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Welsh Government

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Welsh Government
Consultation – summary of responses and Government
response

Building Regulations Part L 2025 Review Changes
to Part L (conservation of fuel and power), and
Part F (ventilation) of the Building Regulations for
dwellings and non-domestic buildings (excluding
changes to Part O - overheating)

Date: February 2026

Mae'r ddogfen hon ar gael yn Gymraeg hefyd / This document is also available in Welsh
Rydym yn croesawu gohebiaeth a galwadau ffôn yn Gymraeg / We welcome correspondence and telephone calls in Welsh

Overview

Summary of responses received and the Government response to the consultation on the Building Regulations Part L 2025 Review Changes to Part L (conservation of fuel and power), Part O (overheating) and Part F (ventilation) of the Building Regulations for dwellings and non-domestic buildings which took place from 26 August 2025 to 17 November 2025.

The responses to questions 44 to 47 (within chapter 3 of the consultation) which included proposals for the changes to Part O (overheating) to capture certain high risk building work on existing dwellings will be published separately later this year.

Action Required

This document is for information only.

Further information and related documents

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

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Additional copies

This summary of response and copies of all the consultation documentation are published in electronic form only and can be accessed on the Welsh Government's website.

Link to the consultation documentation: [Building Regulations Part L: 2025 review](#)

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1. Introduction

- 1.1 This report provides a summary of the responses to the consultation “Building Regulations Part L 2025 Review Changes to Part L (conservation of fuel and power), Part O (overheating) and Part F (ventilation) of the Building Regulations for dwellings and non-domestic buildings” (opened on 26 August 2025 and closed on 17 November 2025) and is structured around the questions set out in the consultation.

Please note the responses to questions 44 to 47 (within chapter 3 of the consultation) which included proposals for the changes to Part O (overheating) to capture certain high risk building work on existing dwellings will be published separately later this year.

- 1.2 The views reported in this summary are those expressed by the respondents to the consultation and do not necessarily reflect those of the Welsh Government.

Building Regulations

- 1.3 Building Regulations control certain types of building work, principally the erection and extension of buildings and provision or extension of certain services or fittings, chiefly to ensure that buildings meet certain standards of health, safety, welfare, convenience and sustainability.
- 1.4 Compliance with the Building Regulations is the responsibility of the person carrying out the work and the building control system helps to ensure that the required level of performance has been met. The role of a building control body, either the local authority or a registered building control approver, is to act as an independent third-party check to help achieve compliance. As an alternative to third-party checking by building control, some types of work may be self-certified as being compliant by installers who are registered as a member of a competent person self-certification scheme and have been assessed as competent to do so.
- 1.5 Building Regulations greatly influence how our buildings are constructed and used. As such, they help to deliver significant benefits to society. Regulation can also impose costs on both businesses and individuals. The “functional” nature of the Building Regulations, by having regulation setting out the broad requirements rather than prescribing how it must be achieved, seeks to allow flexibility and ensure innovation is not hindered. Guidance in the Approved Documents that accompany the Regulations then sets out some of the ways that these requirements can be met although it does not have to be followed if the required level of performance can be shown to be achieved in a different way. This approach provides clarity for building control bodies and industry alike.

Consultation Response Overview

- 1.6 The consultation generated 88 responses, and we are grateful to all those who responded. All the consultation responses have been read and considered as part of this analysis. A standard response form was provided for ease of use.
- 1.7 Respondents who completed the consultation response form were asked to assign their organisation to one of fifteen types identified on the form (including a self-designated 'unspecified' option). The table below shows the number of responses received from each sector.
- 1.8 For many of the questions, the respondents had the option to state that they were "unsure" whether they agreed with the proposal or not. For some of the questions, a large proportion of the respondents stated that they were unsure. Reviewing the feedback provided by these respondents, many of the respondents either did not have the specialist expertise to respond to that question or have a particular view. We have included feedback from these respondents only where they identified a specific reason for their uncertainty related to the proposal.
- 1.9 In a few cases it was considered that comments provided were more suitable for another question. These comments were transferred across.

Sector	Responses	%
Architect	9	10%
Builder / Developer	3	3%
Building Occupier/ Resident	1	1%
Construction professional	5	6%
Designer / Engineer /Surveyor	7	8%
Energy Assessor	2	2%
Energy sector	1	1%
Local Authority	8	9%
Manufacturer/supply chain	15	17%
Other interested party (please specify)	28	32%
Property Manager / Housing Association / Landlord	3	3%
Registered Building Control Approver	1	1%
Small/medium builder	1	1%
Unspecified	3	3%
Volume house builder	1	1%
TOTAL	88	100%

2. Part L and Part F Standards for New Dwellings in 2025 (Questions 1 to 27)

2.1 Chapter 2 of the consultation contained our proposals for changes to the energy efficiency and ventilation standards for new dwellings. We proposed the following changes:

- An uplift in energy efficiency standards. In particular, we proposed that a low carbon heating system is integral to the building specification.
- A change to the current performance metrics. The previous metric of Dwelling Energy Efficiency Rate (DEER) was proposed to be withdrawn and replaced with the Energy Use Intensity to protect dwelling occupants from high annual regulated fuel bills.
- Amendments to Approved Documents L and F to improve the commissioning and checking process for fixed building services in new dwellings.

Summary of responses:

Question 1: What level of uplift to the energy efficiency standards (i.e. improvements to the targets for performance metrics (see paragraph 2.42 for proposed metrics) in the Building Regulations should be introduced for the Part L 2025 standard?

Question 1: What level of uplift to the energy efficiency standards (i.e. improvements to the targets for performance metrics (see paragraph 2.42 for proposed metrics) in the Building Regulations should be introduced for the Part L 2025 standard?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	75	9	3	1	4	7	2	1	8	12	23	3	0	1	0	1
a. Option 1	37%	0%	33%	0%	25%	14%	50%	100%	75%	25%	48%	67%	0%	0%	0%	100%
b. Option 2	44%	100%	67%	100%	75%	71%	50%	0%	0%	33%	30%	0%	0%	100%	0%	0%
c. Other	19%	0%	0%	0%	0%	14%	0%	0%	25%	42%	22%	33%	0%	0%	0%	0%

2.2 Of the 75 respondents to this question, slightly more responses preferred option 2 (44%) than option 1 (37%). 19% stated that they had other views. Below highlights the key reasons provided for these views.

Reasons for supporting Option 1

- **Improves viability:** Option 1 offers a solution that balances good

performance with capital cost. This would create a standard which is more achievable and cost effective for house builders in the current climate.

- **Reduces complexity:** The higher complexity associated with MVHR and lower air permeability in Option 2 can slow down the delivery of homes. Some also cited that the Option 2 target of $1.5 \text{ m}^3/(\text{h}\cdot\text{m}^2)$ at 50 Pa would not be achievable without the need for upskilling.
- **Aligns with the Future Homes Standard (FHS):** Option 1 is expected to align closer to MHCLG's FHS than Option 2. This was preferable for organisations that operate both in England and Wales.
- **Includes Waste-Water Heat Recovery (WWHR):** Some cited the inclusion of WWHR in Option 1 as being the reason for their selection due to significant savings that can be made on domestic hot water.

Reasons for supporting Option 2

- **More ambitious:** Option 2 was seen as preferable given a need to reduce emissions and fuel bills.
- **Closer alignment with recognised building standards and targets:** Aligns more closely with the building performance achieved by certified AECB CarbonLite & Passivhaus projects. These are viewed as examples of proven and robust decarbonisation standards that also include MVHR and low air permeability. Many also cited alignment with Welsh Planning Policy 12 as a reason for their support.
- **Fabric first approach:** The higher fabric standards in Option 2 were considered to have a greater impact on the quality of housing stock. This was considered more important to achieving net zero than adding technologies.
- **Occupant health and comfort:** Option 2 was viewed as having a greater benefit on indoor air quality, leading to improved thermal comfort and safer, healthier buildings.

Reasons for selecting "Other" as their preferred option

- **Further improvement required:** The levels of fabric improvement to building elements such as the window and glazed door U-values were not a sufficient improvement from the previous targets for either option.
- **Further specifications on heat pumps should be provided:** A greater diversity in the notional heat pumps should be provided such as hydronic, air-air systems, ground source and water source heat pumps. Some also raised concern that ErP Class A cylinders are a step too far for the market.
- **Option 1 was considered worse than existing standards:** Option 1 was considered to be a step back from Part L 2022. For example, the relaxing of the external wall u-value to $0.15 \text{ W/m}^2/\text{k}$ in the new notional building specification was deemed not to be appropriate as the industry is

used to the existing value of 0.13 W/m²/k.

Additional points

2.3 The following additional point was raised in the responses.

- **Reliance on PV is a challenge to compliance:** There was concern that given the high Part L target, it may be essential to install PV to comply. This may not be possible in all scenarios. Factors such as orientation, roof shape, shading and fire safety were raised as potential site-specific issues that could prevent delivering the level of PV set out in the notional building specification.

Question 2: Do you agree with the concerns raised in paragraph 2.7 regarding MVHR systems at this time?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	64	9	3	1	3	7	2	1	8	8	17	2	1	1	0	1
a. Yes	31%	0%	33%	0%	0%	0%	50%	0%	75%	38%	35%	50%	100%	0%	0%	100%
b. No	52%	100%	67%	100%	100%	86%	50%	0%	13%	38%	35%	0%	0%	100%	0%	0%
c. Unsure	17%	0%	0%	0%	0%	14%	0%	100%	13%	25%	29%	50%	0%	0%	0%	0%

2.4 Of the 64 respondents to this question, the majority of respondents disagreed with the concerns (52%). In comparison, 31% agreed with the concerns and 17% were unsure. It is noted that seven of the respondents, principally architects, that disagreed with the concerns used some common phrases in their responses.

Reasons for supporting the proposal

- **Skills gap:** There is a skills gap in the industry for the design, installation and commissioning of MVHR units which are inherently complex. This can lead to poor performance. This includes concerns over the ability to deliver good ductwork layouts that can minimise pressure losses and fan power consumption. Good installation quality can also help to minimise air leakage.
- **Maintenance concerns:** Regular maintenance, such as the changing of filters every 6 to 12 months, is required to ensure good reliability and performance. Poor performance may lead to poor indoor air quality.

- **Air permeability target not achievable:** The proposed $1.5 \text{ m}^3/(\text{h}\cdot\text{m}^2)$ at 50 Pa is difficult to achieve in practice. Lower standards of air permeability can reduce the effectiveness of an MVHR heat recovery system, negating the potential benefits.
- **Additional cost:** The higher design, installation and commissioning standards required for the delivery of efficient MVHR systems result in a higher cost for developers.

Reasons for opposing the proposal

- **Trickle and natural ventilation won't meet the required performance:** Trickle and passive ventilation are considered ineffective at maintaining acceptable indoor air quality. They are intermittent, unreliable and create thermal discomfort.
- **MVHR systems deliver healthy homes:** MVHR systems ensure the delivery of healthy homes. This helps to protect against issues such as mould. Natural ventilation is not considered to reliably achieve a healthy indoor environment. MVHR systems also have the added benefit of heat recovery, which may reduce bills.
- **Evidence of successfully delivering MVHR systems:** There is a significant body of research, industry knowledge and decades of experience of how to install and commission MVHR systems correctly through certified schemes such as Passivhaus and AECB.
- **Improved commissioning and evidence requirements:** AD F proposals to improve competency, commissioning and evidence requirements should be sufficient to mitigate the concerns raised.

Reasons for selecting “unsure”

- **Appreciation for MVHR as a technology but concerns over reliability:** Those who were uncertain were generally supportive of MVHR systems in principle but had concerns about their performance. Concerns were raised over complexity, cost, maintenance, installation and commissioning.

Government response to questions 1 and 2

- 2.5 Overall there was significant support for a very considerable step up in energy efficiency standards compared to the level currently required. Although there was a very mixed response for which option respondents preferred, there was a very small majority (7%) favouring option 2. However, it was also noted that some of the respondents (4 responses (6% of those who responded)) who selected 'other' made comments that option 1 was a preferred option but they disagreed with some of the specific specifications (e.g. the relaxation of external wall u-value) within this option. Therefore, overall responses were largely split between the 2 consultation options.

- 2.6 On question 2, 52% of respondents disagreed with our concerns raised in relation to MVHR systems at this time, and 31% agreed with 17% unsure. It was noted that Passivhaus standards were frequently mentioned by respondents, where MVHR is installed through certified schemes such as Passivhaus and AECB. However, there were also concerns raised that the higher complexity associated with MVHR could slow down the delivery of homes, and the lower air tightness standards would not be achievable without the need for upskilling. These comments are of particular concern given the need for housing supply and that the building regulations set minimum standards that should also be realistic.
- 2.7 A response also noted the Future Homes Hub report 'Ready for zero'¹ published in 2023 which stated that "*Housebuilders would need to undertake a step change in techniques and quality control to reliably reduce air permeability (infiltration losses) below 4.5m³/m²/hr.*" The efficiency of MVHR generally gets better with lower air permeability rates, and therefore this is also a concern. Houses certified through schemes such as Passivhaus generally achieve much lower airtightness, often less than 0.6 ach@50Pa for detached homes which is approximately equivalent to an air permeability of 0.6 (m³/h·m² at 50 Pa).
- 2.8 Including MVHR technology within the notional specification will extremely limit the flexibility in achieving the energy target and effectively result in a technology cul-de-sac (i.e. a need to install MVHR to achieve the energy targets for all new homes). Also as upskilling will be needed to achieve the more favourable air permeability levels, it is not a technology that we propose to include within the notional specification for this uplift at this time. However, we do understand and recognise respondents views on the potential role MVHR can play, therefore, we will keep the alternative optional indicative dwelling specification with MVHR within approved document L1 that designers and developers who have confidence and/or experience in this area may wish to use.
- 2.9 In considering all the responses, we conclude that the preferred option 1 (93%) is the appropriate next step up in energy efficiency standards for our Part L 2025 standard. In comparison to option 2, we still consider that Option 1 offers a better solution which balances good performance with capital cost, and is still an achievable minimum standard with very significant energy and carbon emission savings.
- 2.10 In response to the suggestions made, we have made small adjustments to option 1 specification for the final notional building specification. These changes are:
- External Wall U-value: From a proposed U-value of 0.15W/m².K to an improved U-value of 0.13W/m².K.
 - Renewable energy generation will now be a requirement within schedule 1 (Part L) of the building regulations (please see response to question 12)

¹ https://irp.cdn-website.com/bdbb2d99/files/uploaded/Ready_for_Zero_2025.pdf

below). Therefore, the amount of renewable energy generation in both the notional and actual dwellings will be the minimum specified with Approved Document L or a lower amount if any exemptions have been successfully agreed with the building control body. (Please see response to question 12 below for further information).

- Air source heat pump: Although the notional dwelling specification will still have an ASHP for the purposes of calculating the primary energy and carbon emission targets, the Approved document L notional dwelling specification guidance text will be amended to acknowledge that all other heat pump technologies such as hydronic, air-air systems, ground source and water source heat pumps will in general also offer near equivalent or better efficiencies.

Question 3: Do you agree that new dwellings 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 Part L 2025 Standard?

Question 3: Do you agree that new dwellings 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 CO ₂ levels for the Part L 2025 Standard?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	54	4	3	1	1	6	2	1	8	7	16	3	1	0	0	1
a. Yes	69%	75%	33%	0%	100%	50%	50%	100%	88%	57%	69%	100%	100%	0%	0%	100%
b. No	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	31%	25%	67%	100%	0%	50%	50%	0%	13%	43%	31%	0%	0%	0%	0%	0%

2.11 Of the 54 respondents to this question, a majority of respondents (69%) agreed with the proposal. 31% stated that they were unsure.

Feedback provided from those who supported the proposal

2.12 Respondents provided the following reasons for their support of the proposal.

- **Heat networks are important for our decarbonisation pathway:** Heat networks were viewed as being able to play a strategically important role to enable a pathway to net zero and lower bills for households. This is

important for larger scale housing, blocks of flats and urban settings where individual heating solutions may be less appropriate.

- **A proven, cost-effective approach:** Many examples exist within the UK where heat networks combined with a well-designed fabric can provide a low carbon, affordable and efficient heat supply.

2.13 However, these respondents did raise some concerns with the proposal.

- **Heat networks should not be mandatory:** There were concerns of heat networks being mandatory as they restrict developer, consumer choice and opportunities for smart demand management. Heat networks are viewed as not suitable for all locations or types of development.
- **Need for management and maintenance:** Good management and maintenance are needed to ensure a reliable and cost-effective service for the end user.

Reasons for selecting “unsure”

- **Substantial distribution losses:** Losses on networks can be significant if not designed properly. Energy modelling should include all expected distribution losses, including transmission and pumping energy.
- **Low space heat demand:** When new buildings are designed to a Passivhaus standard, the space heating demand is so low that it is not cost-effective to connect to a communal heat network.

Question 4: Do you agree that newly constructed district heating networks (i.e. those built after the Part L 2025 Standard comes into force) should also be able to connect to new buildings using the sleeving methodology?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	52	3	3	1	2	6	2	1	8	7	14	3	1	0	0	1
a. Yes	40%	33%	0%	0%	50%	0%	50%	0%	63%	29%	50%	67%	100%	0%	0%	100%
b. No	4%	0%	33%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	56%	67%	67%	100%	0%	100%	50%	100%	38%	71%	50%	33%	0%	0%	0%	0%

- 2.14 Of the 52 respondents to this question, 40% agreed with the proposal whilst only 4% disagreed. A majority of respondents (56%) were unsure about the proposal.

Feedback provided from those who supported the proposal

- 2.15 Reasons for supporting the proposal aligned with those set out in the consultation document. In addition, the following point was made.
- **Decarbonisation of wider network:** Whilst many were supportive of sleeving proposals as they support the development of low carbon infrastructure, most cited that this route must be supported by decarbonisation of the wider heat network.

Reasons for opposing the proposal

- **Locks in gas infrastructure:** Concern over connecting to existing networks which have 'locked in' gas boilers/CHP engines for potentially decades. Connection should only be allowed as a means to decarbonise existing networks. This aligns with the comment above.
- **A 'work around':** Considered a work around to established routes which are preferred to drive change in existing networks.
- **Reliance on peak demand calculation:** The reliance on using a peak demand calculation could result in larger plant, higher capital cost and increased running costs.

