents were concerned that this delay may negatively impact carbon budgets and may increase the need for retrofit in the future. There were concerns around an unfair burden being placed on consumers, either as a result of higher energy bills from inefficient dwellings or the cost of retrofit falling on the homeowner rather than the housebuilder.
- 13.3 Respondents in favour of shorter transitional arrangements also noted that the sector has had advance knowledge of the new standards and, therefore, has had adequate time to prepare. A few responses observed that the increase in standards proposed in the Future Homes and Buildings consultation were not a significant increase on the 2021 Part L Uplift and would therefore be manageable given the state of technology and industry preparedness.

13.4 Several common themes arose in the responses in favour of the longer Option 2 transitional arrangements:

- There were strong concerns over the readiness of HEM, and the disruption to industry should HEM not be released ahead of standards coming into force. Responses stressed the importance of avoiding repeats of the delays that were seen with the SAP10 updates for the 2021 Part L Uplift.
- Respondents stressed the need for sufficient training and upskilling, particularly in the context of heat pump installation. There were concerns over heat pump installer shortages at both a national and regional level, and over poor-quality installation practices from poorly trained installers.
- Several responses warned of supply chain disruptions, particularly in the context of heat pumps, and the consequences this would have on housing supply. Many of these responses stressed the need for certainty in upcoming regulation timelines to allow time for supply chain investment and expansion.
- A handful of responses highlighted concerns about grid connections and the capacity of the grid to support the new standards. It was argued that there is a significant queue to connect existing projects, and the greater demand for connections under the Future Homes and Buildings Standards may place further strain on the UK grid. Specifically, respondents highlighted the difficulty of obtaining connections for export capacity. A few developers were concerned about the impacts of new standards on in-progress developments where gas infrastructure has already been loaded, as changes to the Future Homes and Buildings Standards apply to individual buildings and so may result in sites with oversized gas infrastructure and the need to potentially upgrade electricity connections. This could affect the viability of these sites and delay housing delivery.
- It was noted that the shorter Option 1 for transitional arrangements may have a negative impact on small and medium-sized developers, who may lack the capacity to respond quickly to regulation changes.

Government Response to Q78:

13.5 While we recognise the urgency of delivering zero-carbon ready dwellings and buildings, it is important that suitable transitional arrangements are in place to make sure that the transition to the Future Homes and Buildings Standards is as smooth as possible. We have decided to set the transitional arrangements for the Future Homes and Buildings Standards in line with Option 2 as set out in the consultation (in addition to providing further transitional arrangements, as outlined below). We believe this approach strikes a balance between ensuring as many new dwellings and buildings as possible are built to the new standards, while providing industry with sufficient time to adapt and prepare accordingly. These transitional arrangements apply on a building by building basis, rather than to whole sites, reflecting how Building Regulations apply to individual buildings.

13.6 We intend that the Future Homes and Buildings Standards will come into force on 24 March 2027, for non-HRB work, 12 months after the required regulations are laid in Parliament, followed by a 12-month transition period. For such building work

to be completed to the previous version of Part L, relevant documents (initial notice, building notice, application with full plans) will need to have been submitted to the relevant authority by 24 March 2027 and construction will need to commence on the relevant building by 24 March 2028, unless other transitional provisions apply.

- 13.7 While developing the transitional arrangements for the Future Homes and Buildings Standards, it came to our attention that the standard approach would not be suitable for HRBs. These are buildings that are at least 18 metres in height or 7 storeys, contain at least 2 residential units, or are a care home or hospital. Since October 2022, HRBs have been required to go through more stringent building control procedures to ensure safety in high-rise buildings. Given the additional time requirements of this and the extent of the works that can be required to meet the proposed definition of commencement for this class of buildings, we have decided to make alternative provision for HRBs.
- 13.8 We have set alternative arrangements for HRBs. The amending regulations will come into force for HRB work (including a stage of HRB work) or work to an existing HRB on 24 September 2027. To benefit from transitional arrangements and be completed to the 2021 version of Part L, a valid Gateway 2 application must have been submitted before 24 September 2027 in relation to the HRB work (including a stage of HRB work) or work to an existing HRB. That application must ultimately be successful, though the decision to grant the application can be received after the 18-month period ends. This includes instances where the application has been granted subject to conditions. Before 24 September 2027, Gateway 2 applications may be re-submitted and still benefit from transitional arrangements. However, beyond 24 September 2027 if an application is resubmitted the new requirements and expected standards will apply. We have not set a second deadline by which construction must be commenced as, under Section 32 of the Building Act 1984, developers are already required to commence construction on a building within 3 years of submission to Gateway 2.
- 13.9 We have also provided transitional arrangements so that:
- Some building work covered by transitional provision made by Schedule 3 to the Building (Higher-Risk Buildings Procedures) (England) Regulations 2023 will not need to comply with the changes introduced by the legislation and updated approved documents;
 - Building work on a particular building will not need to comply with the new standards if a relevant application was made before 15 June 2022 and the work was started before 15 June 2023.

Question 79: Will the changes to the Building Regulations proposed in this consultation lead to the need to amend existing planning permissions? If so, what amendments might be needed and how can the planning regime be most supportive of such amendments? – If you selected answer option a, please provide further information here.