Reasons for selecting "unsure"

- **Concerns with heat networks:** Similar points were raised as those that selected "unsure" for Question 3.

Question 5: 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?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	49	3	3	1	2	5	2	0	8	7	13	3	1	0	0	1
a. Yes	35%	33%	0%	0%	50%	0%	50%	0%	63%	14%	31%	67%	100%	0%	0%	100%
b. No	2%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	63%	67%	100%	100%	0%	100%	50%	0%	38%	86%	69%	33%	0%	0%	0%	0%

2.16 Of the 49 respondents to this question, 35% agreed with the proposal whilst only 2% disagreed. A majority of respondents (63%) were unsure about the proposal.

Feedback provided from those who supported the proposal

2.17 Reasons for supporting the proposal aligned with those set out in the consultation document. In addition, the following concerns were raised.

- **Complexity:** Some found the proposals complex and were concerned over the lack of guidance on how this will be delivered in SAP 10.3, HEM and PCDB entries.
- **Could cause construction delays:** Heat network construction can lead to delays due to slow building of infrastructure and connection points. The need for coordination between different parties, such as energy providers and Local Authorities, will potentially cause further early-stage project delays.

Reasons for selecting “unsure”

- **Unconvinced on the sleeving process:** General concerns that the sleeving process may not deliver the anticipated uptake in low carbon heating plant.

Question 6: Are there alternative arrangements for heat networks under the Part L 2025 Standard that you believe would better support the expansion and decarbonisation of heat networks?

2.18 This was an open text question. The following views were expressed.

- **Concerns of heat networks:** These included issues raised in previous questions: high distribution losses, low space heat demand in Passivhaus developments reducing viability, removal of consumer choice and prevention of the end user from smart consumption.
- **Encourage localised heat networks:** Independent off-grid heat networks should be promoted in areas where there are grid constraints.
- **Alternative systems:** Ambient loop, hybrid solutions (80% renewable lead source) and hydrogen networks should be considered.
- **Scottish government approach:** Consider carbon emissions at “point of end-use”, and seek to legislate upstream emissions (upstream of the dwelling curtilage) through other, separate policy means.

Question 7: Do you agree that new residential buildings served by communal heating systems should be compared to the proposed Part L 2025 notional standard with an individual ASHP?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	47	3	3	1	1	4	2	1	8	6	14	3	0	0	0	1
a. Yes	43%	33%	67%	0%	100%	50%	50%	0%	63%	33%	29%	67%	0%	0%	0%	0%
b. No	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	33%	0%	0%	0%	100%
c. Unsure	51%	67%	33%	100%	0%	50%	50%	100%	38%	67%	64%	0%	0%	0%	0%	0%

2.19 Of the 49 respondents to this question, 43% agreed with the proposal whilst only 6% disagreed. A majority of respondents (51%) were unsure about the proposal.

Feedback provided from those who supported the proposal

2.20 Reasons for supporting the proposal.

- **Reasonable benchmark:** Individual heat pumps will be the most common solution across Wales for compliance. Therefore, this creates a simple,

reasonable, comparable baseline.

- 2.21 However, these respondents did raise some concerns with the proposal.
- **Home Energy Model (HEM):** Concerns over how communal heating systems would be treated in the HEM.
 - **Include all losses:** All losses in the system must be considered, including pumping energy, distribution, and overheating of communal areas.

Reasons for opposing the proposal

- **Compare to the same heating technology:** Buildings served by a communal heat network should not be compared to buildings with an individual heat pump, particularly as the HEM's approach to heat networks is yet to be finalised. A comparison with a dwelling served by the same type of heating solution is more appropriate.

Reasons for selecting “unsure”

- **Standalone systems are not as efficient:** Individual systems are not as efficient as communal systems and therefore it is not a fair comparison.
- **Individual ASHPs are not a suitable comparator for communal blocks:** A notional individual ASHP per dwelling is not a suitable or practical solution for flats.

Government response to questions 3, 4, 5, 6 and 7

- 2.22 As described in the consultation, we expect that in parts of Wales heat networks will have a strong role to play in delivering low carbon heat to new buildings in the future.
- 2.23 Our consultation proposed new ways to assess new dwellings and non-domestic buildings that are connected to heat networks to encourage heat networks, taking an outcomes-based approach that seeks to ensure that they are supplied by sufficiently low-carbon heat.
- 2.24 Of the respondents that did answer yes or no to the district heat network and communal heat network related questions, the vast majority agreed with our proposals, therefore, we propose to introduce the changes.

Question 8: Should the notional dwelling heat loss calculation be based on a single weather location (Cardiff)?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	68	9	3	1	3	7	2	1	8	10	19	3	0	1	0	1
a. Yes	24%	11%	33%	0%	0%	0%	0%	100%	50%	10%	26%	67%	0%	0%	0%	100%
b. No	65%	78%	67%	100%	100%	100%	100%	0%	50%	60%	53%	33%	0%	100%	0%	0%
c. Unsure	12%	11%	0%	0%	0%	0%	0%	0%	0%	30%	21%	0%	0%	0%	0%	0%

2.25 Of the 68 respondents to this question, the majority (65%) disagreed with the proposal. In comparison, 24% agreed with the proposal and 12% were unsure.

Reasons for supporting the use of a single weather file

- **Enable volume developments:** A single weather file will simplify design processes and enable the development of standard house types to be built across Wales.
- **Minimal loss of accuracy:** Based on the research presented in the consultation document, weather variation across Wales is considered not to have a significant impact on modelled heat loss. Therefore, it would be unjustified to introduce more complexity through multiple weather files.

Reasons for opposing the use of a single weather file

- **Wide range of weather conditions:** Respondents argued that Wales has a wide range of climatic conditions. They believe one average file cannot provide sufficient accuracy in modelling dwelling heat loss.
- **Could lead to inadequate designs:** A single weather file could unfairly result in inadequate designs in colder and more exposed areas of Wales relative to milder areas.
- **Could lead to incorrectly sized Heat Pumps:** Accurate weather data is essential for sizing systems such as heat pumps. For example, the Microgeneration Certification Scheme (MCS) requires local weather to be used as opposed to a single standard weather file. Modelling systems

such as heat pumps with a standard weather file will not represent how they are used in practice and could unfairly impact predicted performance.

- **Inconsistent with the MCS methodology:** MCS heat pump sizing and overheating assessments depend on local weather data. Standardising these methods would provide consistent, and transparent compliance across Wales.

Government response to question 8

- 2.26 The vast majority of respondents disagreed with our proposal for a single weather station (Cardiff) in HEM, and many of the replies generally felt that more localised weather data should be used.
- 2.27 Our consultation clarified why we proposed a single weather file and explained that modelling was previously carried out using HEM to assess the sensitivity to the weather location, with Cardiff, Capel Curig, Aberdaron and Milford Haven used in the analysis. The results showed it is not expected that weather differences in these locations would trigger a need to revise the technical and cost information of the heat pump. Many of the responses indicated that the weather in Wales can change considerably between different areas, which is agreed, however, little evidence was provided in relation to whether these changes were enough to trigger technical or cost information of the heat pump.
- 2.28 However, in considering the responses, we will re-consider if additional weather locations is required before HEM is implemented (see response to questions 15 and 16).

Question 9: Do you agree with the revised guidance in Approved Document L, Volume 1: Dwellings for consultation no longer including the average compliance approach for terraced houses?

Question 9: Do you agree with the revised guidance in Approved Document L, Volume 1: Dwellings for consultation no longer including the average compliance approach for terraced houses?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	49	3	3	1	1	4	2	1	8	7	14	3	1	0	0	1
a. Yes	59%	33%	0%	0%	100%	75%	0%	100%	88%	43%	64%	100%	100%	0%	0%	0%
b. No	8%	33%	33%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	100%
c. Unsure	33%	33%	67%	100%	0%	25%	50%	0%	13%	57%	36%	0%	0%	0%	0%	0%

2.29 Of the 49 respondents to this question, the majority (59%) agreed with the proposal. In comparison, 8% disagreed with the proposal and 33% were unsure.

Reasons for supporting the revised guidance

2.30 Reasons for supporting the proposal aligned with those set out in the consultation document.

Reasons for opposing the revised guidance

- **More compliance burden:** Eliminating block compliance would limit the compliance options available to developers. The average block compliance is seen as a useful method for achieving compliance for large-scale residential developments.

Reasons for selecting “unsure”

- **Retain the option with caveats:** Recognising that this change could result in additional effort and costs to developers, some suggest retaining the current approach where properties are truly identical (in geometry, specifications, and orientation). Introduce exclusions for those properties which differ from others in the terrace block such as end of terrace dwellings.

Question 10: 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?

Question 10: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	62	8	3	1	3	7	2	1	8	7	16	3	1	1	0	1
a. Yes	82%	100%	100%	100%	100%	100%	100%	100%	63%	57%	69%	100%	100%	100%	0%	100%
b. No	3%	0%	0%	0%	0%	0%	0%	0%	13%	0%	6%	0%	0%	0%	0%	0%
c. Unsure	15%	0%	0%	0%	0%	0%	0%	0%	25%	43%	25%	0%	0%	0%	0%	0%

2.31 Of the 62 respondents to this question, the majority (82%) agreed with the proposal. In comparison, 3% disagreed with the proposal and 15% were unsure.

Reasons for supporting the revised guidance

- **Reduces fabric heat loss:** Unnecessary holes in the building fabric should not be permitted. They can significantly increase heat loss and undermine the performance of ventilation systems.
- **Increases roof area for solar PV:** The removal of chimneys and flues frees up valuable roof area for installing solar photovoltaic panels.
- **Improves air quality:** There are issues with harmful particulate matter produced from wood burning appliances. Respondents encourage measures which discourage the installation of such appliances.

Reasons for opposing the revised guidance

- **Reduces consumer choice:** The consumer should be allowed to choose whether they want to have the option to install secondary heating that requires chimneys or flues.
- **Fuel resilience:** Should an electricity shortage occur, the occupants should be allowed to have alternative heat sources.

Other comments

- **Chimneys and flues are not needed:** One respondent pointed out that the Part L revision will require new dwellings to use low carbon heating. The respondent suggests this will mean that woodburning appliances will not be installed, and thus no need for chimneys and flues.

Government response to questions 9 and 10

- 2.32 The vast majority of respondents that answered yes or no to both these questions were in agreement with these proposed changes, therefore, we propose to introduce the changes.

Question 11: Do you agree with the proposed approach to determine U-values of windows and doors in new dwellings?

Question 11: Do you agree with the proposed approach to determine U-values of windows and doors in new dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	69	9	3	1	3	7	2	0	8	11	19	3	1	1	0	1
a. Yes	78%	100%	67%	100%	100%	100%	50%	0%	100%	64%	68%	33%	100%	100%	0%	0%
b. No	10%	0%	33%	0%	0%	0%	50%	0%	0%	18%	11%	0%	0%	0%	0%	100%
c. Unsure	12%	0%	0%	0%	0%	0%	0%	0%	0%	18%	21%	67%	0%	0%	0%	0%

2.33 Of the 69 respondents to this question, the majority (78%) agreed with the proposal. In comparison, 10% disagreed with the proposal and 12% were unsure.

Reasons for supporting the proposal

- **Improves accuracy:** Windows and doors typically represent the weakest elements of the building envelope. Hence accurate U-values are important for these elements. U-values calculated for each window based on actual size and configuration will provide greater accuracy compared to using manufacturer U-values derived from standard sizes. Some also report observing significant variations in predicted heat demand when using standard manufacturer U-values versus calculated U-values.
- **Provides design opportunities:** Calculated U-values provide an opportunity for design optimisation to improve energy demand.

Respondents for opposing the proposal

- **Limited capacity for box testing:** Box testing is not considered a practical or financially viable solution for manufacturers, as facilities are scarce in the UK and EU.
- **Concerns with calculating U-values:** Potential issues accurately capturing complex features (example features mentioned were bay windows, windows installed in reveal checks). The resulting complex calculation will require dedicated software to be built and validated.
- **Burden of verification:** Concerns were raised on the practical enforcement of verification of data for each window unit.

- **Unconvinced about added value:** Sceptical about the impact on modelling accuracy. Some reported running tests and seeing minimal impact on modelled heat demand.
- **Restrict use of small windows:** Smaller window sizes, noting low glass-to-frame ratios, could necessitate significantly higher performance specifications. This, in turn, raises concerns about product availability in the UK market.

Issues raised by those both supporting and opposing the proposal

2.34 The following additional concerns were raised by those both in favour and against the proposal.

- **Uncertainties with the proposed methodology:** There were requests for clarifications on the proposed method for calculating whole window U-values. An over-simplified or inconsistent method could lead to underestimated heat loss. Respondents referenced the following methodology options:
 - The most common suggestion was to follow the Passivhaus approach to calculating windows and doors U-values. They recommend the approach should align with BS EN 14351-1 or EN ISO 10077-1/-2 and represent the performance of the window as installed.
 - Some referenced the EU Acquis process, which offers a range of approaches to determine U-values.
- **Assessment Challenges:** Concerns were raised around the added data collection requirements for assessors. This could lead to increased costs for consumers, as well as risking inconsistencies across assessments.

Government response to question 11

2.35 The vast majority of respondents that answered yes or no to this question were in agreement with these proposed changes, therefore, we propose to introduce the changes for new dwellings.

2.36 However, as HEM is not yet an approved methodology for demonstrating Part L compliance, and the need for both SAP and HEM methodologies to run in parallel for a period of time (please see response to question 15/16), the proposed guidance will be adjusted take account of both SAP and HEM i.e. both the current and proposed approaches to determine U-values of windows and doors will be acceptable where using the SAP methodology, and we propose to revise the guidance in line with this proposal once HEM methodology is later introduced as a national calculation methodology.

Question 12: Do you consider that a Part L requirement for renewable energy (with guidance given in Approved Document L) should be implemented rather than being included in the notional dwelling specification for new dwellings?

Question 12: Do you consider that a Part L requirement for renewable energy (with guidance given in Approved Document L) should be implemented rather than being included in the notional dwelling specification for new dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	66	9	3	1	3	7	2	1	8	9	17	3	1	1	0	1
a. Yes	30%	22%	0%	0%	33%	57%	0%	0%	63%	11%	35%	33%	0%	0%	0%	0%
b. No	24%	11%	33%	0%	0%	0%	0%	100%	25%	44%	18%	67%	100%	0%	0%	100%
c. Unsure	45%	67%	67%	100%	67%	43%	100%	0%	13%	44%	47%	0%	0%	100%	0%	0%

2.37 Of the 66 respondents to this question, 30% agreed with the proposal whilst 24% disagreed. The most common response (45%) was that respondents were unsure of the proposal.

Arguments in support of a new Part L requirement for PV

- **Ensures the uptake of PV:** An appropriate way to ensure PV is installed in new dwellings. They see PV as having a key role in reducing energy bills, reducing carbon emission and aiding grid flexibility, especially in combination with electric batteries.
- **Ensures a fabric first approach:** This promotes a fabric first approach. It avoids the current approach where fabric performance can be reduced through increasing the amount of PV.

Arguments against introducing a new Part L requirement for PV.

- **Reduces design flexibility:** There was preference for retaining PV in the notional building. This gives greater design flexibility in how to meet the targets.
- **Reduces outcomes:** Retaining PV in the notional building ensures that where PV cannot be installed, compensatory improvements to the rest of the dwelling are made.
- **Building control challenges:** Respondents raised concerns that building control resources may not have the capacity to enforce the requirement consistently. Some suggested negotiations with building control officers over PV designs could cause delays. Furthermore, requiring developers to prove to building control that a dwelling is unsuitable for renewable generation is an unnecessary additional regulatory step if they can

demonstrate the dwelling still meets the overall performance requirements, and this may also cause delays.

- **Legislative conflict:** In Wales, Registered Building Control Inspectors/Approvers cannot provide design advice under the new regime. Approving PV designs could force them into the role of 'Principal Designer', conflicting with the Building Safety Act and Building Safety Bill.

Additional comments

- **Revise minimum requirements:** Some respondents argued 40% is not achievable in most cases. The requirement should be relaxed to 20%.
- **Exemption mechanisms:** Some expressed that no exemptions should be allowed as developers can embed renewables at the design stage. Concerns were raised that developments could be designed in ways to avoid accommodating renewables. Some expressed that falling costs of PV weakens the arguments for exclusions.

Government response to question 12

- 2.38 The results were mixed, however, for those who answered yes or no, there was a slight majority (6%) agreeing with the proposals. Many who answered unsure generally either required assurance that the requirement would not be at the expense of fabric efficiencies or agreed with a requirement but not the proposed amount specified.
- 2.39 Therefore, a renewable energy requirement will be implemented as a functional requirement within Part L in schedule 1 of the building regulations, with guidance contained in Approved Document L1, however, we propose to make some changes to the proposals to mitigate some concerns, and these are outlined in the below paragraphs.
- 2.40 In relation to concerns on the amount of energy generation specified, we understand that there will be many roof designs on dwellings that are unable to achieve the proposed amount, and in the consultation, we described the evidence needed for these lower amounts. However, we also note that there are concerns about the extra burden this may have on designers and building control bodies to justify/accept these reductions.
- 2.41 Therefore, to mitigate these concerns we propose to provide additional guidance within approved document L1 on where individual roof layouts (such as pitch, windows, architectural features, maintenance etc.) may limit the installation of sufficient photovoltaic panels to meet the outputs required for option A.
- 2.42 We also propose to revise option B (system rated output of at least 16 Amps per supply phase) as proposed in the consultation. Option B will allow the designer a lower amount than option A where needed due to limitations with the roof design. Option B will require an amount as reasonably practicable for the roof area available.