Question 79	Number of Responses	Percentage of All Responses	% of Responses to Q78
Yes	147	6.1%	50.7%
No	143	5.9%	49.3%
Not Answered	2123	88.0%	-

Key themes:

- 13.10 Few respondents completed this question. Of those who submitted an answer, there was an even split in opinion. Respondents suggested a number of features that may require amendments to existing planning permissions:
- There were concerns that requirements to install a certain level of solar PV at efficient orientations may require rooftop re-design, which may conflict with some Local Planning Authority requirements for certain roof styles.
 - Additions of air-source heat pumps were expected to require amendments based on noise and visual concerns, but also from the additional land take required.
 - There were concerns that fabric demands may result in wall and roof build-up, potentially affecting building size. It was noted that large sites would be more affected, as slight increases in space demands for each plot would have a cumulative impact on site design.
 - There were concerns that changes in U-value calculations for doors and windows may force designers to use plainer window styles in order to achieve the required standards, which may conflict with local style guidance from Local Planning Authorities.
 - On large sites which had been planned with gas infrastructure, there were concerns that the higher electricity demand required for Future Homes Standard compliance would result in the need for electricity sub-stations, which would require planning permission.
- 13.11 There were concerns about the administrative and financial burden of amending planning permissions, particularly from affordable housing providers. Several respondents requested that changes required for compliance with the Future Homes and Buildings Standards be accepted as non-material, thus requiring a Section 96a application rather than a Section 73 application. Respondents called for clarification from government to Local Planning Authorities with guidance on how to respond to applications for changes based on new standards. Some called for a fast track for changes required by new Part L standards.

13.12 Several responses mentioned planning permissions in conservation areas. Different responses urged both for recognition that stricter planning in conservation areas might limit compliance with the Future Homes Standard, and, conversely, for the relaxation of restrictions to allow visible renewable energy generation in conservation areas.

Government Response to Q79:

13.13 We would like to thank respondents for highlighting potential areas where the Future Homes and Buildings Standards may impact existing planning permissions. We have considered the issues raised, including impacts on roof design and appearance, the siting and visual impact of heat pumps, potential changes to fabric build-ups, and concerns about grid connections and associated infrastructure. We have also considered concerns about the administrative and financial burden of amending permissions, including requests for greater clarity and a more proportionate route for minor changes, as well as specific issues raised in conservation areas. We do not consider that these points require specific action at this stage, this is because the impact on planning permissions will vary by site and local context, and decisions on whether changes are non-material are a matter for Local Planning Authorities. Where changes to a scheme are needed, existing planning routes already provide mechanisms for considering amendments. The feedback to this question has provided valuable insight and will help inform wider ongoing work to reform the planning system and ensure greater alignment between the Building Regulations and planning framework.

Question 80: Do you agree that the 2010 and 2013 energy efficiency transitional arrangements should be closed down, meaning all new buildings that do not meet the requirements of the 2025 transitional arrangements would need to be built to the Future Homes and Buildings Standards?

Question 80	Number of Responses	% of All Responses	% of Responses to Q80
Yes	679	28.1%	97.1%
No	20	0.8%	2.9%
Not Answered	1714	71.0%	-

Question 81: What are your views on the above proposals and do you have any additional evidence to help us reach a final view on the closing of historical transitional arrangements? - Please provide any comments here.

	Number of Responses	Percentage of All Responses
Feedback provided	132	5.5%
No feedback provided	2281	94.5%
Total	2413	100%

Key themes:

- 13.14 Those in favour of sunsetting old transitional arrangements cited concerns around carbon budgets and the future burden of retrofit. There were strong sentiments that these old transitional arrangements enable industry malpractice and that this is unfair on house buyers who should be able to expect that new-build dwellings meet modern energy efficiency standards. There was an acknowledgement of the need for transparency for customers, to make sure that, if dwellings are built to highly outdated standards, this is clearly communicated to potential buyers.
- 13.15 Of the few respondents who were opposed to sunsetting old transitional arrangements, there were fears that retrospective compliance with new standards would slow building rates and affect site viability. There were suggestions that the proposal would be highly disruptive for little real impact or benefit, perhaps indicating that few sites would be affected, but that for those sites that are affected, the impact could be significant.
- 13.16 A number of developers were critical of the proposal to enforce build-by dates, as they said construction is commonly delayed by factors outside a developer's control, and this may place additional financial burdens on sites already struggling with unforeseen delays. The proposal might therefore have consequences for the delivery of these sites.
- 13.17 Some respondents argued that this proposal was unnecessary because the closing of historical transitional arrangements is already covered by regulation in the Building Safety Act 2022.

Government Response to Q80 and Q81:

- 13.18 Many respondents expressed concern that it was unfair for consumers to purchase new-build dwellings built to outdated energy efficiency standards. The Government shares this concern and is committed to ensuring that new dwellings reflect modern expectations for energy performance. We acknowledge that sites caught by the proposal may find it difficult to adapt to new standards, but given the amount of time that has passed since the transitional arrangements they are benefiting from, the Government considers it reasonable that these transitional

arrangements are now given an end date. Therefore, the 2013 transitional arrangements, which (together with the related 2021 transitional arrangements) allowed continued use of the 2010 version of Part L on some large sites, are being amended. Any building work on a particular building that had been relying on the 2013 and related 2021 transitional arrangements must now meet new FHBS transitional arrangements applicable to these cases (requiring that building work is started on each building by 24 March 2028) or comply with relevant standards introduced after 2010. However, for HRB work (including a stage of HRB work) and work to an existing HRB, the 2013 and related 2021 transitional arrangements are being maintained which reflects the increased complexity of these buildings and developments and that build times for these types of buildings are understandably longer.

- 13.19 We have decided not to amend the 2010 transitional arrangements, which allow construction to the 2006 version of Part L. This is because, based on data from EPCs, we believe that no new dwellings have been completed to this version of Part L since 2020. As such, there is no practical need to introduce legislation to formally close these transitional arrangements.