- 2.43 To achieve option B, an annual power output (in kWh and as calculated in the approved methodology) of at least equal to that calculated using the reasonably practicable roof area available (for photovoltaic array and a panel efficiency of 1kWp per 4.5m²). This will allow flexibility for designers and take account for various roof designs. To assist designers and building control bodies, we also propose to provide additional guidance on limitations with roof designs and examples of layouts which maximise the area of standard photovoltaic panels that can be installed on a variety of roof types.
- 2.44 With regard to the calculation methodology, the amount of solar provision in the notional building will match the actual solar provision to be installed for solar panels up to the option A or B minimums (i.e. 40% of the ground floor area or a lower amount as calculated in option B). Only installing panels at a greater amount than option A would count towards the actual building's improvement on notional building targets. We also propose that the inverter for the notional dwelling is limited to a 16 Amps AC output per supply phase, so that developers are not penalised where a Distributed Generation Connection G99 Application is not approved.
- 2.45 Where roof designs are favourable, we still expect developers will want to exceed these minimums, as doing so would count towards the actual building's improvement on notional building targets, and also due to cost efficiencies in installing solar panels and to achieve higher EPC ratings for marketing purposes.
- 2.46 There were comments expressed that the new requirement should not be at the expense of fabric standards (e.g. introducing PV coverage greater than option A and lowering fabric values), however, currently regulation 26B (Fabric performance values for new dwellings) of the building regulations requires minimum fabric standards in new dwellings that must not be exceeded, and we consider that the current backstops (introduced in 2022) ensure a minimum fabric standard suitable for low carbon/temperature heating systems. In addition, in the new EUI metric, any exported energy is not counted, which also helps mitigate these concerns.
- 2.47 Although option B will allow a lower amount of energy generation, in exceptional circumstances (overshading) it may not be reasonably practicable or feasible to install any on-site electricity generation, and therefore we propose to provide guidance within the final approved document for situations where there is insufficient roof area available to install photovoltaic arrays capable of generating a minimum annual output of 720kWh.
- 2.48 There was also concerns raised regarding possible fire risks posed by PV panels, which is noted. We propose to review certain areas of Approved Document B in the near future and this area will be considered as part this work.

Question 13: Do you have any information you would like to provide on the dwellings built to the Part L 2025 Standard using curtain walling?

2.49 This was an open text question. The following information was provided by respondents:

- **Challenges to compliance:** Concerns were raised on complications to achieving compliance with Part L for curtain walling due to a more demanding target.
 - Thermal bridging becomes more significant as improved U-values are targeted due to increased system weight.
 - Compliance with the standard is likely to result in very high delivery costs.
 - There are wider design requirements and considerations driven by challenges from the EUI metric and Approved Document O.

2.50 Some respondents argued that a notional building target approach may not be appropriate for curtain walled buildings, and that absolute targets may be a better option.

- **Design and evidencing are essential:** The proposed facade must be designed and evidenced as a high-performance system. Responses stressed the importances of evidence requirements for curtain wall systems including:
 - Whole facade heat loss
 - Thermal bridging and condensation
 - Overheating
 - Air tightness and watertightness
 - As built evidence
 - Competence statements

Government response to question 13

2.51 A small number of responses were received and did not provide sufficient detail on whether the proposed compliance metrics are likely to create challenges for curtain walled dwellings. No specific consideration for curtain walled dwellings is proposed.

Question 14: Do you agree with the replacement of the Dwelling Energy Efficiency Rate with the Energy Use Intensity?

Question 14: Do you agree with the replacement of the Dwelling Energy Efficiency Rate with the Energy Use Intensity?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	62	9	3	1	3	7	2	1	8	8	15	3	0	1	0	1
a. Yes	81%	100%	67%	100%	67%	100%	100%	100%	88%	63%	67%	100%	0%	100%	0%	0%
b. No – the Dwelling Energy Efficiency Rate should be retained	10%	0%	33%	0%	0%	0%	0%	0%	13%	38%	7%	0%	0%	0%	0%	0%
c. No – an alternative metric should be used (please provide details)	8%	0%	0%	0%	33%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	100%
d. No – the Dwelling Energy Efficiency Rate should be removed with no additional metric added	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%

2.52 Of the 62 respondents to this question, the majority (81%) agreed with the proposal to move from the Dwelling Energy Efficiency Rate (DEER) to the Energy Use Intensity (EUI). In comparison, 10% favoured retaining the DEER, 8% proposed an alternative metric and 2% considered that the DEER should be removed with no additional metric added.

Feedback from those supported adoption of the new EUI metric

2.53 Reason for supporting the proposal:

- **More effective metric:** It is more effective at conveying the energy performance of dwellings and the expected energy consumption. The existing metric does not clearly relate to energy consumption.
- **Includes unregulated energy use:** Some respondents supported the inclusion of unregulated use in the metric. This enables the comparison between actual energy consumption against modelled energy consumption.

2.54 These respondents also provided the following concerns and recommendations.

- **Ambiguity on the inclusion of renewables:** Respondents were unclear whether onsite renewable energy could or could not offset the metric. They recommended that renewables should not be allowed to offset the metric. It should capture energy consumed regardless of the energy source to incentivise demand reduction overall.

Reasons for retaining the DEER

- **Disagree with inclusion of unregulated load:** A compliance metric should not include unregulated loads as developers and designers have no control over these end uses.
- **Compliance metric does not need to be easily understood by the public:** It is unnecessary for a compliance metric to be understood by the general public. The EPC is the primary means for communicating energy performance with consumers.
- **Consistency:** The change would disrupt continuity and potentially lose the ability to benchmark against previous compliance assessments.
- **EUI could unfairly assess different size dwellings:** There is an understanding that Energy Use Intensity (EUI) can vary significantly depending on house size and occupancy. Some respondents expressed concern that larger homes which often include spaces with little activity (e.g. utility rooms, en-suites, garages), would show a lower energy use intensity. In contrast, smaller homes without such spaces may show proportionally higher energy use intensity.

Alternatives metric

- **Minimum standards for fabric and fixed building services:** Setting minimum requirements for individual fabric and system performances, rather than integrating all components into a single compliance metric.
- **A Welsh Fabric Energy Efficiency Standard (FEES):** A metric focused on fabric efficiency would ensure a fabric-first approach for new homes. Furthermore, it was argued that efficient heat pump operation depends on strong fabric performance, which a FEES metric would help ensure.
- **Alignment with FHS metrics:** Suggestion to align metrics with the UK's Future Homes Standard (FHS) metrics for consistency to developers working across England and Wales.

Government response to question 14

- 2.55 The vast majority agreed with the replacement of the Dwelling Energy Efficiency Rate with the Energy Use Intensity, therefore we will go ahead with this proposal.
- 2.56 In relation to aligning with the Fabric Energy Efficiency Standard (FEES) in England, our alternative to FEES is regulation 26B (Fabric performance

values for new dwellings), which there was no proposal to remove and will be retained.

Question 15: Do you agree that the Home Energy Model should be adopted as the approved calculation methodology to demonstrate compliance of new dwellings with the Part L 2025 Standard in Wales?

Question 15: Do you agree that the Home Energy Model should be adopted as the approved calculation methodology to demonstrate compliance of new dwellings with the Part L 2025 Standard in Wales?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	75	9	3	1	3	7	2	1	8	11	24	3	1	1	0	1
a. Yes	57%	11%	33%	0%	0%	43%	50%	100%	63%	73%	75%	100%	100%	0%	0%	100%
b. No	4%	0%	0%	0%	33%	0%	0%	0%	13%	0%	4%	0%	0%	0%	0%	0%
c. Unsure	39%	89%	67%	100%	67%	57%	50%	0%	25%	27%	21%	0%	0%	100%	0%	0%

2.57 Of the 75 respondents to this question, the majority (57%) agreed with the proposal to adopt the Home Energy Model (HEM). In comparison, 4% disagreed with the proposal whilst 39% were unsure.

Reasons for supporting the introduction of the Home Energy Model (HEM)

- **SAP is inadequate:** SAP is considered inadequate for modelling low energy dwellings.
- **Improved accuracy:** HEM is expected to be a more accurate tool which will contribute to closing the performance gap. Especially, with its half-hourly capability, HEM is anticipated to better reflect how low carbon technologies perform in dwellings. It is also better suited for recognising the impact of time-of-use tariffs and dynamic technologies with smart controls.
- **Consistency across the UK:** There is a preference to align methodologies across the UK.

Respondents who disagreed with the proposal

- **Unnecessary:** It is unnecessary to change from SAP, which should be retained.
- **Uncertain impact:** There was some scepticism that HEM will actually

improve model accuracy.

Other concerns and suggestions (across all respondents)

- **Concerns over HEM’s complexity:** The added input data expected of HEM is expected to lead to increased modelling time, greater risk of input errors, and consequently higher costs.
- **Sufficient lead time for the supply chain:** Introducing a new model is a significant undertaking which will impact the entire supply chain. There needs to be sufficient lead time to adapt before enforcement begins. A suggested timeframe being that the HEM should be finalised at least 12 months prior to it comes into force.
- **HEM is not sufficiently validated:** Concern that there is currently insufficient testing and validation of HEM to provide confidence in its improved accuracy compared to SAP.
- **Advocate for Passivhaus Planning Package (PHPP):** Some respondents suggested PHPP is recognised as a compliance tool along SAP and/or HEM.

Question 16: Do you agree that SAP should continue to be used to demonstrate compliance with Part L 2025 as an interim measure if the final version of HEM is not completed by the proposed coming into force date?

Question 16: Do you agree that SAP should continue to be used to demonstrate compliance with Part L 2025 as an interim measure if the final version of HEM is not completed by the proposed coming into force date?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	74	9	3	1	3	7	2	1	8	12	23	2	1	1	0	1
a. Yes	57%	11%	33%	0%	0%	29%	50%	100%	100%	75%	70%	100%	100%	0%	0%	0%
b. No	7%	0%	0%	0%	33%	14%	0%	0%	0%	8%	4%	0%	0%	0%	0%	100%
c. Unsure	36%	89%	67%	100%	67%	57%	50%	0%	0%	17%	26%	0%	0%	100%	0%	0%

2.58 Of the 74 respondents to this question, the majority (57%) agreed with the proposal for SAP to be used in the interim if necessary. In comparison, 7% disagreed whilst 47% were unsure.

Feedback from those who supported the proposal

2.59 The following reasons were provided to support the proposal.

- **Pragmatic approach:** Maintain SAP until HEM is ready is a pragmatic approach to avoid delaying the introduction of regulations.
- **Smoother transition:** Will provide the time needed to adapt to the HEM.

- **Parity with England:** Supports aligning with the approach for England.

2.60 In addition, respondents provided the following comment.

- **A clear ‘cut-off’ date for SAP:** It was considered unadvisable to maintain the two models in parallel for too long. It could lead developers to favour the model which makes compliance easier. This divergence may also affect construction product manufacturers, who might need to supply different products to meet each compliance pathway.

Reasons for opposing the proposal

- **Duplication of efforts:** Concerns that two compliance tools will require design and specifications to be established twice. This could cause delays, increased costs, and uncertainty in planning and procurement.

Reasons for selecting “unsure”

- **Preference for PHPP over SAP:** Some respondents preferred PHPP as a compliance tool rather than retaining SAP.

Government response to question 15 and 16

- 2.61 There was significant support for both questions, therefore, we propose to adopt HEM as the approved calculation methodology to demonstrate compliance of new dwellings with the Part L 2025 Standard in Wales. However, as HEM is not yet an approved methodology for demonstrating Part L compliance, we propose to use a revised version of SAP (SAP 10.3) in the interim.
- 2.62 At the time of writing, the UK Government response to their consultation on HEM has been published, however, the consultation for the future homes/buildings standard in England has not. As HEM has not yet been implemented for Part L compliance purposes, we propose to initially provide SAP 10.3 as an interim Part L compliance tool in Wales (SAP10.3 which would implement the new notional dwelling specification, new EUI metric and new fuel factors) and then intend to produce a HEM Part L Wales compliance tool at a later date following full implementation in England (for the Future Homes Standard) in the first instance.
- 2.63 We also recognise that Energy assessors will need upskilling to use HEM compliance tool and the important role energy assessor schemes will play in training assessors to ensure accurate assessments. A certain time period for HEM upskilling will be needed before introducing HEM as the only compliance tool for Part L compliance in Wales. Therefore, we expect there will be a period of time when both SAP and HEM will run in parallel, particularly as an ‘on-construction EPC’ is also required for new dwellings. We will discuss this timescale and the phasing out of SAP with the UK Government and energy

assessor schemes prior to adopting and implementing HEM as a Part L compliance tool in Wales.

Question 17: 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?

Question 17: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	69	9	3	1	3	7	2	1	8	10	19	3	1	1	0	1
a. Yes	42%	11%	33%	0%	0%	29%	50%	0%	88%	50%	42%	100%	100%	0%	0%	0%
b. No	51%	89%	67%	100%	100%	71%	50%	0%	13%	50%	37%	0%	0%	100%	0%	100%
c. Unsure	7%	0%	0%	0%	0%	0%	0%	100%	0%	0%	21%	0%	0%	0%	0%	0%

2.64 Of the 69 respondents to this question, a small majority (51%) disagreed with the proposed changes. In comparison, 41% agreed with the proposals whilst 47% were unsure.

Reasons for supporting the proposal

- **Aligns with England:** Consistent with changes proposed to apply in England.
- **Continues improvements in minimum efficiency:** Improvements benefit the wellbeing of occupants and support the consistency and quality of the installation and performance of products in new homes in Wales.
- **Alignment with Eco-design regulations:** Continues to align with the Eco-design Heat Pump SCOP regulations.

Reasons for opposing the proposal

- **Adopt better SCOP:** Concerns were raised that the Ecodesign SCOP for space heating from heat pumps works out at 2.75. An alternative SCOP of 3.50 should be proposed instead for heat pumps serving both space heating and domestic hot water. A SCOP of 3.50 for both space heating and domestic hot water production would ensure that new dwellings are not more expensive to run relative to the previous standards.
- **Reduce the upper limit for flow temperature:** The proposal is for a

55°C flow temperature as an upper limit. This upper limit should be reduced to 45°C to better support system efficiency, comfort and integration with low-flow temperature distribution systems.

- **Variations in lighting efficacy should be recognised:** Some recommended changes to the proposed efficacy to reflect alternative design choices:
 - 105 lm/W minimum for standard general lighting sources
 - 80 lm/W minimum for tuneable LED devices or light sources with Colour Rendering Index (CRI) \geq 95
 - 65 lm/W minimum for high-excitation-purity light sources
- **Lack of detail on HEM proposals:** The lack of knowledge on the proposed HEM creates an uncertainty over compliance.
- **Unsuitable targets for floor coverings:** Concern that minimum standards for underfloor heating coverings were too low. This will not be suitable in all scenarios, for example where carpets are required.
- **Unacceptable risk of light pollution:** Concerns were raised at proposals to permit manual control on external lighting for fittings producing less than 1200lm.

Government response to question 17

- 2.65 There was a mixed response to this question, with many suggesting a more stringent minimum seasonal coefficient of performance (SCOP), than that specified in Ecodesign, and lowering the maximum flow temperature to 45°C for wet heating systems.
- 2.66 After considering the responses, we have decided to amend the guidance for wet heating systems in new dwellings (not existing dwellings) by lowering the maximum flow temperature to 45°C. This aligns with the notional dwelling specification and recognises that wet heating systems in new dwellings can be considered and incorporated early in the design. In relation to the suggestions for providing a minimum SCOP which exceeds Ecodesign minimums, we consider that the revised notional dwelling specification will encourage heat pumps with higher SCOP.
- 2.67 We also recognise the concerns in relation to variations in lighting efficacy, and will revise the figures to reflect this in the final approved document.

Question 18: Do you agree with the proposal to include additional guidance around heat pump controls for dwellings, as set out in Section 6 of draft Approved Document L, Volume 1: Dwellings?

Question 18: Do you agree with the proposal to include additional guidance around heat pump controls for dwellings, as set out in Section 6 of draft Approved Document L, Volume 1: Dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	47	3	3	0	1	5	1	1	8	7	13	3	1	0	0	1
a. Yes	72%	33%	33%	0%	100%	100%	100%	100%	100%	43%	62%	100%	100%	0%	0%	100%
b. No	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	28%	67%	67%	0%	0%	0%	0%	0%	0%	57%	38%	0%	0%	0%	0%	0%

2.68 Of the 47 respondents to this question, a majority (72%) agreed with the proposal. In comparison, no respondents disagreed with the proposals whilst 28% were unsure.

Reasons for supporting the proposal

2.69 Reasons for supporting the proposal aligned with those set out in the consultation document.

Other comments and recommendations

- **Align with industry standards:** Some suggested aligning with definitions and requirements developed as part of the MCS MIS 3005-D design standards. Consideration should also be given to the minimum heat pump controls requirements that may be required under the expected DESNZ Smart and Secure Electricity System Regulation.
- **Occupants should be provided with guidance:** Some raised that occupants should be provided with guidance on how to use their system effectively. A home user guide may have more benefit than minimum standards on heat pump controls. This could be reflected in a building logbook or digital building passport so that future occupants understand how the system is intended to operate and can maintain performance over time.
- **Guidance must be maintained:** Some highlighted the need for the guidance provided to be maintained, reviewed and kept up to date to avoid confusion or misinterpretation.

Question 19: Do you agree that operating and maintenance information should be fixed to heat pump units in new dwellings?

Question 19: Do you agree that operating and maintenance information should be fixed to heat pump units in new dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	50	4	3	1	1	6	1	1	8	7	13	3	1	0	0	1
a. Yes	70%	100%	33%	100%	100%	67%	100%	0%	100%	57%	54%	67%	100%	0%	0%	100%
b. No	12%	0%	33%	0%	0%	17%	0%	100%	0%	29%	8%	0%	0%	0%	0%	0%
c. Unsure	18%	0%	33%	0%	0%	17%	0%	0%	0%	14%	38%	33%	0%	0%	0%	0%

2.70 Of the 50 respondents to this question, the majority (70%) agreed with the proposal. In comparison, 12% disagreed with the proposals whilst 18% were unsure.

Feedback from those supporting the proposal

2.71 Reasons for supporting the proposal aligned with those set out in the consultation document.

2.72 In addition, these respondents raised several concerns. These concerns were also raised by those that opposed the proposals (and not repeated below).

- **Digital format:** It would be simpler to achieve the aim through a digital format such as via a QR code or using a digital passport. This also means the information can be updated over time. This could be in addition to or instead of a hard copy.
- **Not practical:** There is a durability concern with leaving this document on an external heat pump where it can be affected by the weather. It would make more sense to put it inside fixed to a hot water vessel of ASHP control box.

Reasons for disagreeing with the proposal

- **Should be for all heat pumps:** This should be applied to the installation of heat pumps for existing buildings as well.
- **Store with other information:** This information should be kept with other important information such as user manuals.
- **Poorer performance:** Giving homeowners more control may have a

negative impact. They could alter settings which negatively impact efficiency and performance.