Chapter 13: Summary

We consulted on the proposed timeline and transitional arrangements for implementing the Future Homes and Buildings Standard

- ✓ We intend that the Future Homes and Buildings Standards will come into force on 24 March 2027, for non-HRB work followed by a 12-month transition period. For such building work to be completed to the previous version of Part L relevant documents will need to have been submitted to the local authority by 24 March 2027 and construction will need to commence on the relevant building by 24 March 2028 (unless other transitional provisions apply).
- ✓ We have set alternative arrangements for HRBs. The amending regulations will come into force for HRB work (including a stage of HRB work) or work to an existing HRB on 24 September 2027. A valid Gateway 2 application must have been submitted before that date for such work to be completed to 2021 version of Part L (the application must not have been rejected before that date or be rejected or lapse on or after that date)
- ✓ The 2013 transitional arrangements, which (together with the related 2021 transitional arrangements) allowed continued use of the 2010 version of Part L on some large sites are being changed so that to continue building any remaining dwellings or a particular building to the 2010 standards work must be started before 24 March 2028 (unless the work is HRB work (including a stage of HRB work) or work to an existing HRB.
- ✓ Some other transitional arrangements will apply, as outlined above.

Chapter 14 - Part O – call for evidence

- 14.1 In December 2021, a new legal requirement was introduced in the Building Regulations (Part O) to reduce the risk of overheating in new residential buildings. In the consultation, we sought views and evidence from housebuilders who had experience applying Part O to real projects.

Widening the scope of Part O

Question 82: Part O does not apply when there is a material change of use. Should it apply?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q82
Yes	530	22.0%	87.9%
Yes, but only for some types of conversion	33	1.4%	5.5%
No	40	1.7%	6.6%
Not Answered	1810	75.0%	-

Key themes:

- 14.2 Most respondents supported applying Part O to dwellings created through an MCU as this would ensure fair and equitable standards across all residential units and prevent those in converted buildings from facing higher risks of overheating compared to new builds.
- 14.3 A common concern was that a significant number of dwellings are created through MCU and overheating risks will worsen as the climate changes, posing increasing threats to occupant health, wellbeing and safety. Several respondents linked these risks to potential financial burdens, such as higher insurance premiums and costly retrofits for dwellings not compliant with overheating standards.
- 14.4 Some respondents advocated for applying Part O to all buildings created through an MCU to address these risks consistently, while others argued for targeted application based on specific types of conversions (e.g. office-to-residential). A few respondents from Housing Associations and Registered Building Control Approvers and Registered Building Inspectors expressed reservations, citing challenges with retrofitting existing buildings to meet overheating standards, which could increase costs or create conflicts between planning and building control requirements.

- 14.5 Beyond residential units, a small number of respondents suggested that overheating regulations should extend to non-domestic conversions, particularly those housing vulnerable populations (e.g. schools, hospitals and care homes).
- 14.6 While most respondents supported extending Part O to MCU dwellings, some recommended revising the methodology to make it more practical and effective for converted buildings. Specific concerns included the robustness of window-opening requirements and suggestions to adopt alternative methodologies better suited to the unique challenges of MCU buildings.

Question 83: Apart from material change of use, is there anything missing from the current scope of Part O?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q83
Yes	151	6.3%	59.4%
No	103	4.3%	40.6%
Not Answered	2159	89.5%	-

Key themes:

- 14.7 Several respondents noted that refurbishment, extensions and retrofit projects especially those involving significant changes such as the replacement or addition of large glazed openings, may require additional consideration under Part O to address potential overheating risks.
- 14.8 A few respondents suggested that the scope of Part O could be extended to cover certain non-domestic buildings, particularly where the building is used to accommodate vulnerable groups or long-stay occupants, such as hotels or care facilities.
- 14.9 Some respondents raised concerns around potential conflicts between Part O and other sections of the Building Regulations (for example, Parts E, F, K, and Q). They noted that inconsistencies, such as differences in requirements for window opening areas and background ventilation, could lead to unintended consequences for building performance.
- 14.10 Several responses recommended that further guidance be provided on the implementation of Part O. Suggestions included clearer integration of passive cooling measures, shading strategies and references to established standards, to support consistent and effective application across different building types.

Question 84: Can you provide evidence on how the addition of extensions or conservatories to domestic buildings can impact overheating risk on an existing building?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q84
Yes	75	3.1%	25.3%
No	222	9.2%	74.7%
Not Answered	2116	87.7%	-

Key themes:

- 14.11 Many respondents stated that large areas of glazing can lead to significant solar gain, resulting in high indoor temperatures in summer. Examples included conservatories and highly glazed rear extensions. Other types of extensions, such as poorly insulated loft extensions, were also identified as a cause of overheating risk. For extensions in particular, it was noted that large bifold doors and roof windows can cause overheating in the rest of the house. Reference was made to the English Housing Survey, which found that homes are more likely to overheat when a conservatory is present.
- 14.12 Several respondents described that the addition of a conservatory or extension can reduce the effectiveness of natural ventilation through the home.
- 14.13 There were some positive comments about the use of glazing, highlighting benefits such as increased daylight and a feeling of outdoor living.
- 14.14 Mitigations to reduce overheating risk were described by some respondents. It was stressed that good design is essential to ensuring comfortable indoor environments in summer, as the severity of overheating depends on building design and orientation. Design features included making sure conservatories and highly glazed extensions are shaded, having large opening areas to cool these spaces, and using thermostatically controlled exhaust ventilation.
- 14.15 There were mixed attitudes around the use of low g-value glazing, with many responses stressing its necessity while others suggested it reduces the usefulness of glazing in winter.
- 14.16 Several responses discussed the importance of thermal separation, mainly in the context of conservatories. However, other respondents commented on the removal of thermal separation between conservatories and the main house, and the impact this has on winter and summer comfort.
- 14.17 In addition to overheating, further comments were made about high heat loss and coldness during winter in highly glazed extensions and conservatories.

Requirement O: Overheating Mitigation

Question 85: We are currently reviewing Part O and the statutory guidance in Approved Document O. Do you consider there to be omissions or issues concerning the statutory guidance on the simplified method for demonstrating compliance with requirement O1, for buildings within the scope of requirement O1?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q85
Yes	159	6.6%	53.2%
No	140	5.8%	46.8%
Not Answered	2114	87.6%	-

Key themes:

- 14.18 There was a strong theme that the simplified method is too complex and would benefit from further guidance, detailed examples or supporting tools. In particular, further guidance on how compliance should be demonstrated was requested. Tools, such as the Future Homes Hub spreadsheet and the Good Homes Alliance Overheating Tool, were suggested, along with proposals to integrate a tool into HEM to help streamline the process.
- 14.19 Some respondents, predominantly those who identified as belonging in the manufacturer/supply and designers/engineers/surveyors categories, felt that the simplified method was too restrictive and only suitable for basic buildings. Various omissions were described:
- Allowance for vernacular building design
 - The impact of thermal mass
 - The complex nature of high risk locations
 - Building fabric performance
 - The optimisation of daylighting
 - The cumulative effect of several passive design strategies
 - The impact of site/room orientation
 - A variety of passive ventilation options
 - Triple glazing
 - Active cooling (including mechanical ventilation heat recovery with a summer bypass)

- Internal shading

- 14.20 As a result of both the complexity and the restrictiveness of the simplified method, many respondents stated that they prefer to use the dynamic method. Several respondents highlighted examples of developments that failed using the simplified method but achieved a pass with the dynamic method without any design changes.
- 14.21 Some respondents described the benefits of implementing a ‘responsible/competent person scheme’ or industry wide standard for those undertaking Part O assessments to help improve the consistency of outputs.
- 14.22 Many respondents highlighted the need for the ‘high risk’ category to be reviewed, noting that areas outside of Manchester and London are liable to a risk of overheating similar to those in the current ‘high risk’ category. The need to review this to account for future climate change was also highlighted.
- 14.23 Respondents highlighted multiple areas where Requirement O1 and its associated guidance conflicts with other Building Regulation requirements and guidance, specifically those in Approved Document Q, B and K. Others described difficulty in balancing the guidance outlined in Approved Document O with that in Approved Document Q, F, L and K. A small number of respondents also suggested reviewing how noise requirements interact with Part O.

Question 86: Do you consider there to be omissions or issues concerning the statutory guidance on the dynamic thermal modelling method for demonstrating compliance with requirement O1 for all residential buildings?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q86
Yes	106	4.4%	39.6%
No	162	6.7%	60.4%
Not Answered	2145	88.9%	-

Key themes:

- 14.24 Several respondents stated that passive cooling strategies and natural ventilation are not well modelled in the dynamic modelling method, in particular:
- Night time window opening profiles
 - Cross ventilation
 - Stack ventilation
 - Thermal comfort criteria

- 14.25 Respondents described how issues with the modelling of passive cooling strategies encourage the use of mechanical cooling.
- 14.26 Several respondents described inconsistencies in results across different assessors and modelling software. Respondents suggested a range of different options which might help to overcome this, including:
- Aligning with TM59 or other existing guidance
 - Incorporating the method into SAP or HEM
 - Adding a requirement for design assumptions to be reported
 - Adding a requirement for individuals performing an overheating assessment to be part of a competency scheme.
- 14.27 Some respondents specifically questioned why the overheating assessment was not integrated into SAP or HEM. Another respondent suggested that an 'at risk of overheating' flag might be included in HEM which would constitute a 'fail' for the Future Homes Standard. Although the need for alignment with TM59 was highlighted, the need to update TM59 itself was also commented on, in order for it to be suited to national widespread use.
- 14.28 Some respondents stated that there is insufficient guidance on how results should be reported. A more detailed template report would facilitate the approval process and clarify how assessment data should be presented to building control.
- 14.29 There were concerns over how noise and noise limitations are incorporated into the dynamic modelling method. Some respondents suggested that clarification on noise requirements are needed, or signposting to relevant industry guidance, such as that published by the Institute of Acoustics. The suitability of the acceptable background noise levels for open windows was questioned, commenting on the reliance on mechanical cooling in areas which exceed these levels.
- 14.30 Several respondents commented on the lack of opportunity to account for the impact of internal shading, such as internal blinds or curtains. As homeowners are likely to use internal blinds to limit solar gain and this is the method mentioned in the Home User Guide, this should be reflected in the dynamic modelling method.
- 14.31 Respondents argued that the weather files used for the dynamic modelling method should be updated to reflect future climate scenarios and the associated increased risk of overheating.
- 14.32 A small number of respondents described other omissions including the ability to model external blinds and shutters, glazing with specific g-values and the need for more granularity and detail within the dynamic modelling method.