2.73 Some of those who were unsure also raised concerns identified above.

Question 20: 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?

Question 20: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	48	3	3	1	1	5	1	1	8	7	13	3	1	0	0	1
a. Yes	33%	0%	0%	0%	0%	40%	0%	0%	63%	14%	38%	33%	100%	0%	0%	100%
b. No	23%	0%	67%	0%	100%	20%	0%	100%	0%	29%	15%	67%	0%	0%	0%	0%
c. Unsure	44%	100%	33%	100%	0%	40%	100%	0%	38%	57%	46%	0%	0%	0%	0%	0%

2.74 Of the 48 respondents to this question, 33% agreed with the proposal whilst 23% disagreed. The largest response was from those who were unsure of the proposal (44%).

Reasons for supporting the proposal

2.75 Reasons for supporting the proposal aligned with those set out in the consultation document.

Concerns raised

2.76 These concerns were raised by respondents that supported and/or opposed the proposals.

- **Too complex:** Some stated that the proposed guidance is too complex. They highlighted the importance of avoiding information which is too technical (such as heat loss calculations and design conditions) for the average homeowner.
- **Additional digital assistance:** On-line videos, QR codes, or a digital building passport should be provided to assist people with different levels of knowledge.
- **Removes responsibility:** The onus should be on the manufacturer and housebuilder, not the homeowner, to ensure the delivery of an efficient

heat pump.

- **Designer responsibility:** Whoever designs the heating system, which is specific to each house, should have the responsibility to educate the user on how the system should work.
- **Additional information needs:** Some argued further information should be provided including:
 - Measured heat loss
 - For existing buildings, there should be advice on insulation upgrades required for effective heat pump performance
 - Seasonal operation
 - Maintenance intervals
 - Fixing issues

Government response to questions 18, 19 and 20

- 2.77 The vast majority of respondents that answered questions 18 and 19 were in agreement with these proposed additional guidance and information, therefore, we propose to introduce the changes.
- 2.78 Of the respondents who answered yes or no to question 20, there was slight agreement with the proposals. In relation to some concerns the information requested in section 10 would be for technical audiences, we do require for new houses that a home energy guide is also provided which should contain non-technical advice on how to operate and maintain the heating system efficiently. We will amend the guidance for the Home Energy Guide, to state that both a paper and a digital copy of the guide should be provided.

Question 21: 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?

Question 21: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	48	3	2	1	1	5	1	1	8	7	14	3	1	0	0	1
a. Yes	63%	33%	0%	0%	100%	100%	100%	100%	100%	29%	43%	100%	100%	0%	0%	100%
b. No	17%	0%	50%	0%	0%	0%	0%	0%	0%	43%	29%	0%	0%	0%	0%	0%
c. Unsure	21%	67%	50%	100%	0%	0%	0%	0%	0%	29%	29%	0%	0%	0%	0%	0%

2.79 Of the 48 respondents to this question, the majority (63%) agreed with the proposal. In comparison, 17% disagreed with the proposal and 21% were unsure.

Feedback from those supporting the proposal

2.80 Reasons for supporting the proposal:

- **Prevents heat loss:** Additional measures are crucial in reducing heat loss and maximising efficiency. This will also reduce the effects of heat loss from cylinders which leads to summer overheating.

Concerns raised

2.81 These concerns were raised by respondents that supported and/or opposed the proposals.

- **Space and location constraints:** concerns were raised over:
 - The 1m limit is not supported as this is not suitable in all scenarios and prevents siting and innovation.
 - Doubling the pipework insulation could have a negative effect on the ability to route the pipework. This could result in longer pipework runs
 - Doubling the insulation on hot water cylinders can cause issues with the location of cylinders especially if they are pre-plumbed. Pipework would have to be moved further away from the body of the cylinder meaning there will be too many pipes in a small space. Cylinders would be forced to be wider or taller which affects the feasibility of locating

them within cupboards.

- Concerns with available space in floor voids which could clash with other competing services.
- **Installer responsibility:** Several disagreed that the manufacturer should be responsible for pipework design and insulation, stating that the installer would provide this. It was suggested that a mitigation measure for installer responsibility was to use pre-plumbed pipework. However, concerns were raised over leak risks at the time of installation.
- **Logistic constraints:** Logistic issues for installers as cylinders will be harder to remove and replace.
- **Increased cost:** It was suggested that there would be increased manufacturing, installation, transportation and warehouse costs.

Question 22: Do you agree with the proposed sizing methodology for hot water storage vessels for new dwellings?

Question 22: Do you agree with the proposed sizing methodology for hot water storage vessels for new dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	43	3	2	1	1	5	1	0	8	6	11	3	1	0	0	1
a. Yes	44%	33%	0%	0%	100%	20%	100%	0%	88%	0%	36%	100%	100%	0%	0%	0%
b. No	14%	0%	50%	0%	0%	0%	0%	0%	0%	50%	9%	0%	0%	0%	0%	100%
c. Unsure	42%	67%	50%	100%	0%	80%	0%	0%	13%	50%	55%	0%	0%	0%	0%	0%

2.82 Of the 43 respondents to this question, 44% agreed with the proposal compared to 14% who disagreed. A significant number were unsure of the proposal (42%).

Reasons for supporting the proposal

- **Avoids oversizing hot water storage:** Respondents supported a method which avoids oversizing storage tanks.

Reasons for opposing the proposal.

- **Should be sized to the potential maximum occupancy:** Vessels should be sized to meet a potential high occupancy rate, to ensure the design is fit for purpose in all cases.
- **Preference to follow MCS approach:** Respondents viewed the proposal

as overly complicated. They recommended following the MCS approach of 45 litres per bedroom + 45 litres.

- **Concerns with the sizing methodology:** The Approved Document bases its sizing methodology on the following components: hot water demand and the recovery time. Respondents raised issues with both components:
 - Demand estimate: Some expressed a lack of confidence and lack of understanding in the standardised hot water demand profiles used for compliance calculations. Specifically, some were concerned that technologies which reduce hot water demand may not be accounted for.
 - Recovery time / recharge rates: Concerns were raised regarding the method used for testing recharge time of vessels as these may not account for the characteristics of the heating sources serving the vessel, meaning that actual recharge times are not considered.

Reasons for selecting “unsure”

- **Potential challenges for manufacturers:** A shift in cylinder sizing methodology could lead to a need to redesign and deliver new compliant products.
- **Unmet demand and other unintended consequences:** Suggestion to investigate further on the possible unintended consequences of unmet demand and system efficiencies.

Other comments and recommendations from any respondents

- **Concerns with the proposed legionella cycles:** The legionella cycle of seven hours each day is considered too frequent. Recommendations to reduce to once a week.
- **The choice of standard:** Some respondents specifically endorsed the Chartered Institute of Plumbing and Heating Engineering’s Plumbing Engineering Services Design Guide and for systems that include heat pumps, the MCS space heating design procedure in MIS 3005-D.

Government response to questions 21 and 22

- 2.83 The vast majority of respondents that answered questions 21 and 22 were in agreement with the proposed additional guidance and information, therefore, we propose to introduce the changes with a few minor alterations in response to some comments as highlighted below.
- 2.84 There were concerns around additional insulation resulting in space and location constraints for pipe runs and hot water storage vessels, however, as these are new dwellings it is considered this should be captured and accommodated early in the design.
- 2.85 We will amend the guidance to remove the suggested 1m limit from the dwelling for the heat pump and to allow some flexibility/innovation by advising that the heat pump should be as close as practicable to the dwelling.

2.86 The HEM and SAP10.3 methods for calculating hot water demand will be carefully considered in line with concerns raised. Any sizing requirements included in the final Approved Document L will seek to avoid any oversizing of cylinders.

Question 23: Do you agree with the proposed changes to Approved Document F, Volume 1: Dwellings to improve the installation and commissioning of ventilation systems?

Question 23: Do you agree with the proposed changes to Approved Document F, Volume 1: Dwellings to improve the installation and commissioning of ventilation systems?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	62	8	2	1	3	7	2	0	8	7	18	3	1	1	0	1
a. Yes	35%	13%	0%	0%	0%	29%	50%	0%	75%	29%	33%	100%	100%	0%	0%	0%
b. No	34%	38%	100%	0%	67%	57%	50%	0%	13%	14%	28%	0%	0%	100%	0%	100%
c. Unsure	31%	50%	0%	100%	33%	14%	0%	0%	13%	57%	39%	0%	0%	0%	0%	0%

2.87 Of the 62 respondents to this question, a similar proportion responded agreed (35%), disagreed (34%) and were unsure (31%).

Reasons for supporting the proposal

- **Quality improvements:** The changes proposed would lead to improvements in installation, testing and commissions of ventilation systems. This would have a positive effect on a reduction in unintended consequences, for example moisture levels and mould.
- **Clearer guidance:** Some respondents supported the clearer guidance on commissioning
- **Independent testing:** Some noted that the consultation’s suggestion of using a Competent Person Scheme could reduce burdens on Building Control.

Reasons for opposing the proposal.

- **Installer training improvements:** Respondents emphasised that installers must be able to demonstrate competence and be accountable, ideally through robust schemes that include inspection of real installations rather than relying solely on classroom training or written exams.

- **Needs greater focus on design:** Many respondents stressed that correct design, ductwork sizing and layout are as important as final commissioning. They were concerned that the draft proposals focus too heavily on commissioning measurements, while key design-stage requirements are missing. Guidance should emphasise early-stage design and adherence to approved design information, not just on-site adjustments.
- **Omits key issues:** The Approved Document does not fully address all key issues. For example, some guidance was perceived as missing from the AD F (Section 4: Commissioning and providing information) such as room noise, duct pressure loss limits, and an integrated design approach.
- **Two metre duct length restriction:** Respondents queried the evidence for reducing the maximum duct length for decentralised MEV units from the current industry norm of around 5 m to 2 m. This could constrain ventilation placement and layouts, particularly in terraced homes. Some suggested that shorter limits should apply only to intermittent fans.
- **Instrument technology:** Respondents were divided on the move away from vane anemometers. Some supported powered flow hoods but asked for technology-agnostic guidance that clearly defines acceptable instruments, while others argued that calibrated vane anemometers (with appropriate hoods) are already sufficiently accurate and that mandating powered hoods would add significant cost without clear evidence of benefit.
- **Other technical concerns:** Several respondents questioned the proposed increase to 50 mm duct insulation as unevidenced and difficult to accommodate in typical voids and challenged the requirement for external terminals to have 90% free area, preferring performance-based requirements aligned with BS EN 13141-2. Comments also highlighted the need to recognise semi-rigid duct systems explicitly in the guidance.
- **MVHR design course:** A universally recognized MVHR design course does not exist. This should be developed and delivered as part of a competent person scheme to improve quality across industry.

Reasons for selecting “unsure”

2.88 The follow comment was raised, in addition to some of the concerns identified above.

- **Skills and qualifications:** Some respondents reported a current shortage of installers and electricians competent to deliver the proposed requirements. They requested the Welsh Government to work towards national standard qualifications for both installers and commissioners.

Additional points raised by all respondents

- **Increased costs for installers:** There should be additional support in the form of grants or loans for smaller installers. This is to ensure that the additional cost of testing and commissioning introduced by these changes does not adversely affect their financial sustainability.
- **Adherence to design information:** Performance and compliance issues can often arise from on-site deviations from the original design. It is important for this to be emphasised in the guidance.
- **Building control resources:** Requiring Building Control to provide information when a Competent Person Scheme is not used could add pressure to already stretched local authority resources.
- **Alignment with AD L:** A request was made to include wording similar to the equivalent commissioning provisions in Approved Document L (e.g. paragraph 8.1b), to ensure consistency.

Government response to question 23

- 2.89 A narrow majority of respondents agreed with the proposals. After considering the responses we propose to amend some of the guidance including:
- Further aligning the wording in Approved Document F, Volume 1 with Approved Document L1, Volume 1 in relation to commissioning.
 - The proposal to measure system performance (electrical power) for centralised ventilation systems will be removed.
- 2.90 Many respondents highlighted the need for improved skills and training, and accountability for installers and commissioners. In conjunction with the Building Safety Regulator (BSR), we are reviewing elements of Competent Person Schemes.

Question 24: 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?

Question 24: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	43	3	2	1	1	4	1	1	8	6	11	3	1	0	0	1
a. Yes	51%	0%	100%	0%	0%	50%	100%	0%	88%	33%	36%	67%	100%	0%	0%	100%
b. No	2%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	47%	100%	0%	100%	100%	50%	0%	0%	13%	67%	64%	33%	0%	0%	0%	0%

2.91 Of the 43 respondents to this question, there was a small majority (51%) in agreement with the proposal. Whilst only a small number (2%) disagreed with the proposal, a significant number (47%) were unsure.

Reasons for supporting the proposal:

- **Sufficient guidance:** The guidance is viewed as sufficient alongside manufacturer installation instructions.
- **Aligns with current practices:** Manufacturers highlighted that guidance aligns with the existing benchmarking scheme, which is considered to be the standard procedure. The document wording on commissioning in line with manufacturer instructions aligns with current practices.

Reasons for opposing the proposal:

- **Excessive level of detail:** Less detail should be included in the Approved Document. It should refer to national British Standards for guidance on servicing.

Reasons for selecting “unsure”

- **Question on commissioning requirement:** The wording stipulates commissioning should be in line with manufacturer instructions. One respondent was confused as to what issue specifically needed addressing in the commissioning given that the Approved Document proposes that commissioning is undertaken in line with manufacturer requirements.

- **Need for a competency route:** One respondent stated the need for a competency route to be followed and third party registration schemes.
- **Softening should be considered:** One respondent highlighted that even in soft water areas, there can be a buildup of limescale quickly. Softening should always be considered and local experience taken into account.

Additional point raised

- **Controlling legionella in dwellings:** Section 5.15 of ADL V1 refers to Approved Document G for guidance on temperature limits to control Legionella in domestic hot water systems. However, this guidance appears to be aimed at workplaces rather than dwellings. Therefore, more relevant/specific guidance is requested for Legionella control in dwellings.

Question 25: Are you aware of any gaps in our guidance around commissioning heat pumps, or any third-party guidance we could usefully reference?

Question 25: Are you aware of any gaps in our guidance around commissioning heat pumps, or any third-party guidance we could usefully reference?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	45	3	2	1	1	5	1	1	8	6	12	3	1	0	0	1
a. Yes	29%	0%	0%	0%	100%	60%	0%	100%	25%	33%	25%	33%	0%	0%	0%	0%
b. No	31%	0%	100%	0%	0%	0%	100%	0%	38%	17%	33%	33%	100%	0%	0%	100%
c. Unsure	40%	100%	0%	100%	0%	40%	0%	0%	38%	50%	42%	33%	0%	0%	0%	0%

2.92 Of the 45 respondents to this question, there was a similar number who responded 'Yes' (29%) and 'No' (31%) to this proposal. A significant number (40%) were unsure.

Gaps in the guidance about commissioning heat pumps

- **Weather compensation control:** A gap raised was issues in determining the weather compensation curve. One respondent recommended using Heat Geeks' commissioning method for setting heating curves for weather compensation.
- **No reference to ASHP:** There were concerns that section 8.11 references GSHP and not ASHP.

Third-party guidance that could be usefully referenced

- **Microgeneration Certification Scheme (MCS):** The most common suggestion was to use the MCS standards for design and installation. This includes MIS-3005-I and MIS-3005-D.
- **Other recommendations:**
 - CIBSE Application Manual (AM) 16 (2021)
 - Published checklists and guidance prepared by the Heat Pump Association (HPA)
 - CIBSE Domestic Heating design guide (2021)
 - Ground Source Heat Pump Association (GSHPA), Good Practice Guide for Ground Source Heating & Cooling (2017),
 - Passivhaus Trust, Air-to-water heat pumps: The basics of energy efficiency (2024)
 - Following approaches advocated by ‘Heat Geek’

Question 26: 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?

Question 26: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	41	3	2	0	1	4	1	0	8	6	11	3	1	0	0	1
a. Yes	37%	33%	50%	0%	0%	25%	100%	0%	63%	0%	27%	67%	0%	0%	0%	100%
b. No	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	33%	100%	0%	0%	0%
c. Unsure	56%	67%	50%	0%	100%	75%	0%	0%	38%	100%	64%	0%	0%	0%	0%	0%

2.93 Of the 41 respondents to this question, 37% agreed that the guidance is sufficient, whereas 7% disagreed. A significant number were unsure (56%).

Reasons for supporting the proposal

- **Emphasis alignment:** Some respondents recognised the importance of robust commissioning, highlighted that alignment with wider commissioning standard, such as MCS MIS 3012 will be beneficial.

Reasons for opposing the proposal

- **Greater clarity:** Whilst a general commitment to the MCS standard was viewed as good, greater specification should be provided in the wording of this statement. This should include reference to manufacturer instructions and section 6.1 of the MCS guidance.
- **Battery storage:** Guidance on the safe usage and placement of battery storage would be helpful.
- **Location of solar inverters and battery storage:** With the increased adoption of solar PV arrays, consideration should be given to further research and guidance for the appropriate location of both solar inverters and battery storage, particularly in relation to fire risk and access for maintenance.

Additional points by those selecting “unsure”

- **Risks associated with faults and fire:** Greater detail should be added on risks associated with fires. One respondent recommended referencing ‘PAS 63100:2024 Electrical installations. Protection against fire of battery energy storage systems for use in dwellings.’.

Government response to questions 24, 25 and 26

- 2.94 In relation to question 24 and commissioning hot water storage vessels, of those who answered yes or no, the vast majority agreed with the proposals, therefore we propose to implement these proposals as planned.
- 2.95 In relation to question 25 which asks if there are any gaps in our guidance around commissioning heat pumps, a slight majority agreed there was no gaps, therefore we propose to implement these proposals as planned.
- 2.96 In relation to question 26 about guidance for commissioning on-site electrical storage, of those who answered yes or no, the vast majority agreed with the proposals, therefore we propose to implement these proposals as planned.
- 2.97 There was also a concern raised regarding possible fire risks posed by on-site electrical storage, which is noted. We propose to review certain areas of Approved Document B in 2026, and this area will be considered as part this work.

Question 27: 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?