Question 87: Do you consider there to be omissions or issues concerning the statutory guidance on ensuring the overheating mitigation strategy is usable for buildings within the scope of requirement O1?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q87
Yes	97	4.0%	38.3%
No	156	6.5%	61.7%
Not Answered	2160	89.5%	-

Key themes:

- 14.33 Respondents from the designer/engineer/surveyors and manufacturer/supply chain professions most commonly raised concerns about the usability of the overheating mitigation strategy, whilst members of the public generally did not raise any issues.
- 14.34 Several respondents stated that the impact of occupant behaviour on personal thermal comfort was an omission and questioned if the assumptions of occupant behaviour were reflective of reality.
- 14.35 Respondents stated various omissions and issues related to noise considerations, including:
- Duration and regularity of noise exposure and magnitude
 - Daytime noise levels to account for daytime resting/sleeping and home working
 - Limits on mechanical services noise where mechanical ventilation/cooling is present
 - A process for the justification and consideration of a relaxed noise criteria where appropriate
 - Clarity on the impact of external noise on window opening profile
 - The impact of noise on limiting the use of natural ventilation
 - Consideration of the impact of different types of noise
 - Environmental noise profiles should be updated to reflect changes such as Ultra Low Emission Zones.
 - The difference between noise assessments required for planning and for Part O
 - A lack of standardisation of the noise assessment methodology
 - Impact of different window opening styles on acoustics

- The current noise requirements are too strict.
- 14.36 Some respondents also noted that current noise requirements push some developments to use mechanical cooling solutions, which does not align with the original intent of Part O requirements or that of Part L. The potential for increased use of mechanical cooling to contribute to the environmental noise itself was also highlighted.
- 14.37 Several respondents called for greater clarity on implementing a cooling hierarchy to ensure passive design is prioritised and to avoid passive cooling mitigation measures being overlooked in favour of mechanical cooling. Other respondents also suggested that the upcoming update to CIBSE TM59 guidance could help with this issue. The phrase 'for reasonable enjoyment of' was described as ambiguous and open to interpretation, which may permit the design of highly glazed buildings which are, by design, unsuitable for passive cooling methods.
- 14.38 Respondents highlighted Part O requirements contradict or conflict with other Building Regulations requirements, such as:
- Part F – purge ventilation requirements
 - Part L – maximising heat retention and minimising space heating including U-values
 - Part Q – window security requirements
 - Part B – window sizes for escape requirements
 - Part K – guarding heights requirements
- 14.39 Respondents highlighted several further omissions and issues as described below:
- Hotels and educational buildings should be added to the building types which are in the scope of Requirement O1.
 - The impact of internal shading should be included in the overheating mitigation strategy.
 - There should be allowances for glazing of different g values.
 - There should be further guidance on the security requirements for openable windows.
 - There should be a review of the timescale of overheating assessments to account for the full lifecycle of the building.
 - External shading options should be extended to include landscape features such as trees.

Question 88: Do you consider there to be omissions or issues concerning the statutory guidance on protection from falling?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q88
Yes	83	3.4%	33.9%
No	162	6.7%	66.1%
Not Answered	2168	89.8%	-

Key themes:

- 14.40 A major recurring theme which arose is the conflict between the increased guarding requirements of Part O and the existing standards in Parts K and B. This conflict complicates design processes, increases costs, and can contradict accessibility and safety standards.
- 14.41 There was a strong call for clearer, more consistent guidelines that align with all relevant parts of the Building Regulations. Respondents suggest that Parts K, B, and O should be reviewed and amended to be mutually supportive.
- 14.42 Respondents frequently noted the lack of evidence or justification for the stringent new measures, particularly questioning the empirical basis for believing that these changes markedly improve safety outcomes.
- 14.43 Many respondents were concerned that the new requirements impose significant aesthetic limitations, particularly in traditional settings, and reduce design flexibility, leading to standardised and less appealing building facades.
- 14.44 Clarifications were requested concerning the FAQ updates that followed the introduction of Part O, particularly relating to build and design tolerances for window heights and openings. This includes adjusting the allowable variance from specified measures in the Approved Documents' tables or lists.
- 14.45 The requirements for window sill height and the reachability of window operation mechanisms were noted as needing review, especially to accommodate users with disabilities and to prevent the standardisation of window heights from negatively impacting building aesthetics and variability.
- 14.46 Respondents noted that the increased sill height might prevent wheelchair users from having proper external views, thus failing to consider the needs of people with mobility impairments.

Question 89: Are you aware of ways that Approved Document O could be improved, particularly for smaller housebuilders?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q89
Yes	127	5.3%	43.3%
No	166	6.9%	56.7%
Not Answered	2120	87.9%	-

Key themes:

- 14.47 A large number of the detailed responses focused on the method of calculation, with many referencing HEM as an alternative to the current simplified modelling process. A HEM-integrated Part O method was viewed as more user friendly and cost effective for smaller builders.
- 14.48 The other area that prompted a strong response was the clarity of the wording and content of Approved Document O. There were requests for clearer, more understandable language, particularly for smaller housebuilders, and the inclusion of examples or case studies.
- 14.49 Other issues raised by respondents, though mentioned less frequently, included:
- The need for training / accreditation for builders
 - The incorporation of cooling emitters into the modelling
 - Type approval for a set of standard building designs
 - Scrapping Part O and incorporating requirements into Part L.

Regulation 40B: Information about Overheating

- 14.50 Regulation 40B of the Building Regulations 2010 sets out a legal requirement that the person carrying out building work in respect of a building where Part O applies must give sufficient information to the owner about the overheating strategy of the home.

Question 90: Does Regulation 40B require revision?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q90
Yes	52	2.2%	22.1%
No	183	7.6%	77.9%
Not Answered	2178	90.3%	-

Question 91: Do you consider there to be omissions or issues concerning the statutory guidance on providing information?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q91
Yes	54	2.2%	22.6%
No	185	7.7%	77.4%
Not Answered	2174	90.1%	-

Question 92: Are there any improvements that you recommend making to the information provided about overheating in the Home User Guide template?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q92
Yes	46	1.9%	18.7%
No	200	8.3%	81.3%
Not Answered	2167	89.8%	-

Question 93: Are there any omissions or issues not covered above with the statutory guidance in Approved Document O that we should be aware of?