Question 27: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	45	3	2	0	1	4	1	1	8	7	13	3	1	0	0	1
a. Yes	56%	33%	50%	0%	0%	50%	100%	100%	50%	43%	54%	100%	100%	0%	0%	100%
b. No	16%	0%	0%	0%	100%	25%	0%	0%	38%	14%	8%	0%	0%	0%	0%	0%
c. Unsure	29%	67%	50%	0%	0%	25%	0%	0%	13%	43%	38%	0%	0%	0%	0%	0%

2.98 Of the 45 respondents to this question, the majority (56%) agreed with the proposed changes, with 16% disagreeing and 29% unsure.

Feedback from those supporting the proposal

2.99 Respondents highlighted that the proposed changes provide clearer guidance on certification and enforcement. They also provided the further recommendation.

- **Scope of self-certification scheme schemes:** Additional guidance is required to clearly outline the scope of what elements need certifying to comply with regulations, and when a certificate can be issued.

Reasons for opposing the proposal

- **Limited resources in Building Control:** Respondents raised concerns that Building Control do not have the resources or specialist expertise required to certify certain installations. The responsibility for certification should be with suitably competent installers.
- **Limitations of self-certification:** Some respondents raised concerns that self-certification routes may not always ensure compliant installations. This is especially true where schemes lack site-based auditing or require only written examinations.
- **Concerns about liability:** Respondents highlighted the potential for increased complaints and liability directed at Building Control if they are

required to sign off installations where no Competent Person Scheme member is used.

Additional points by those selecting “unsure”

- **Enforcement options:** There was insufficient information on enforcement options. More detail was necessary to make an informed decision.
- **National qualifications:** Welsh Government is urged to create a national qualification for installation and commissioning to ensure high quality delivery.

General points made by the respondents

- **Non-CPS route:** Some from industry felt it important to highlight that commissioning carried out by people who are not CPS members can still result in compliant and high-quality work.
- **Retrofit vs new-build:** Respondents noted that the guidance does not distinguish between retrofit (where CPS can often be used to bypass Building Control involvement) and new-build (which always falls under Building Control).
- **Consistency across Approved Documents:** AD F includes a statement confirming that Local Authorities retain inspection and enforcement powers, but this wording is not present in AD L. It should be aligned across both documents.

Government response to question 27

2.100 Of the responses that answered yes or no to this question, the vast majority agreed, therefore we propose to implement the proposals. Many respondents suggested additional skills and training is needed for installers. Please note that in conjunction with the Building Safety Regulator, we are reviewing elements of the Competent Person Schemes.

3. Part L, F and O Standards for Existing Dwellings in 2025 (Questions 28 to 47)

3.1 Chapter 3 of the consultation contained our proposals for changes to the application of Building Regulations to existing dwellings. We proposed the following changes:

- An uplift in building services energy efficiency standards.
- Amendments to Approved Documents L and F to improve the design, installation and commissioning processes for fixed building services in existing dwellings.
- A requirement for renewable energy for significant extensions.
- Extend Part O of the Building Regulations to capture higher risk work on existing dwellings.

Summary of responses:

Question 28: 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?

Question 28: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	44	3	2	0	1	4	1	0	8	7	15	3	0	0	0	0
a. Yes	57%	33%	0%	0%	100%	50%	100%	0%	88%	57%	40%	100%	0%	0%	0%	0%
b. No	14%	0%	0%	0%	0%	25%	0%	0%	0%	14%	27%	0%	0%	0%	0%	0%
c. Unsure	30%	67%	100%	0%	0%	25%	0%	0%	13%	29%	33%	0%	0%	0%	0%	0%

3.2 Of the 44 respondents to this question, the majority (57%) agreed with the proposal. 14% disagreed with the proposal and 30% were unsure.

Feedback from those supporting the proposal

3.3 Reasons for supporting the proposal.

- **Support for reduced energy demand:** The improved system efficiencies which should result in reduced energy demand.
- **Alignment with other requirements:** Supported that the proposals align

with other requirements. This includes Part L in England, Ecodesign Regulations for heat pumps, and European Ecodesign Ecolabelling Directives.

3.4 In addition, the following recommendations were provided.

- **Training and verification:** Suggested ongoing training and verification of system performance is required
- **Presentation of heat pump performance:** Some requested amendment of Table 6.1 to show the minimum SCOP for heat pumps. Minimum efficiency requirements for other technologies are included in this table e.g. gas and oil boilers. Hence, provides consistency across technologies.

Reasons for opposing the proposal

- **Greater range of lighting efficacy minimum standards:** Suggested a tiered approach, with different minimum efficiency standards for different categories of lighting (for example, 105 lm/W minimum for general lighting sources and 65 lm/W minimum for high excitation purity light sources). This would prevent unintentionally restricting the use of high-quality, specialist lighting.
- **Minimum standards for U-values should be increased:** Improve the minimum standards for doors and windows U-values as higher performing products are common in the market.
- **Minimum standards for heat pumps should be increased:** The minimum seasonal efficiency of heat pumps should be 3.5 and should be modelled with specific building heat loss profile and local climate like PHPP.
- **Electric radiant heating:** Electric radiant heating should be separated from other electric heating systems and included as a subsection of Section 6. It should be based on the draft test protocols developed by industry for assessing infrared heaters, in consultation with the Building Research Establishment (BRE), the Department for Energy Security and Net Zero (DESNZ), and leading academics.
- **Concerns with moisture and thermal bridging:** The minimum U-values potentially result in high U-value differences between adjoining new and existing thermal elements. This could create issues with moisture and thermal bridging. It was suggested that the limiting U-values for new elements and extensions should be retained at the 2014 level.

Additional points by those selecting “unsure”

- **MVHR performance calculation:** The method for calculating heat recovery efficiency for MVHR needs to be referenced in the Approved Document.
- **Heat Pump performance calculation:** Calculation of the Seasonal

Performance Factor of heat pumps could be extracted from the Home Energy Model.

Government response to question 28

- 3.5 The majority of respondents agreed with the proposed changes to minimum standards for building services efficiencies and controls. On this basis, we propose to introduce the new standards.
- 3.6 However, in light of the feedback received, we will make the following change for inclusion in the final Approved Document:
- 3.7 Lighting – Approved Document L, Volume 1: Dwellings, Section 6, we intend to include the following standards:
- 105 lm/W minimum luminous efficacy for standard general lighting sources
 - 80 lm/W minimum for tuneable LED devices or light sources with CRI ≥ 95
 - 65 lm/W minimum for high-excitation-purity light sources

Question 29: Do you agree with the proposal to include additional guidance around heat pump controls for dwellings, as set out in Section 6 of draft Approved Document L, Volume 1: Dwellings?

Question 29: Do you agree with the proposal to include additional guidance around heat pump controls for dwellings, as set out in Section 6 of draft Approved Document L, Volume 1: Dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	42	3	2	0	1	5	1	0	8	5	13	3	1	0	0	0
a. Yes	69%	33%	0%	0%	100%	100%	100%	0%	100%	40%	54%	100%	100%	0%	0%	0%
b. No	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	31%	67%	100%	0%	0%	0%	0%	0%	0%	60%	46%	0%	0%	0%	0%	0%

- 3.8 Of the 42 respondents to this question, the majority (69%) agreed with the proposal with no respondents disagreeing. 31% stated that they were unsure.

Feedback from those supporting the proposal

- 3.9 The following recommendations were provided.
- **Greater user education:** Further landlord, tenant, and homeowner education is required. There is a need for practical, non-technical

information and guidance on how to operate the services in their homes to fully realise their benefits.

- **DESNZ Smart and Secure Electricity System Regulations:** Consideration should be given to the minimum heat pump control requirements that may be required under the DESNZ Smart and Secure Electricity System Regulations. These are intended for situations where the heating system is controlled by a third party to support grid flexibility and demand side response.
- **Amendment to Section 6.3:** Section 6.3 should state that heat pumps should have external controls which include weather compensation and internal temperature control and a timer/programmer, as both internal control and weather compensation are needed.
- **Amendment to Section 6.4:** Section 6.4 should be worded to clearly state that households should have a secondary heater that does not need to be controlled by the heat pump controller, as this would be impractical.
- **Amendments to Sections 5.22 to 5.24:** Sections 5.22 to 5.24 detail controls which are prevalent for use with fossil fuel boilers and are therefore not applicable to heat pumps.
- **Hybrid heating systems:** Consideration should be given to the minimum control requirements for hybrid heating systems, suggesting alignment as part of MCS MIS 3005-D design standards.

Points by those selecting “unsure”

- **Clear, accessible controls:** Any new control guidance should be reflected in the building logbook or digital building passport to ensure it is retained over the life of the dwelling.
- **Interpretation concerns:** It might be more useful to cite secondary guidance, such as a British standard. This is to prevent the Approved Document containing too much technical guidance and therefore making it hard to interpret.

Government response to question 29

- 3.10 A significant majority of respondents supported the proposal to include additional guidance on heat pump controls for dwellings, with no respondents expressing disagreement. We therefore intend to introduce this additional guidance in the final Approved Document.

Question 30: Do you agree that operating and maintenance information should be fixed to heat pump units in existing dwellings?

Question 30: Do you agree that operating and maintenance information should be fixed to heat pump units in existing dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	43	3	2	0	1	5	1	1	8	5	13	3	1	0	0	0
a. Yes	60%	67%	0%	0%	100%	80%	100%	0%	100%	20%	46%	67%	100%	0%	0%	0%
b. No	9%	0%	0%	0%	0%	20%	0%	0%	0%	40%	8%	0%	0%	0%	0%	0%
c. Unsure	30%	33%	100%	0%	0%	0%	0%	100%	0%	40%	46%	33%	0%	0%	0%	0%

3.11 Of the 43 respondents to this question, the majority (60%) agreed with the proposal. In comparison, 9% disagreed and 30% were unsure.

Feedback by those who supported the proposal

- 3.12 The feedback provided was generally to make changes or additions to the proposal.
- **Include information in other forms:** In addition to physical instructions affixed to the appliance, the same information should be included in a building logbook or digital building passport.
 - **Capture additional information:** In addition to sharing operating and maintenance information, the commissioning data of the appliance should be included in the pack.
 - **Location of physical attachment:** It might not be appropriate to attach information packs in external locations. Additionally, there is a risk that later updated information is stored in a different location to the original, which would create confusion.
 - **User education:** Owners need practical, non-technical information and easily understood guidance.

Reasons for opposing the proposal

- **Impractical:** The proposal is impractical as locating the information in an external location might lead to the pack being damaged due to weather, as well as implementation issues at the factory.
- **Reduce the amount of information:** The information proposed is lengthy and may not aesthetically suit the end users' preferences. It should be

produced by the designer and installer not necessarily the manufacturer.

- **Alternative information provision:** There were various suggestions here. One suggestion was to include a more limited set of information affixed internally to the hot water vessel or heat pump control box. Another suggestion is to include the benchmark commissioning documentation in the pack, which has been introduced by the Heat Pump Association.
- **Queries on the information to be supplied:** Queries around items b (design flow temperature of the heat pump system) and d (size of emitter circuit) listed in the draft Approved Document as they appear to be requesting the same information. Furthermore, there was a question as to who would be expected to calculate the minimum set back temperatures and what purpose would this serve as it is not part of any usual heating system calculation.

Additional points by those selecting “unsure”

- **Digital data capture:** The information should also be captured in the building logbook and digital building passport as well as physically attached to the appliance. The digital format can provide consumers and engineers with the proposed information, as well as commissioning data. This would potentially be a better solution than physically affixing instructions to the appliance.

Question 31: 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?

Question 31: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	45	3	2	0	1	4	1	1	8	6	14	3	1	0	0	1
a. Yes	31%	0%	0%	0%	0%	50%	0%	0%	63%	0%	29%	33%	100%	0%	0%	100%
b. No	22%	0%	0%	0%	100%	25%	0%	100%	13%	33%	14%	67%	0%	0%	0%	0%
c. Unsure	47%	100%	100%	0%	0%	25%	100%	0%	25%	67%	57%	0%	0%	0%	0%	0%

3.13 Of the 45 respondents to this question, 31% agreed with the proposal and 22% disagreed. A significant number (47%) were unsure.

Feedback by those who supported the proposal

- 3.14 The feedback provided was generally to make changes or additions to the proposal.
- **Handover:** Heat pump installers should provide building managers with thorough briefing at handover, so that they understand how to operate and maintain the system effectively as heat pumps will be unfamiliar to many users.
 - **User education:** Owners need easily understood, non-technical guidance documents for occupants that should be provided on every occasion when an installation is made to a dwelling.

Reasons for opposing the proposal.

- **Not sufficiently user focused:** Additional user-focused instructions and simplified guides are needed for effective user operation. Furthermore, there was a suggestion that there is no guarantee that consumers will use the information, particularly in social rented accommodation.
- **Additional information needed:** The guidance should also include other information. This includes the measured heat loss, where known, and how discrepancies between this and the calculated value are addressed. Also, advice on insulation for existing dwellings being retrofitted with a heat pump and technical suitability for the measures before installation. Any such advice should include assessment of the additional benefits and predicted energy savings with fuel bill reductions from insulation and their interaction with heat pump efficiency.
- **Insufficient detail for manufacturers to comply:** Manufacturers will not know the installed location for a heat pump. Therefore, they cannot meet the proposed change without further clarification. Suggests that all heat pump installations require explanation of operation to the end user by a commissioning engineer.
- **Include relevant information in a standard:** To ensure adequate guidance is provided, the required details should be set out in a national standard held by BSI and referenced in the building regulations.

Points by those selecting “unsure”

- **Standard commissioning form:** A standard commissioning pro-forma should be developed to be submitted to the building control body. This would include all commissioning certification, with a copy provided to the homeowner alongside operations and maintenance information attached to the heat pump.
- **Data capture:** This information should be captured in the building logbook and digital building passport to support long-term performance.
- **Comprehension concerns:** However clear the operation and maintenance instructions are not everyone will be able to adequately

comprehend them.

Government response to questions 30 and 31

- 3.15 A majority of respondents supported the proposal that operating and maintenance information should be affixed to heat pump units in existing dwellings. We therefore intend to proceed with this approach. Based on the feedback received, we will review the guidance and consider including additional provisions for situations where it may not be practical to attach the required information directly to the heat pump unit or hot water storage vessel.
- 3.16 There was a mixed response to the proposal that the operating and maintenance information set out in Section 10 of the draft Approved Document L (Volume 1: Dwellings) is sufficient to ensure heat pumps are operated and maintained correctly. On balance, feedback supported the inclusion of this guidance, and it will therefore be included in the final Approved Document. In light of the consultation feedback, we will also consider adding further clarifications and detail in the final guidance to provide additional support.
- 3.17 We acknowledge the request for further guidance for homeowners on the suitability of energy efficiency measures such as retrofit insulation prior to heat pump installation in existing dwellings. Table 12.1 in Section 12 of the draft Approved Document L, Volume 1, provides information on this, as does the note following paragraph 12.8 of the same section.²

Question 32: 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?

Question 32: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	44	3	2	0	1	4	1	0	8	7	14	3	0	0	0	1
a. Yes	55%	33%	0%	0%	100%	75%	100%	0%	88%	29%	36%	100%	0%	0%	0%	100%
b. No	9%	0%	0%	0%	0%	0%	0%	0%	0%	14%	21%	0%	0%	0%	0%	0%
c. Unsure	36%	67%	100%	0%	0%	25%	0%	0%	13%	57%	43%	0%	0%	0%	0%	0%

² Please refer to Table 11.1 and the *note* following paragraph 11.8 in the current version of Approved Document L Volume 1- Dwellings to find this information [22 Edition Approved Document L Volume 1- Dwellings](#)

3.18 Of the 44 respondents to this question, the majority (55%) agreed with the original. In comparison, 9% disagreed with the proposal and 36% were unsure.

Feedback from those supporting the proposal

3.19 The feedback provided was generally to make changes or additions to the proposal.

- **Installation constraints:** Whilst limiting heat losses are critical, installation constraints must also be considered.

Reasons for opposing the proposal.

3.20 The respondents suggested that these were the same concerns as those raised in Question 21. In addition, some of those who supported the proposal also suggested reviewing their concerns in Question 21.

Government response to question 32

3.21 The proposed changes to Section 4 of the draft Approved Document L, Volume 1: Dwellings, aimed at reducing heat loss from low-carbon heating systems, were supported by a majority of respondents. We therefore intend to incorporate these changes into the final Approved Document. However, in light of the feedback received we will amend the guidance to remove the suggested 1m limit from the dwelling for the heat pump and instead advise that the heat pump should be located as close as practicable to the dwelling, allowing greater flexibility/innovation in the design and installation.

Question 33: Do you agree with the proposed sizing methodology for hot water storage vessels for new dwellings?

Question 33: Do you agree with the proposed sizing methodology for hot water storage vessels for new dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	41	3	2	0	1	4	1	0	8	7	11	3	0	0	0	1
a. Yes	46%	33%	0%	0%	100%	50%	100%	0%	75%	0%	45%	100%	0%	0%	0%	0%
b. No	12%	0%	0%	0%	0%	0%	0%	0%	0%	43%	9%	0%	0%	0%	0%	100%
c. Unsure	41%	67%	100%	0%	0%	50%	0%	0%	25%	57%	45%	0%	0%	0%	0%	0%

3.22 Of the 41 respondents to this question, 46% agreed with the proposal. In comparison, 12% disagreed with the proposal and 41% were unsure.

Reasons for supporting the proposal.

- **Proposed methodology:** The sizing methodology is sensible and aligns with best practice.

3.23 In addition, the respondents provided the following recommendations.

- **Basic principles:** Include some basic principles rather than only referring to the external BS EN 12831-3 standard.
- **Include further guidance:** One respondent felt that references to Part G did not provide sufficient clarity on the requirements. They recommended that more relevant/specific guidance is provided.

Reasons for opposing the proposal

- **Reduced demand:** The inclusion of WWHR reduces demand at point of use and BS EN 12831-3 does not account for point of use demand reduction.
- **Supply chain concerns:** Suggests that the proposed change would be significant and trigger the requirement for new products, which would take three years to get to market. Without sufficient time to implement these changes, there would be a detrimental effect on the supply of products. They suggested to specify Class C as a minimum requirement, and to align with Ecodesign minimum standards and English Building Regulations.