Response	Number of Responses	Percentage of All Responses	Percentage of Responses to Q93
Yes	46	1.9%	19.9%
No	185	7.7%	80.1%
Not Answered	2182	90.4%	-

Key themes:

- 14.51 Several respondents thought that the new CIBSE TM59 guide should be adopted once published. From the guide, the following specific features were recommended for adoption:
- Where designers want to use cooling, they should prove that they can pass the standards without any usability constraints such as noise.
 - Latest research on nighttime comfort temperatures.
 - Recognition of ceiling fans.

- 14.52 Other respondents commented on the acoustic standards, and thought that Approved Document O should be edited to reflect the latest Institute of Acoustics/Association of Noise Consultants guide.
- 14.53 Comments were made that the security requirements are too difficult to comply with, particularly when there are ground floor bedrooms. Some respondents felt the scope should be extended to non-domestic buildings. Some respondents also commented on challenges with complying with the protection from falling requirements. There was comment that the call for evidence is too soon, as people do not have much experience working with Approved Document O yet. Others thought that there should be a wider review on overheating risk in buildings, and any such review and Approved Document O should take into account vulnerable occupants.
- 14.54 Aside from the above, the following ideas were raised by individual responses:
- Assessments should be done by a person accredited by a scheme, similar to energy assessors
 - Some designs are using ventilation systems for cooling, which is inappropriate
 - Too much cooling is being used and cooling is noisy, particularly in urban environments
 - Part L and Part O should be integrated
 - The use of width and height in Appendix D should align with ClassCool
 - Clarity should be provided on which Category to use in TM59 i.e. Cat I or Cat II
 - Description of free area versus equivalent area should be clarified
 - Equivalent area calculations should account for window reveals
 - Approved Document O should better reflect window placement
 - Approved Document O should recognise the use of curtains and blinds as overheating mitigation
 - Approved Document O should recognise vegetation as overheating mitigation
 - Approved Document O should recognise ground source heat pumps as a means of providing passive cooling

Government Response to Q82-93:

- 14.55 The Building Safety Regulator is currently considering what can be done to address common issues highlighted in the call for evidence. The Government is considering an update to Approved Document O as part of this.
- 14.56 The Government will also proceed with a full technical review of Approved Document O. The review will consider stakeholder concerns, including reviewing

the adoption of the updated CIBSE TM59 for the dynamic method, exploring improvements to the simplified method and reviewing the noise and security guidance in Approved Document O. The review will also consider issues relating to overlaps with other parts of the Building Regulations and the use of weather files. The possibility of expanding the scope of Part O to dwellings created through a Material Change of Use will also be explored further. We will consider how to phase any changes and whether any elements identified can be implemented before the full technical review concludes.

- 14.57 The Health and Safety Executive has published research on the effectiveness of guarding to prevent falls through window openings. This research concluded that a guarding height of 1100 mm is protective against tipping risks for practically the entire adult British population, whereas a guarding height of 800 mm is protective for less than 1% of the adult population. The research can be found here: [RR1219: A study of the effectiveness of guarding to prevent falls through window openings - HSE](#)
- 14.58 As part of the technical review, we will also continue to advance research into the practical application of Part O, with a focus on identifying challenges, evaluating outcomes, and developing evidence-based recommendations to support effective implementation.

Chapter 14: Summary

We sought views and evidence on Part O of the Building Regulations from housebuilders who had experience applying the new overheating requirement to real projects.

- ✓ The Building Safety Regulator is considering what can be done to address common issues highlighted in the call for evidence.
- ✓ The Government will proceed with a full technical review of Approved Document O.

Chapter 15 - Equalities and impact assessments

Equality Assessment

- 15.1 The Public Sector Equality Duty requires ministers to have due regard to the need to eliminate discrimination and other conduct prohibited under the Equality Act 2010, to advance equality of opportunity, and foster good relations between persons who share protected characteristics and those who do not.
- 15.2 The consultation sought views on the potential impacts of any of the proposals in the consultation on persons who have a protected characteristic. Protected characteristics as defined by the Equality Act 2010 are:
- Age
 - Disability
 - Gender reassignment
 - Marriage and civil partnership
 - Pregnancy and maternity
 - Race
 - Religion or belief
 - Sex
 - Sexual orientation

Question 94: 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. If possible, please provide evidence to support your comments.

	Number of Responses	Percentage of All Responses
Feedback provided	113	4.7%
No feedback provided	2300	95.3%
Total	2413	100%

Key themes:

- 15.3 Many respondents said that the proposals could have financial implications for individuals with protected characteristics, particularly those more likely to experience poverty. Where respondents were specific about protected characteristics, they most commonly referenced disability and age. A smaller number referenced pregnancy and maternity. Many responses were framed in terms of vulnerability or low income rather than a specific protected characteristic. Concerns focused on the affordability of technologies such as solar panels, the running costs associated with electric heating systems, and the potential for increased rents in dwellings created through an MCU.
- 15.4 Some respondents said that the Future Homes and Buildings Standards proposals should do more to ensure accessibility for disabled people and older individuals. This included calls for the Home User Guide to be available in a range of accessible formats and for heating and ventilation systems to be easy to understand and operate. A small number of respondents raised concerns about the accessibility implications of Part O, particularly in relation to window heights and usability for wheelchair users.
- 15.5 A few respondents said that overheating presents a particular risk to vulnerable groups, including older people, young children, pregnant individuals and those with chronic health conditions. These respondents supported stronger protections and suggested extending the scope of Part O to include dwellings created through an MCU.