3.24 In addition, several respondents suggested that referring to their concerns raised in Question 22.

Points by those selecting “unsure”

- **Need to cater for larger families:** The proposal is based on average occupancy and does not cater for larger families.
- **Complexity of provided information:** The reference to BS EN 12831-3 is complex to understand. There is a risk that installers will not successfully implement the standard.

Government response to question 33

3.25 The majority of responses were supportive of this proposal. However, taking account of the comments received, we will review and reconsider the guidance for inclusion in the final Approved Document. As part of this we will reconsider if the hot water estimates are accurate in order to avoid any oversizing of cylinders within the methodologies.

3.26 We appreciate the concerns raised about potential supply chain challenges, including feedback that the new standard may require manufacturers to redesign and deliver new products, which may take a number of years to get to market. However, depending on the results of the reconsideration of cylinder sizing this may reduce supply chain pressures. Also as outlined in our response to Question 67, we intend to implement a longer transitional period to give industry time to adapt to these changes.

Question 34: Do you agree with the proposed changes to Approved Document F, Volume 1: Dwellings to improve the installation and commissioning of ventilation systems?

Question 34: Do you agree with the proposed changes to Approved Document F, Volume 1: Dwellings to improve the installation and commissioning of ventilation systems?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	42	3	2	0	1	5	1	0	7	7	12	3	0	0	0	1
a. Yes	60%	33%	0%	0%	0%	40%	100%	0%	100%	29%	67%	100%	0%	0%	0%	100%
b. No	7%	0%	0%	0%	100%	20%	0%	0%	0%	14%	0%	0%	0%	0%	0%	0%
c. Unsure	33%	67%	100%	0%	0%	40%	0%	0%	0%	57%	33%	0%	0%	0%	0%	0%

3.27 Of the 42 respondents to this question, the majority (60%) agreed with the proposal. In comparison, 7% disagreed with the proposal and 33% were unsure.

Reasons for supporting the proposal.

- **Improves performance:** The changes would enhance indoor air quality and the performance of ventilation systems.
- **Clearer standards:** Welcome of clearer guidance to improve installation quality and reduce unintended consequences arising from the incorrect installation or commissioning.

Reasons for opposing the proposal³

- **Does not cover all key issues:** Approved Document F does not currently fully address all key issues. For example, some guidance was perceived as missing from the AD F (Section 4: Commissioning and providing information) such as room noise, duct pressure loss limits, and an

³ Also noted in response to Question 23

integrated design approach. They stressed that good system design must precede commissioning and cannot be compensated for by improved measurement alone.

- **Design before commissioning:** Some respondents emphasised that ensuring duct sizing, pressure limits, and acoustic performance is an early-stage design activity. Over-reliance on commissioning adjustments risks masking underlying design issues.
- **Practicality concerns:** Some respondents noted that pressure-drop calculations and related measurements are not routinely carried out in the industry. Requiring them may introduce costs without corresponding benefit.
- **Commissioning methods:** Respondents questioned the need to replace rotating vane anemometers with powered hoods, arguing that the accuracy benefits are marginal and the cost implications significant.

Additional point by those selecting “unsure”⁴

- **Retention of records:** Any new installation and commissioning requirements should be captured in a building passport so that commissioning data and installation records are retained for the lifetime of the property.

Additional points were raised, irrespective of support or not for change

- **SME support:** Increased testing and commissioning will come at a cost, and smaller installers should not be adversely affected. Grants or similar financial support for the sector are requested to mitigate this.
- **Practical installation considerations:** Allow flexible ducting (up to 200 mm) at extraction and exhaust points where rigid bends would be impractical.
- **Proportionality for certain systems:** Many dMEV and intermittent extract fans are largely plug-and-play and may not require commissioning beyond following manufacturer instructions.

Government response to question 34

- 3.28 A majority of respondents supported the proposed changes to improve the installation and commissioning of ventilation systems, with 60% in agreement and 7% opposed. We therefore plan to implement the proposed changes within the final Approved Document, noting that the proposal to measure system performance (electrical power) for centralised ventilation systems is to be removed.

⁴ Also noted in response to Question 23

Question 35: Do you agree with proposed changes to Approved Document F, Volume 1: Dwellings to (a) provide guidance for a requirement to provide falls for horizontal extract ducting, and condensate traps with drainage for vertical ducting to discharge condensation water that may accumulate within the ductwork, and (b) include an explanatory diagram to reinforce the principles of the requirement?

Question 35: Do you agree with proposed changes to Approved Document F, Volume 1: Dwellings to (a) provide guidance for a requirement to provide falls for horizontal extract ducting, and condensate traps with drainage for vertical ducting to discharge condensation water that may accumulate within the ductwork, and (b) include an explanatory diagram to reinforce the principles of the requirement?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	40	3	2	0	1	4	1	0	8	7	11	3	0	0	0	0
a. Yes	60%	33%	0%	0%	0%	100%	100%	0%	100%	14%	55%	100%	0%	0%	0%	0%
b. No	5%	0%	0%	0%	100%	0%	0%	0%	0%	14%	0%	0%	0%	0%	0%	0%
c. Unsure	35%	67%	100%	0%	0%	0%	0%	0%	0%	71%	45%	0%	0%	0%	0%	0%

3.29 Of the 40 respondents, the majority (60%) agreed with the proposal. Only 5% disagreed with the proposal and 35% were unsure.

Feedback from those supporting the proposal

3.30 Reasons for supporting the proposal.

- **Use of diagrams:** Support was expressed for the explanatory diagram included, as visual guidance is likely to improve installation quality.

3.31 Additional recommendations.

- **Clearer practical guidance:** Providing explicit guidance on falls for horizontal ducting and condensate drainage for vertical ducting would help reduce installation errors.

Reasons for opposing the proposal

- **Target specific ventilation systems only:** Condensation risk is significantly lower in continuous ventilation systems, such as MVHR and continuous MEV. Applying requirements for falls and condensate traps universally may introduce unnecessary complexity. The guidance should be targeted specifically at intermittent systems, where condensation risks are higher and well-documented.

Government response to question 35

- 3.32 The majority of respondents supported the proposed changes, with only a small proportion expressing opposition. We note the feedback that condensation risk is typically lower in continuous mechanical ventilation systems and that the proposed guidance may be more suitable for intermittent systems. However, we intend to proceed with including this guidance in the final Approved Document as condensation can occur in both intermittent and continuous ventilation systems, particularly where systems are not correctly installed or properly maintained. The guidance is intended to support the prevention and reduction of this risk across all ventilation types.

Question 36: 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?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	41	3	2	0	1	4	1	1	8	7	11	3	0	0	0	0
a. Yes	49%	33%	0%	0%	0%	50%	100%	0%	75%	29%	45%	100%	0%	0%	0%	0%
b. No	5%	0%	0%	0%	0%	0%	0%	100%	0%	0%	9%	0%	0%	0%	0%	0%
c. Unsure	46%	67%	100%	0%	100%	50%	0%	0%	25%	71%	45%	0%	0%	0%	0%	0%

- 3.33 Of the 41 respondents to this question, 49% agreed with the proposal. In comparison, only 5% disagreed with the proposal and 46% were unsure.

Feedback from those supporting the proposal

- 3.34 The feedback provided was generally to make changes or additions to the proposal.
- **Legionella guidance:** HSE is to provide guidance for heat pump industry on legionella due to the lower flow and storage temperatures. It is recommended that the new Building Regulations align with this guidance.
 - **Wording adjustment:** Suggestion that the word 'ensure' is absolute. It might not be achievable in relation to Section 8, and the word 'should' be considered instead.

Reasons for opposing the proposal

- **Insufficient guidance:** The guidance is not yet sufficient to ensure correct commissioning for low-temperature heat pump and heat interface unit (HIU) based systems. The key issues raised included overly generic direction which should be strengthened, missing measured outcomes relating to energy and comfort performance (recorded values), the need for legionella integration to be included, and the interface with heat-pumps and HIUs is underspecified and not stipulated as required evidence.

Additional point by those selecting “unsure”

- **Commissioning:** Whilst the guidance is adequate, more detailed commissioning checklists could be included to ensure a consistent approach to commissioning.

Government response to question 36

3.35 Feedback to this question was limited. However, among those who did respond, the majority, 49% of respondents agreed that the draft guidance on commissioning hot water storage vessels in Section 8 of Approved Document L, Volume 1: Dwellings is sufficient to ensure correct commissioning, while only 5% disagreed. In light of this feedback, we intend to incorporate these provisions into the final version of Approved Document L, Volume 1: Dwellings. In finalising the Approved Document we will also look to highlight appropriate HSE guidance relating to legionella.

Question 37: 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?

Question 37: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	41	3	2	0	1	4	1	1	8	7	11	3	0	0	0	0
a. Yes	37%	33%	0%	0%	0%	25%	100%	0%	63%	0%	36%	100%	0%	0%	0%	0%
b. No	10%	0%	0%	0%	0%	0%	0%	100%	13%	0%	18%	0%	0%	0%	0%	0%
c. Unsure	54%	67%	100%	0%	100%	75%	0%	0%	25%	100%	45%	0%	0%	0%	0%	0%

- 3.36 Of the 41 respondents to this question, 37% agreed with the proposal. In comparison, 10% disagreed with the proposal and the majority (54%) were unsure.
- 3.37 In addition to the comments below, several respondents referred back to their concerns raised in Question 26.

Reasons for supporting the proposal

- 3.38 Little feedback was provided.

Reasons for opposing the proposal

- **Wording suggestion:** It is suggested that the text is potentially misleading. Propose changing to “These systems should be installed in accordance with MIS 3012: The Battery Standard (Installation)”.
- **Future proofing:** Additional guidance should be included to support evolution in battery technology.

Additional points by those selecting “unsure”

- **Fire risk concerns:** Queried if the Welsh Government has undertaken any research around the interaction of onsite electrical storage systems and fire safety. Noted potential concerns regarding the safety and compliance of onsite electrical storage systems, in particular installations in lofts with little regard for fire safety. Additionally, there have been multiple safety reports issued by CROSS-UK regarding the possible fire risks posed by battery energy storage systems. In light of this, it is suggested that more relevant and specific guidance should be included, potentially the BSI published ‘PAS 63100:2024 Electrical installations. Protection against fire of battery energy storage systems for use in dwellings. Specification’.
- **Additional detail:** Additional details should be included in the Approved Document to cover the risks around faults and fires.

Government response to question 37

- 3.39 Respondents were supportive of the guidance for commissioning on-site electrical storage systems, with 37% of respondents agreeing that it is sufficient and 10% disagreeing.
- 3.40 Considering the feedback, we will make the following change to the draft text in paragraph 8.15, Section 8 of Approved Document L, Volume 1:
- “On-site electricity storage and battery systems that are connected to on-site electricity generation should be designed, installed and commissioned in accordance with the requirements of MCS’ MIS 3012: The Battery Standard (Installation).”

3.41 We acknowledge the feedback received regarding fire safety concerns associated with electrical storage systems. It is important to note that the Building Regulations and the associated Approved Documents do not mandate the installation of these systems. However, we intend to review Part B (Fire Safety) of the Building Regulations this year and will consider these concerns as part of that review.

Question 38: 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?

Question 38: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	43	3	2	0	1	4	1	0	8	8	13	3	0	0	0	0
a. Yes	44%	33%	0%	0%	0%	50%	100%	0%	38%	38%	46%	100%	0%	0%	0%	0%
b. No	16%	0%	0%	0%	100%	25%	0%	0%	38%	13%	8%	0%	0%	0%	0%	0%
c. Unsure	40%	67%	100%	0%	0%	25%	0%	0%	25%	50%	46%	0%	0%	0%	0%	0%

3.42 Of the 43 respondents, 44% agreed with the proposal. In comparison, 16% disagreed with the proposal and 40% were unsure.

Feedback from those supporting the proposal

3.43 Reasons for supporting the proposal.

- **Improved clarity:** These changes will help bring clarity to installers to help comply with standards and ensures accountability.

3.44 In addition, the following recommendation was provided

- **Clarification of scope for self-certification scheme works:** Additional guidance is required to clearly outline the scope of what elements need certifying to comply with regulations, and when a certificate can be issued.

Reasons for opposing the proposal

- **Limited resources in Building Control:** Due to limited resources in Building Control teams, it was noted that this should not be the responsibility of Building Control and should be the responsibility of a

suitably qualified installer or equivalent.

- **Self-certification:** Self-certification can lead to falsification, even under a competent person scheme. Therefore, an independent third party should certify to ensure compliance.

The following general points were made, irrespective of support of the change:

- **Missing statement:** Section 0.23 of the draft version of Approved Document F Volume 1 states "...The local authority still retains inspection and enforcement powers in these circumstances". However, there does not appear to be any equivalent passage of text in the draft version of Approved Document L Volume 1.

Government response to question 38

3.45 A small majority of respondents supported the proposed changes to clarify options for certifying fixed building services installations and the enforcement measures where work does not meet required standards. We therefore intend to implement these changes in the final Approved Document.

3.46 We acknowledge the feedback regarding the absence of an equivalent statement in the draft of Approved Document L, Volume 1, compared to the text in Section 0.23 of the draft Approved Document F, Volume 1. To address this, we will include the following text in the final version of Approved Document L, Volume 1 to ensure alignment:

- "The local authority still retains inspection and enforcement powers in these circumstances".

Question 39: Do you agree with the proposal to introduce a requirement to install renewable technology when a dwelling is significantly extended?

Question 39: Do you agree with the proposal to introduce a requirement to install renewable technology when a dwelling is significantly extended?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	47	3	2	0	1	5	1	1	8	8	15	3	0	0	0	0
a. Yes	62%	33%	0%	0%	100%	100%	100%	100%	50%	63%	67%	33%	0%	0%	0%	0%
b. No	13%	0%	0%	0%	0%	0%	0%	0%	38%	0%	7%	67%	0%	0%	0%	0%
c. Unsure	26%	67%	100%	0%	0%	0%	0%	0%	13%	38%	27%	0%	0%	0%	0%	0%

3.47 Of the 47 respondents to this question, the majority (62%) agreed with the proposal. In comparison, 13% disagreed with the proposal and 26% were unsure.

Feedback from those supporting the proposal

3.48 Reasons for supporting the proposal

- **Minimises additional disruption:** Research shows that disruption is one of the main barriers to homeowners undertaking energy efficiency improvements. Extensions already create disruption. Hence, using them as a regulatory trigger can help accelerate the uptake of renewable technologies.
- **Carbon and performance benefits:** It will contribute to carbon reduction and the future proofing of dwellings.

3.49 In addition, the following recommendation was provided.

- **Heritage and conservation constraints :** Heritage and conservation constraints must be considered. A flexible approach may be necessary to demonstrate compliance.

Reasons for opposing the proposal

- **Cost concerns:** Mandating renewable technologies could significantly increase extension costs. This may discourage the renovation of existing homes.
- **Risk of unintended consequences:** Defining extension thresholds and mandating specific measures could lead to unintended consequences, due to the diversity of dwelling types and technical scenarios.
- **Technical assessment:** Decisions on appropriate technologies should be based on a property-specific technical assessment by a qualified person, rather than prescriptive regulatory triggers.
- **Fabric first:** The proposal prioritises renewables over a fabric-first approach. A broader approach, including a range of fabric and low-carbon technologies, should be available.

The following additional points were made

- **EPC impact:** Any additional measures should not reduce the EPC rating of the home.
- **Visual and heritage considerations:** The visual impact of renewable installations, especially in conservation areas and for listed buildings, will require careful consideration.

Question 40: Do you agree with the proposed definition for a ‘significant extension’?

Question 40: Do you agree with the proposed definition for a ‘significant extension’?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	46	3	2	0	1	5	1	1	8	9	13	3	0	0	0	0
a. Yes	43%	33%	0%	0%	100%	60%	100%	100%	25%	44%	46%	33%	0%	0%	0%	0%
b. No	20%	0%	0%	0%	0%	20%	0%	0%	50%	0%	15%	67%	0%	0%	0%	0%
c. Unsure	37%	67%	100%	0%	0%	20%	0%	0%	25%	56%	38%	0%	0%	0%	0%	0%

3.50 Of the 46 respondents to this question, 43% agreed and 20% disagreed with the proposal. 37% were unsure of the proposed changes.

Reasons for supporting the proposal

- **Consistent approach:** The approach aligns with other legislation and other Nations’ approaches, such as Scotland.
- **Clarity:** The 30 m² definition associated with a significant extension was clear and welcomed having a simple, consistent threshold.

Reasons for opposing the proposal

- **Illogical outcomes:** The storey-based wording could lead to illogical outcomes. For example, large single-storey extensions to multi-storey dwellings are not being classed as “significant”, while much smaller multi-storey extensions would be. This in turn may result in homeowners favouring larger single-storey extension to avoid triggering renewable technology requirements, even where multi-storey options would be more space and thermally efficient. It was suggested that single storey extensions should be captured by this change.
- **Need for greater clarity:** There is a need to define a “storey”. Furthermore, clarity is needed on whether 30 m² Class 7 extensions in Schedule 2 of the Building Regulations 2010 would be included. Also, whether converted areas (e.g. garages and lofts) should count towards the floor-area calculation.
- **Threshold too small:** Three of the respondents suggested that a 30 m² is too small. One of these respondents suggested that the threshold should be increased to 40 m², with the other two respondents not suggesting a revised threshold value.

- **Amend threshold criteria:** One respondent recommended that the threshold criteria should be equivalent to or greater than 25% of the existing dwelling. By going for an absolute value (e.g. 30m²), it could be a significant extension in relation to smaller dwellings but less so for larger dwellings.

Additional points by those selecting “unsure”

- 3.51 They did not make significant additional points. In particular, two of the respondents repeated the recommendation of setting the threshold criteria as a percentage of the floor area of the existing dwelling.

Government response to questions 39 and 40

- 3.52 A majority of respondents supported the proposal to introduce a requirement for installing renewable technology when a dwelling undergoes a significant extension, with a relatively small proportion expressing disagreement.
- 3.53 Some respondents raised concerns about the potential cost implications of this proposal. However, we intend to amend and introduce a definition for a “significant extension” that is designed to ensure the requirement remains proportionate. In addition, the consultation-stage and final regulatory impact assessment sets out the estimated costs alongside the anticipated benefits of this measure. For those who expressed concerns regarding dwellings located in conservation areas or designated as listed buildings, we have proposed exemptions for these types of properties subject to agreement with the local Conservation Officer and/or Local Authority Development Control, in line with Section 0 of Approved Document L, Volume 1.
- 3.54 Feedback indicated a mixed response for the proposed definition of a ‘significant extension’, with the largest proportion of respondents expressing support.
- 3.55 In light of feedback, particularly from those who expressed concern that the proposed definition may not be sufficiently large to ensure the requirement is viable, and recognising that this is a new policy, we intend to amend the proposed definition of a ‘significant extension’ from a total internal floor area of 30m² or more to 40m² or more, and as proposed in the consultation, has at least the same number of storeys as the existing dwelling. This will ensure the costs remain proportionate. However, this is an area we will keep under review and may reconsider in future reviews.
- 3.56 We appreciate the feedback regarding the proposed guidance and wording of the definition of a significant extension. In response to the concerns highlighted, the guidance will be clarified to confirm that the floor area of rooms in the roof space is excluded from the floor area calculation, and that a storey for the purposes of the definition also does not include a room in the roof space. Extensions exempt under Schedule 2 of the Building Regulations, including Class 7, are not required to comply with this statutory guidance. We

will review and update the guidance accordingly for inclusion in the final Approved Document.

Question 41: Do you agree with the methods proposed for the simple and flexible approaches?

Question 41: Do you agree with the methods proposed for the simple and flexible approaches?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	46	3	2	0	1	5	1	0	8	9	14	3	0	0	0	0
a. Yes	43%	33%	0%	0%	0%	40%	100%	0%	100%	22%	29%	67%	0%	0%	0%	0%
b. No	20%	0%	0%	0%	100%	0%	0%	0%	0%	33%	36%	0%	0%	0%	0%	0%
c. Unsure	37%	67%	100%	0%	0%	60%	0%	0%	0%	44%	36%	33%	0%	0%	0%	0%

3.57 Of the 46 respondents to this question, 43% agreed with the proposal. In comparison, 20% disagreed with the proposal and 37% were unsure.

Feedback from those supporting the proposal

3.58 Reasons for supporting the proposal aligned with those set out in the consultation document. In particular, they approved of the flexible approach which is appropriate for Wales’s varied housing stock.

3.59 In addition, one respondent made the following recommendations.

- **Modify Paragraph 3.36 of the Approved Document:** Paragraph 3.36 B states: “Installation of renewable technologies not listed under the simple approach, provided they serve both the dwelling and extension”. They questioned why the system must serve both. They suggested that where a solution only serves either the extension or the dwelling, this should still be acceptable where technically or economically appropriate.
- **Modify Paragraph 3.37 of the Approved Document:** Paragraph 3.37 may give too much discretion, as it allows applicants to avoid the flexible approach entirely if justification is provided.

Reasons for opposing the proposal

- **Focus on fabric first:** The emphasis should be on improving the building fabric first before introducing heat pumps, given the varied nature of building stock and condition across Wales.

- **Include heat pumps in the simplified approach:** Heat pumps should be included in the simplified route. This better aligns with the Heat Strategy for Wales and more directly support heat decarbonisation.
- **Simplified approach is too focused on solar technologies:** Focusing only on PV or solar thermal does not reflect where the greatest carbon savings lie, and risks sending the wrong message about effective decarbonisation.
- **Match new build PV requirements:** PV requirements should match those for new build. They should be based on a percentage of the new total floor area with a minimum of 2kWp or proportionate to the available roof area.
- **Solar thermal capacity:** A minimum capacity should be specified to prevent small installations that have very little impact.
- **Flexible approach – wider range of low-carbon options:** The flexible route should include a wider range of low-carbon heating options. For example infrared heating or hybrid solutions, particularly for homes where full heat pumps are not viable.
- **Flexible approach should not be optional:** Some respondents felt that householders who cannot use the simplified route should be required to follow the flexible route rather than being able to opt out, to avoid missed decarbonisation opportunities

Additional points by those selecting “unsure”

- **Include ventilation measures:** Ventilation strategies, including heat recovery, should also be included within the flexible approach.
- **Capital cost considerations:** The proposed methods would create excessive cost burdens for significant extensions.
- **Fabric-first emphasis:** They welcomed the proposal in principle in that improving fabric performance could offset renewable shortfalls.

Government response to question 41

- 3.60 A relative majority of respondents supported the proposed simple and flexible approaches, with a smaller proportion opposing them. We therefore intend to introduce these approaches as part of the new standards.
- 3.61 We appreciate the feedback provided. Several respondents suggested more ambitious measures, such as increasing solar PV capacity under the simplified approach. The proposed capacity reflects the need to accommodate potential design constraints in existing properties, which would not apply to new dwellings. While these suggestions support our decarbonisation objectives, any new requirement must remain proportionate and ensure that projects remain viable. Our aim is to reduce energy bills and contribute to grid decarbonisation without imposing undue burdens on homeowners.

- 3.62 Feedback also highlighted that the flexible approach should recognise a wider range of measures. As outlined in the consultation, the flexible option allows for renewable technologies beyond those listed under the simple approach, provided they serve both the dwelling and extension, or the installation of non-renewable measures (e.g. fabric improvements, such as airtightness and insulation, or services upgrades such as ventilation) in the existing dwelling and/or extension. We will look to clarify the text in the final Approved Document to make the guidance clearer regarding the possible options under the simplified and alternative approaches.
- 3.63 Some respondents proposed making the flexible approach mandatory where the simplified approach is not feasible. As explained in our consultation, the flexible approach is more complex and intended for cases where the simple measures are undesirable (e.g., aesthetic concerns). Where the simplified approach cannot reasonably be achieved, details and evidence must be submitted to the building control body.
- 3.64 Finally, suggestions were made to include fabric efficiency improvements under the simplified approach. It is important to note that existing Part L requirements already mandate measures such as loft and cavity insulation and upgrading hot water cylinder insulation where applicable, when extending an existing dwelling (more than 10m²).

Question 42: Do you agree with the proposed exemptions?

Question 42: Do you agree with the proposed exemptions?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	47	3	2	0	1	5	1	0	8	9	15	3	0	0	0	0
a. Yes	45%	33%	0%	0%	0%	40%	100%	0%	63%	44%	40%	67%	0%	0%	0%	0%
b. No	21%	0%	0%	0%	100%	20%	0%	0%	38%	11%	27%	0%	0%	0%	0%	0%
c. Unsure	34%	67%	100%	0%	0%	40%	0%	0%	0%	44%	33%	33%	0%	0%	0%	0%

- 3.65 Of the 47 respondents to this question, 45% agreed with the proposal. In comparison, 21% disagreed with the proposal and 34% were unsure.

Feedback from those supporting the proposal

- 3.66 Exemptions were considered reasonable and appropriately defined. A few respondents specifically supported the exemption where a dwelling already had heat pump technology installed.
- 3.67 One respondent also made the following point:
- **Permitted development:** Considering that permitted development rights may be removed under some conditions, it is recommended that some allowance is made for this in the Approved Document as it may not be possible for some homeowners to obtain the necessary planning approval for solar PV and/or heat pumps.

Reasons for opposing the proposal

- **Limit the conservation/heritage exemption:** Three respondents were concerned that the exemption for such buildings should be limited. They suggested that there are a range of measures that may be suitable for traditional buildings that should be explored first. This includes energy-efficiency upgrades and the inclusion of renewable energy technologies which may be possible without detracting from the property's character.
- **Allow a wider range of solutions:** Three respondents suggested that the technologies listed in the exemption (paragraphs 13.14d of the proposal) were too narrow. There are a wider range of low-carbon solutions that should be considered first that could be feasible.
- **Need for clearer feasibility assessment:** Three respondents suggested that the economics constraints exemption is too vague and open to abuse. For example, some guidance is required to set parameters for the economic feasibility assessment to avoid disparity between building control bodies.
- **Remove existing renewables exemption:** Two respondents disagreed that dwellings with existing heat pumps should be exempt from installing solar PV (and vice versa). This would miss opportunities for synergy and cost-effective carbon reduction.
- **Focus on fabric first:** A respondent highlighted that the proposed exemptions should require households to comprehensively focus on upgrades to the building fabric first, including airtightness and ventilation.

Points raised by those selecting “unsure”

- 3.68 They identified similar concerns to those who opposed the proposal, particularly around the need for a better economic feasibility exemption. They also noted that the exemptions may, in some cases, allow flexibility to prioritise fabric improvements.

Government response to question 42

- 3.69 There was general support for the proposed exemptions, although some respondents expressed opposition. We therefore intend to include these exemptions in the final Approved Document.
- 3.70 Concerns were raised about potential misuse of exemptions based on economic feasibility. As outlined in the consultation, evidence must be provided to the building control body to demonstrate why requirements cannot reasonably be met. Some respondents opposed blanket exemptions for dwellings in conservation areas. As set out in the consultation, these exemptions will remain subject to agreement with the local Conservation Officer and/or Local Authority Development Control, in line with Section 0 of Approved Document L, Volume 1.
- 3.71 Feedback highlighted that there may be situations where planning permission could constrain the installation of some of the proposed measures, such as solar PV or heat pumps, for example where permitted development rights have been removed by the Local Planning Authority. In response, we will amend the exemption guidance in the final Approved Document to allow for such circumstances, subject to appropriate evidence being provided to the building control body.

Question 43: Are there any other aspects of the Building Regulations or associated Approved Document guidance, for example on safety or other building standards, which should be reviewed or updated to account for this new proposal?

3.72 Respondents noted the following points

- **Part Q:** Subsequent changes to Part Q could impact window specifications affected by the proposed changes to Part L and O. Industry would value a 'future look' to understand expected changes and timeframes.
- **Part A:** Structural loadings and related requirements may be affected by the consulted proposals.
- **Part B:** Fire safety guidance may require review. Specific requests included guidance on ductwork passing through protected spaces and consideration of the fire-safety implications of technologies such as PV systems and non-combustible cladding panels. Some also asked whether research had been undertaken into PV-related fire risks.
- **Parts C and F:** The need to review moisture, airtightness and ventilation provisions. This is to ensure that increased insulation levels, improved airtightness and new services do not create unintended moisture or indoor air quality risks, particularly at junctions between older dwellings and new extensions.
- **Older buildings:** Review retrofit insulation and thermal bridging guidance for older dwellings.

- **Electric storage:** There is a need for regulatory guidance for electric storage systems. This should reference the recommendations of PAS:63100, and suggested providing battery-ready, fire-rated spaces.
- **Building passports:** There was value in improved record-keeping for extensions, including capturing design decisions, product information and commissioning data, to support future safety assessments and energy upgrades.
- **Planning policy and coordination:** Coordination with planning policy and local renewable-energy requirements would help avoid duplication or uncertainty.
- **Consistency across Approved Documents:** A need for consistent updates across all related Approved Documents to avoid confusion at the handover stage.

Government response to question 43

- 3.73 We welcome the feedback provided. Several respondents raised concerns about potential fire safety risks associated with installing solar PV and electrical storage systems under the proposed standards. We propose to review certain areas of Approved Document B (Fire Safety) in the near future, and these areas will be considered as part of the review.
- 3.74 We intend to include an additional note in the final version of Approved Document L (volume 1) for installing renewable technology when a dwelling undergoes a significant extension. This commentary will explain that where solar technology is installed on new or existing roofs, considerations for the requirements in Part A (Structure) will need to be considered.
- 3.75 Where respondents provided comments or suggestions on other parts of the Building Regulations, we acknowledge this feedback and will record it for consideration in future reviews of these areas.
- 3.76 We appreciate the comments regarding coordination with planning policy in relation to renewable energy requirements. As outlined in our response to Question 68, we refer to a Welsh Government consultation and response that considered certain permitted development rights in 2025. The government response was published at the end of last year and sets out how we intend to proceed. The Government response can be found on the following web link: [Changes to permitted development rights | GOV.WALES](#)

4. Part L Standards for New Non-Domestic Buildings in 2025

4.1 Chapter 4 of the consultation contained our proposals for changes to the application of Building Regulations to new non-domestic buildings. We proposed the following changes:

- An uplift in energy efficiency standards in Part L. In particular, we proposed that a low carbon heating system is integral to the building specification.
- Photographic evidence being mandated to demonstrate compliance, focusing on high-risk areas where construction quality, changes, or substitutions during the construction process could impact the predicted performance outcomes.

Summary of responses

Question 48: What level of uplift to the energy efficiency standards in the Building Regulations should be introduced in 2025?

Question 48: What level of uplift to the energy efficiency standards in the Building Regulations should be introduced in 2025?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	69	9	3	1	3	7	2	0	8	11	22	2	0	1	0	0
a. No change	7%	0%	0%	0%	0%	0%	0%	0%	38%	9%	5%	0%	0%	0%	0%	0%
b. Option 1 – 78% CO2 reduction	26%	0%	0%	0%	0%	29%	50%	0%	63%	27%	27%	50%	0%	0%	0%	0%
c. Option 2 – 94% CO2 reduction	51%	100%	67%	100%	100%	71%	50%	0%	0%	18%	45%	50%	0%	100%	0%	0%
d. Other	16%	0%	33%	0%	0%	0%	0%	0%	0%	45%	23%	0%	0%	0%	0%	0%

4.2 Of the 69 respondents to this question, around half (51%) selected Option 2. Less support was shown for Option 1 (26% of respondents). 7% selected 'No change' and 16% selected 'Other'.

Reasons provided by those who selected “no change”

- **Cost implications:** Concerns of the additional cost to developers from raising the standards. Developers are struggling to meet the current Part L targets.

- **Policy timeline.** The uplift to the carbon targets should align with the timeline set out in UK Government publications on the transition to low carbon technologies, accounting for the skill challenges currently being experienced.

Reasons for supporting Option 1

- **Improved Flexibility:** Option 1 offers a solution that balances good performance and economic viability.
- **Lower cost:** The economic impact of Option 1 on building projects is perceived as minimal. It is less onerous and easier to achieve than Option 2.
- **Inclusion of on-site renewable energy:** It appears crucial for compliance to install roof mounted Photovoltaics (PVs). However, the introduction of PVs needs to be balanced with other building components such as roof lights for daylight provision, green or blue roofs to help rainwater management. Less rooftop PV may be required for Option 1 compared to Option 2.

Reasons for supporting Option 2

- **More ambitious:** Option 2 was preferable given the pressing need to reduce carbon emissions and increase Wales' energy resilience, especially as Wales has formally declared an energy crisis and should accelerate the regulations as rapidly as possible.
- **Fabric first approach:** Option 2 is considered to promote improvements on the building envelope, airtightness and thermal bridging that will have a long-term impact, reducing the need for future expensive retrofits. Improving the envelope aligns with AECB CarbonLite and Passivhaus methodologies that aim to reduce heating demand and reduce the performance gap.
- **Greater PV generation:** This is an effective way of tackling fuel poverty and the climate emergency while enabling low carbon heating technologies.
- **Avoidance of retrofitting:** Applying the more advanced proposals will aim to avoid needing further retrofitting when regulations change again if only pursuing option 1 now.

Points raised by those who chose "Other"

- **Little to no improvement in fabric levels:** Both Options are deemed to put low emphasis on the fabric first approach. This could result in the need for future retrofit works.
- **Combination of Option 1 and 2:** The notional building specifications should adopt the higher fabric requirements under Option 1 and the higher

PV requirements from Option 2. This should result in the highest reduction of energy bills and carbon emissions.

- **Need a greater focus on construction quality:** Designed performance needs to be close to the in-use performance.
- **Holistic approach:** There should be a fabric-led uplift, combined with improved system performance, better embodied-carbon understanding and greater focus on measured outcomes. This will ensure new non-domestic buildings align with long-term net zero objectives and remain efficient, resilient and affordable to operate.

Other points raised

- **Reliance on PV is a challenge to compliance:** There was concern that given the high Part L target, it may be essential to install PV to comply. This may not be possible in all scenarios. Factors such as orientation, roof shape, shading and fire safety were all raised as potential site-specific issues that could prevent delivering the level of PV set out in the notional building specification.
- **PV area:** One respondent specifically stated that PV at 75% roof area does not allow sufficient remaining space for roof lighting, safe access and maintenance access for the rooflights and panels, gutters, roof safety systems and other plant that might be required.
- **Guidance and support:** Clear guidance on notional building specifications, approved heat pumps and renewable assumptions is needed for verification and commissioning.
- **Design flexibility:** It was acknowledged that the proposals still provide a degree of flexibility in design to satisfy the requirements of the Building Regulations.
- **Passivhaus standards:** It is noted that Passivhaus standards, PHPP methodology certification and CarbonLite certification were frequently mentioned by respondents.

Government response to question 48

- 4.3 More respondents preferred option 2, however, the concerns raised about Option 2 and its 75% PV Panel roof coverage for Type 3 top lit buildings (table 8) could present wide ranging implications such as reduced natural roof-lighting, limitations on access for maintenance, cleaning and inspection, and the increased weight of panels will likely have implications on structural steelwork and strength of roof panel supports.
- 4.4 We also considered side lit building Types 1 & 2 and the potential constraints the 50% PV Panel roof coverage under Option 2 might have on that category of building.
- 4.5 In conclusion, it is considered practicable to pursue Option 2 as per the feedback, however with a reduction in the PV Panel area (on Table 7 of the

NCM methodology) for building types 1 & 2 from 50% to 40%, and reduce the PV Panel area on Table 8 for building type 3 from 75% to 60%. All other parameters under option 2 will remain as per the consultation papers.

- 4.6 It is noted that Passivhaus standards, PHPP methodology certification and CarbonLite certification were frequently mentioned by respondents, however this is not currently a matter under consultation and cannot be considered at this juncture but will be noted for consideration in any future consultation review.

Question 49: Do you agree with the methodology outlined in the NCM modelling guide for the Part L 2025 Standard?

Question 49: Do you agree with the methodology outlined in the NCM modelling guide for the Part L 2025 Standard?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	61	8	2	1	3	7	2	0	8	9	18	2	0	1	0	0
a. Yes	36%	0%	0%	0%	0%	14%	50%	0%	75%	56%	39%	100%	0%	0%	0%	0%
b. No	44%	100%	50%	100%	100%	57%	50%	0%	0%	33%	28%	0%	0%	100%	0%	0%
c. Unsure	20%	0%	50%	0%	0%	29%	0%	0%	25%	11%	33%	0%	0%	0%	0%	0%

- 4.7 Of the 61 respondents, slightly more disagreed (44%) with the methodology than agreed (36%). 20% of the respondents were unsure.