Government Response to Q94:

- 15.6 We are grateful to respondents for their feedback on the potential impacts of the Future Homes and Buildings Standards on individuals with protected characteristics. We recognise the importance of ensuring that the Future Homes and Buildings Standards are inclusive and accessible and that they do not create unintended consequences that would disproportionately impact those with protected characteristics.
- 15.7 We have carried out a Public Sector Equality Duty assessment, in line with section 149 of the Equality Act 2010, for the policies implemented under the Future Homes and Buildings Standards. The evidence base for making these assessments included official statistics and datasets, engagement with industry stakeholders, a review of correspondence received by the Department and responses to the consultation. This process has helped identify where the Future Homes and Buildings Standards can support those with protected characteristics. We have not identified any significant or disproportionate impacts on individuals with protected characteristics.
- 15.8 We have considered the feedback carefully and acknowledge the concerns raised about the potential for financial impacts on some groups. We also acknowledge the specific points raised on overheating, accessibility, the usability of information, and the importance of clear and inclusive communication. We have not identified significant or disproportionate impacts overall, but we have made adjustments to our policies where appropriate in recognition of our

public sector equality duty. More detail on some of the key areas of focus of the public sector equality duty assessment is set out below.

Affordability

- 15.9 We recognise the concerns raised by respondents about upfront affordability, including the potential for costs to be passed through into purchase prices and, in some cases, rents. We have considered these concerns alongside the evidence used in our Public Sector Equality Duty assessment, which indicates that some groups with protected characteristics are statistically more likely to experience fuel poverty and therefore may be more exposed to affordability pressures.
- 15.10 The Future Homes and Buildings Standards are expected to reduce energy demand and help protect households from energy price volatility, including through measures such as on-site renewable generation. This is particularly beneficial for those with protected characteristics that are more likely to experience fuel poverty, including some ethnic minorities, younger households and single-parent families and households with children.
- 15.11 The notional building approach for the Future Homes and Buildings Standards sets performance based targets, rather than mandating specific technologies, which allows builders and homeowners the flexibility to innovate and select the most practical and cost-effective solutions appropriate in any development.

Resilience for critical infrastructure

- 15.12 We have included specific provisions in the Future Buildings Standard to support resilience in critical infrastructure. The Future Buildings Standard allows for the installation of fossil fuel backup heating systems in new non-domestic buildings such as hospitals and community centres. This ensures continuity of heating and hot water during electrical power outages, which is essential for safeguarding the health and safety of vulnerable users, including the elderly and those with disabilities.

Accessibility

- 15.13 We have taken steps to help ensure that information provided to homeowners and occupants is accessible and inclusive. The Building Regulations will be amended so that, where information is required to be provided to dwelling owners about ventilation, fixed building services, on-site electricity generation and overheating, it must be provided in an appropriate format. Approved Document L provides the recommended method for compliance with Regulation 40C, and outlines that for the format to be considered appropriate, both a paper and a digital copy of the Home User Guide should be provided or a paper copy is provided and a digital copy is made available. This is intended to help ensure that all occupants, including those with disabilities or limited digital access, can access the information they need to operate their homes effectively.

Overheating

- 15.14 A few respondents highlighted overheating as a particular risk for vulnerable groups, including older people, young children, pregnant individuals and those with chronic health conditions. We recognise the potential health impacts of overheating and the importance of ensuring homes are designed to manage heat risk effectively. As set out in Chapter 14, we will proceed with a full technical review of Approved Document O and will explore further the case for expanding the scope of Part O to dwellings created through a material change of use, alongside wider usability and accessibility issues raised by stakeholders.

Next steps

- 15.15 We remain committed to ensuring that the Future Homes and Buildings Standards deliver benefits fairly and equitably across society. We will continue to monitor the impacts of the standards on individuals with protected characteristics as implementation progresses, and we will update our assessments where new evidence emerges. Through this ongoing process, we aim to ensure that the standards support inclusive, affordable, and resilient homes and buildings that meet the needs of all communities.

Impact Assessments

- 15.16 The consultation stage Impact Assessments (IAs) were carried out in line with HM Treasury's Green Book guidance and based on the best available evidence and policy proposals at that time. A proportionate approach was taken for the analysis, with commitment to further explore certain areas in the final Impact Assessments.
- 15.17 The consultation sought feedback on the draft IAs published alongside the consultation, which considered the costs, benefits and wider impacts of the proposed changes to Part L of the Building Regulations and the accompanying Approved Documents.

Question 95: Please provide any feedback you have on the impact assessments.

	Number of Responses	Percentage of All Responses
Feedback provided	74	3.1%
No feedback provided	2339	96.9%
Total	2413	100%

Key themes:

- 15.18 Some respondents felt that embodied carbon assessments should be included within the IAs. A few respondents stated their concern about the carbon footprint of

the materials used in Future Homes Standard homes and felt these impacts should explicitly be accounted for in the IAs.

- 15.19 Several respondents raised concerns around the length of the electrical grid connections process and the potential for electrical grid capacity issues arising because of the electrification of home heating systems. Respondents felt that the IAs should better account for the potentially high costs associated with grid upgrades. A comment was made that the IA analysis may not be representative of the costs faced by SMEs, where the costs of grid infrastructure upgrades are disproportionately high relative to the size of the developer. Respondents highlighted that there is limited grid capacity in some areas due to high energy users already connected to the grid. Some respondents argued that better-insulated homes would place less strain on the grid and help avoid the need for extensive grid upgrades.
- 15.20 One response highlighted that developments that are in-flight that are not due to have completed construction before the end of the proposed transitional arrangements may have oversized gas infrastructure and/ or inadequate electricity infrastructure.
- 15.21 A small number of respondents raised concerns that there was no health impact assessment or monetisation of the health benefits in the IAs.
- 15.22 A few responses touched on airtightness and Part F of the Building Regulations. A couple of concerns were raised that the potential requirement for larger thermal ducting could increase costs for manufacturers and affect housing design and affordability. Some respondents highlighted the opportunity to improve ventilation and indoor air quality, which would have significant health benefits and potentially reduce costs to the NHS. These responses suggested that these aspects should be incorporated into the IAs.
- 15.23 Several responses were received on the theme of performance gaps/ testing and monitoring. The common theme in these was support for more rigorous testing, monitoring, and evaluation of building performance. Respondents suggested that more robust data collection and analysis through mandatory testing and monitoring, potentially using smart technologies such as smart meters or thermal efficiency tests, is required for achieving energy efficiency goals and a plan for this could be incorporated into the final IAs.
- 15.24 A few responses indicated that it was challenging to give feedback without a final version of HEM.
- 15.25 Many of the responses referenced costs. These broadly covered capital, maintenance, replacement, training and familiarisation costs. Of these responses, most raised concerns regarding costs for the following reasons:
- Capital costs or those initially faced by housing developers were suggested to be overestimates.
 - Certain costs were highlighted as being omitted from the analysis (e.g. wider environmental costs and grid reinforcement costs).

- Suggestions were made that the learning rates (capital cost reduction of technology over time) may be overestimated and should be reviewed.
- Suggestions were made that the pass-through costs should be reviewed. There was an assumption in the FHS consultation IA that developers may be able to pass-through additional costs to customers through higher house prices. For instance, where customers have a willingness to pay for higher efficiency technologies. Three responses cited evidence from the Competition and Markets Authority to suggest how this could be reviewed.

Government Response to Q95:

- 15.26 We have updated and refined the analysis included in the consultation-stage Impact Assessments for the Final Impact Assessments, taking careful consideration of the detailed comments that were provided by respondents. We have also tried to reflect changes based on an improved evidence base and our evolving understanding of markets and supply chains from research and engagement with stakeholders.
- 15.27 Since the consultation-stage Impact Assessments we have used EPC data to refine some of our estimates, such as the estimate for the route to compliance mix in the counterfactuals, as well as providing evidence for how the phase-in for the Future Homes and Buildings Standards is likely to proceed.
- 15.28 Our responses to some of the specific responses to concerns with the Impact Assessments can be seen below:
- The impacts on grid capacity have remained unmonetised. We have engaged with industry experts, consultants and the Department for Energy Security and Net Zero (DESNZ) on how to best reflect grid connection costs in the Impact Assessment modelling. Due to the limited evidence and high variability in this area, we have taken the decision to reflect this qualitatively in our Impact Assessment modelling.
 - Health impacts have also remained unmonetized. Due to the limited evidence and high variability in this area, we have taken the decision to reflect this qualitatively in our Impact Assessment modelling.
 - We have reviewed the available evidence on the energy efficiency performance gap in new build dwellings and have decided to maintain the central assumption from the consultation-stage Impact Assessment that there is no performance gap. We will continue to monitor the validity of this assumption as we evaluate the Future Homes and Buildings Standards.
 - At the time of producing and finalising the IAs, HEM was still under development. However, we still assessed the interim model to be the best available evidence to use for our modelling assumptions covering dwelling energy usage in the IA. The final IA modelling used the most recent version of HEM that DESNZ could provide MHCLG with.
 - In several of the areas where respondents raised issues around costs, we have made updates to our approach. For example, learning rates have been adjusted

based on a literature review of the relevant, most up-to-date evidence. This has allowed for a more accurate modelling of the costs in the updated model, although the changes to costs have been mostly minimal relative to initial estimates.

Appendix – List of Acronyms

BACS	Building Automation and Control Systems
BEMS	Building Energy Management System
BNG	Biodiversity Net Gain
BREL	Building Regulations England Part L
CHP	Combined Heat and Power
cMEV	Centralised Mechanical Extract Ventilation
cMVHR	Continuous Mechanical Ventilation with Heat Recovery
COP	Coefficient of Performance
DESNZ	Department for Energy Security and Net Zero
dMEV	Decentralised Mechanical Extract Ventilation
DNO	Distribution Network Operator
DSM	Dynamic Simulation Method
EPC	Energy Performance Certificate
FEE	Fabric Energy Efficiency
HEM	Home Energy Model
HRB	Higher-Risk Building
IA	Impact Assessment
iSBEM	Interface for Simplified Building Energy Model
MCU	Material Change of Use
MCS	Microgeneration Certification Scheme
MIS	Microgeneration Installation Standard
MDU	Multiple Dwelling Unit
MVHR	Mechanical Ventilation with Heat Recovery
NCM	National Calculation Methodology

OCGT/CCGT	Open Cycle Gas Turbine / Combined Cycle Gas Turbine
PCDB	Product Characteristics Database
PM	Particulate Matter
PV	Photovoltaic
SAP	Standard Assessment Procedure
SBEM	Simplified Building Energy Model
SEER	Seasonal Energy Efficiency Ratio
SFP	Specific Fan Power
TER	Target Emissions Rate
TPER	Target Primary Energy Rate