Reasons for supporting the proposal

- 4.8 Little details was provided in the responses.

Reasons for opposing the proposal

- **General concerns of accuracy:** Some commented that SBEM is less accurate than SAP. Others had concerns with both SBEM and SAP. More broadly, it was noted that SBEM and SAP have both been shown to have significant gaps between modelled and actual performance.
- **More specific concerns:** It was suggested that SBEM fails to reflect the performance of highly insulated, airtight, low-energy or Passivhaus-standard buildings. It was also suggested that SBEM underestimates space heating demand and overestimates the effect of renewables or high-efficiency building services.

Recommendations for how the methodology should be improved

- **Validation:** The methodology should be validated against real-world data.
- **Real-world performance:** The methodology should evolve to reliably reflect real-world fabric performance and heating system efficiencies, including distribution and storage losses.
- **Balance between fabric and renewables:** The methodology should not allow poor fabric to be offset by renewables or high-performance plant.
- **Include all operational energy use:** The methodology should include both regulated and unregulated energy uses to give a full picture of energy consumption.

Passivhaus Planning Package (PhPP): The Passivhaus Planning Package should be recognised as an approved methodology. (note: see same relevant comment on PHPP under Question 48) Other comments provided by respondents included the following.

- **Building Automation and Control Systems (BACS):** The methodology does not sufficiently consider Building Automation and Control Systems.
- **Embodied carbon:** The methodology should support routine reporting of embodied carbon.
- **Lighting:** When applying NCM to lighting, efficacy assumptions and modelling parameters should be aligned with the Approved Documents.
- **Alignment with England:** The methodology should remain the same in England and Wales.

Government response to question 49

- 4.9 There was a mixed response, with many responses concerned with SBEM as the national calculation methodology rather than the modelling guide. To incorporate many of the consultation comments about SBEM would require significant alignment work alongside the UK Government to revise both SBEM and the NCM, and require a separate consultation process, therefore it cannot be accommodated under this consultation, but the responses will be recorded for future consideration.
- 4.10 We shall pursue the proposed methodology outlined in the NCM modelling guide for the Part L 2025 standard, with some revisions to the notional building to reflect the response in question 48.

Question 50: Please provide any further comments on the cSBEM tool which demonstrates an implementation of the NCM methodology.

- 4.11 Respondents commented on improvements or changes in the methodology that have enhanced accuracy and usability:

- Improved calculation of heat pump system seasonal efficiencies.
- Developments such as bivalent lighting.

4.12 Several respondents reiterated the concerns they outlined in Question 49, including around accuracy of SBEM and lighting efficacy assumptions. There were also recommendations to adopt the Passivhaus Planning Package (PhPP).

Question 51: 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.

4.13 Response to this question was limited. Comments included:

- The research documents are comprehensive, but ongoing updates will be needed for real-world performance.
- Re-iteration of concerns from Q49 and Q50 that SBEM is inaccurate, and that the Passivhaus Planning Package (PhPP) should be adopted.
- The comments received relative to cSBEM suggested need for real world data and performance information to be developed including regulated and unregulated energy-use in order to recognise a typical building energy use.

Government response to questions 50 and 51

4.14 A significant number of the respondents who were encouraging the use of Passivhaus PHPP as a preferred calculation method were Architects and/or Passivhaus designers.

4.15 Other concerns were that elements such as increased lighting efficacy standards would be difficult to physically achieve, and pressing for unattainable levels of performance could have detrimental impact on UK manufacturers.

4.16 A number of respondents voting 'unsure' did so because they were exclusively domestic focused, and on that basis, there could be no impact on either the yes or no preference.

4.17 Careful consideration has been given to the responses submitted in relation to concerns with standards for lighting efficacy, and following further review we have decided to clarify the lighting proposals guidance to reflect this. Therefore, we shall adjust the proposed light source efficacy requirements accordingly as part of the final Approved Documents L to be published.

4.18 The SBEM comments are appreciated and have been noted for consideration alongside any future review of SBEM.

4.19 Based upon these consultation responses we shall consider the responses in finalising the proposed methodology outlined in the NCM modelling guide for the Part L 2025 standard as presented in the consultation.

Question 52: 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?

Question 52: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	47	2	2	0	1	4	1	0	8	10	17	2	0	0	0	0
a. Yes	53%	0%	0%	0%	0%	50%	100%	0%	100%	50%	41%	100%	0%	0%	0%	0%
b. No	17%	0%	0%	0%	100%	25%	0%	0%	0%	30%	18%	0%	0%	0%	0%	0%
c. Unsure	30%	100%	100%	0%	0%	25%	0%	0%	0%	20%	41%	0%	0%	0%	0%	0%

4.20 47 respondents answered this question. Of these, a small majority (53%) agreed with the proposed changes, whereas 17% disagreed. A further 30% were unsure.

Reasons for supporting the proposal

- **Improved energy performance:** The proposed changes to minimum efficiencies will improve building performance, support energy reduction objectives.
- **Improvements in technology:** The proposed changes are technically achievable and capture improvements in efficiency and controls of technologies such as heat pumps and lighting.
- **Consistency with England:** The proposed changes align requirements for non-domestic buildings with standards expected to be adopted in England. Consistency will make implementation easier, including for professionals who work across both Wales and England.
- **Alignment with Ecodesign Regulations:** There was support that the requirements continue to be aligned with Ecodesign Regulations. Respondents did request clear guidance on acceptable product standards for systems not covered by Ecodesign.
- **Heat pump controls:** There was support for the proposed requirement for heat pumps to retain original equipment manufacturer controls as the primary controls. Respondents commented that often these are over-

ridden where larger non-domestic systems rely on third-party on/off BMS control systems, meaning heat pumps run less efficiently than they could. Therefore, the proposed requirement that any additional controls should not reduce the functionality of the original equipment manufacturer controls, including modulation, was welcomed.

Reasons for opposing the proposal

- **Heat pump efficiency:** One respondent commented that the proposed heat pump SCOP figures are too low. Another proposed that heat pump systems need to be regulated in terms of a delivered seasonal performance factor, not just the rating of the heat pump itself in isolation from the heat emitter system.
- **Subsection for radiant heating:** One respondent requested a standalone subsection for infrared radiant heating that recognises its different way of heating and the energy savings compared to other electric heating methods.
- **Inclusion of Wastewater Heat Recovery (WWHR):** One respondent commented that commercial WWHR should be included for buildings with a duty to provide washrooms.
- **Specialist lighting concerns:** Several respondents from the lighting industry expressed concern over the impact of the proposed changes on specialist lighting. The proposed efficacy value could unintentionally restrict the use of high-quality specialist lighting, for example in hospitals, care homes, galleries, museums and theatres. Allowance in the methodology for averaging efficacy does not always protect specialist lighting. The use of luminaire efficacy not light-source efficacy makes the proposed thresholds harder to meet. Respondents recommend maintaining the existing efficacy value of 85 lumens per circuit watt for display lighting. It was suggested that the minimum standards could include an exemption for specialist lighting.

Other comments

- **Building Management Systems (BMS):** Several respondents emphasised the importance of good control of building systems to ensure that energy savings and thermal comfort are maximised.
- **Minimum fabric standards:** One respondent outlined their opposition to the decision to maintain minimum fabric standards for new non-domestic buildings. There was not an alternative question for them to provide the feedback. They commented that focusing solely on theoretical U-values is too narrow and can lead to unintended consequences, such as poor real-world performance and neglect of other critical factors like air quality, fire safety, acoustic performance, and sustainability. They advocated instead for a holistic approach that integrates health, safety, and well-being into building standards. Durability and lifetime of insulation should also be

considered. They recommend consulting on whole-building fabric targets using a kWh/m²/year metric, which would better link fabric performance to heating demand, improve transparency, and ease enforcement.

Government response to question 52

4.21 Taking all consultation responses into account, we shall proceed to adopt 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, but shall revise the guidance in the lighting proposals to account for the feedback. Therefore, we shall adjust the proposed light source efficacy requirements accordingly as part of the final Approved Document L to be published.

Question 53: Do you agree with the proposed change in the requirements for when BACS are required in buildings?

Question 53: Do you agree with the proposed change in the requirements for when BACS are required in buildings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	38	2	2	0	1	4	1	0	8	6	11	2	1	0	0	0
a. Yes	53%	0%	0%	0%	100%	25%	100%	0%	75%	67%	45%	100%	0%	0%	0%	0%
b. No	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	47%	100%	100%	0%	0%	75%	0%	0%	25%	33%	55%	0%	100%	0%	0%	0%

4.22 Of the 38 responses to this question, just over half of respondents (53%) agreed with the proposed changes. None disagreed with the proposed changes and the rest were unsure.

Feedback from those supporting the proposal

4.23 Reasons for supporting the proposal

- **Greater energy savings:** Lowering the threshold will bring more buildings into the scope of the requirements, which will lead to greater energy savings.
- **Net economic benefit:** The impact assessment indicates that the change would have a net benefit.
- **Better building performance:** Increasing requirements for BACS will help improve real-world performance by responding dynamically to occupancy and external conditions.

4.24 Respondents also provided the following suggestions.

- **Improve clarity and deliverability:** Clarify the minimum expected BACS capabilities required. Require commissioning and handover documentation to ensure that building owners receive operational guidance. Provide an implementation lead time to allow procurement and skills ramp-up.
- **Increase ambition and align with EU:** One respondent suggested that the requirement should apply to all buildings with a HVAC output of greater than 70 kW. This would align with the more extensive BACS requirements introduced by the European Union through the Energy Performance of Buildings Directive (EPBD).

4.25 No substantive comments were received from respondents who were unsure.

Government response to question 53

4.26 Of those responding 'unsure', 3 respondents provided feedback that included: Could not see source of benefit in the impact assessment, not their expertise, and need further clarification on mixed use buildings. These comments could not be considered as negative and therefore do not alter the percentages for or against the proposals. The other unsure responses had no comments.

4.27 On the basis of there being 53% in support compared with no respondent who disagreed, we shall proceed on the basis of the proposed change in the requirements for when BACS are required in buildings as presented in the consultation. We also note the HVAC output of greater than 70 kW requirements introduced by the European Union, which take effect in 2029, and will be considered as part of any future Part L review.

Question 54: 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?

Question 54: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	38	2	2	0	1	4	1	0	8	7	10	2	1	0	0	0
a. Yes	66%	0%	0%	0%	100%	100%	100%	0%	75%	71%	50%	100%	100%	0%	0%	0%
b. No	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	34%	100%	100%	0%	0%	0%	0%	0%	25%	29%	50%	0%	0%	0%	0%	0%

- 4.28 38 respondents answered this question. The majority of respondents (66%) agreed with the proposed guidance. The remainder were unsure (34%).

Reasons for supporting the proposal

- **Reduced heat loss:** The proposed guidance for hot water storage vessels and heat distribution pipes will reduce heat losses and increase efficiency, leading to carbon reduction.
 - **Reduced overheating:** Reducing heat loss in distribution pipework will have the benefit of reducing overheating in communal areas of dwellings.
 - **Support for use of CP1:** CIBSE CP1 is a recognised and comprehensive guide. Also, CP1 is the basis for the upcoming Heat Networks Technical Assurance Scheme (HNTAS). This alignment with HNTAS and CP1 is welcomed. It was noted that BS 5422 can be used where CP1 does not apply.
- 4.29 There were no substantive additional comments from respondents who were unsure of the proposed guidance.

Government response to question 54

- 4.30 The majority of unsure responses presented no comment, and therefore the 34% of 'unsure' responses cannot be considered to influence either the yes or the no response.
- 4.31 On the strength of the majority 66% responses in favour of the proposals we shall progress on the basis of adopting the proposed consultation guidance on the insulation standard for building heat distribution systems in Approved Document L, Volume 2: Buildings other than dwellings.

Question 55: 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?

Question 55: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	37	2	2	0	1	3	1	0	8	7	11	2	0	0	0	0
a. Yes	54%	0%	0%	0%	100%	67%	100%	0%	88%	43%	45%	50%	0%	0%	0%	0%
b. No	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%
c. Unsure	43%	100%	100%	0%	0%	33%	0%	0%	13%	57%	45%	50%	0%	0%	0%	0%

4.32 There were 37 responses to this question. Just over half of the respondents (54%) agreed with the proposal. One respondent (3%) did not agree with the proposal and 43% were unsure.

Feedback from those supporting the proposal

4.33 Reasons for supporting the proposal

- **Simplicity:** Retaining the guidance avoids unnecessary complexity.
- **Suitability:** The current guidance is appropriate because the type, nature and number of these buildings would make it unreasonable to apply additional standards.

4.34 In addition, two respondents commented that guidance is appropriate as long as there are no changes to the building’s energy demand during the building’s lifespan. Two respondents suggested there may be scope to reduce the prescribed time under paragraph 0.10 b. from 2 years.

Reasons for not supporting the proposal

- **Remove exemption:** A respondent commented that industrial sites, workshops and non-residential agricultural buildings should still be required to install a low carbon heating system with a minimum level of efficiency. They cited installing electric infrared heaters as a suitable option.

Government response to question 55

- 4.35 There was 54% of respondents in favour compared with 3% against the proposal. Although 43% of respondents were 'unsure', only one response offered an opinion and that was to consider some form of safeguard against future adaptations or changes in climate policies.
- 4.36 On the basis of the significant 54% support in favour of the proposals compared with 3% against, we shall proceed on the basis of no changes to 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) and confirm that they should be retained without amendment.

Question 56: Do you agree that lifts, escalators and moving walkways in new buildings (but not when installed within a dwelling) should be included in the definition of fixed building services?

Question 56: Do you agree that lifts, escalators and moving walkways in new buildings (but not when installed within a dwelling) should be included in the definition of fixed building services?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	37	3	2	0	1	4	1	0	8	6	9	2	1	0	0	0
a. Yes	54%	33%	0%	0%	0%	100%	100%	0%	75%	17%	44%	100%	100%	0%	0%	0%
b. No	3%	0%	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	43%	67%	100%	0%	100%	0%	0%	0%	13%	83%	56%	0%	0%	0%	0%	0%

- 4.37 There were 37 responses to this question. Just over half of the respondents (54%) agreed with the proposal. One respondent (3%) did not agree and 43% were unsure.

Feedback from those supporting the proposal

- 4.38 Reasons for supporting the proposal
- **Significant share of energy demand:** Lifts, escalators and moving walkways should be included in the definition because they can account for a significant share of building energy demand.
 - **Better efficiency:** Inclusion in the definition will drive procurement of more efficient equipment and better maintenance information for owners.
 - **Consistency:** Including lifts, escalators and moving in the definition ensures consistency in energy efficiency with other building services.

- 4.39 In addition, several respondents asked whether lifts, escalators and moving walkways should be included in the National Calculation Methodology.
- 4.40 One respondent whilst supporting the intent behind the proposed change, provided the following concerns:
- **Potential loopholes:** The proposed definition only applies to new buildings, which may exclude retrofits and replacements from Part L requirements. This could lead to loopholes:
 - Developers might install these services after construction to avoid compliance.
 - Malfunctioning equipment could be replaced with less efficient versions without regulatory control.
 - **Unintended consequences:** Changing the classification of lifts, escalators and moving walkways could interact with or change the way other regulations apply to them, leading to unintended consequences.
- 4.41 One respondent whilst agreeing with the proposals, did not feel it would significantly reduce carbon emissions.

Respondents who were unsure or did not answer did not provide any substantive comments.

- Of those responding 'unsure' only 3 provided feedback that included: *No opinion as they are housebuilders only, not their expertise, and not applicable.* These comments could not be considered as positive or negative and therefore have no influence on the other votes in favour or against. The other unsure responses had no comments, therefore those in favour at 54% was the significant opinion.

Government response to question 56:

- 4.42 In considering the concerns about the potential loopholes we shall add some guidance that can relate to new-build 'shell & core' type developments where installations of lifts, escalators and moving walkways are installed as part of follow-on fit-outs of buildings or parts of buildings.
- 4.43 On the strength of support for lifts, escalators and moving walkways in new buildings (but not when installed within a dwelling) being included in the definition of fixed building services, we shall progress with adopting the consultation proposals.

Question 57: 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?

Question 57: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	35	2	2	0	1	3	1	0	8	6	9	2	1	0	0	0
a. Yes	46%	0%	0%	0%	0%	33%	100%	0%	75%	17%	44%	100%	100%	0%	0%	0%
b. No	3%	0%	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	51%	100%	100%	0%	100%	67%	0%	0%	13%	83%	56%	0%	0%	0%	0%	0%

4.44 There were 35 responses to this question. Just under half of respondents (46%) agreed with the proposal. One respondent (3%) did not agree with the proposal and 51% were unsure.

Feedback provided by those supporting the proposal

4.45 Reasons for supporting the proposal.

- **Energy efficiency:** Lifts, escalators and moving walkways can represent a significant portion of building energy demand. Inclusion in building modelling and regulation is important to maximise energy savings.
- **Modelling coverage:** The proposed guidance fills the existing modelling gap.
- **Relevant standards:** The BS EN ISO 25745 standard is a recognised standard for energy performance of these services so is an appropriate basis for the proposed guidance.

4.46 The following suggestions were also provided by a few of these respondents.

- **Monitoring:** Guidance should include realistic measurement and verification steps for operational energy consumption and expectations for lifecycle maintenance.
- **Demonstrating compliance:** Guidance should include examples of the types of documents and evidence that can be used to demonstrate compliance.

4.47 Respondents who disagreed or stated that they were “unsure” did not provide any technical comments.

Government response to question 57

4.48 Because the majority of responses were unsure, we have assessed their responses to investigate the reasons why they selected the unsure category, and the responses included the following:

- They do not feel it would add any significant value to the reduction in carbon emissions (1 respondent)
- Not within their expertise (1 respondent)
- No comment offered (25 respondents)
- The respondent only provides housing in Wales and therefore cannot respond to this question because it does not relate to their activity (2 respondents)

4.49 In conclusion, there was only one response from the 'unsure' category (*'would not add any significant value to the reduction in carbon emissions'*) which would be categorised as not being in support and therefore adding to the 'no' category. However, as the 'no' category remains such a small number compared with those in favour (3% no, compared with 46% yes), and considering most of those responding 'unsure' having no opinion at all, we conclude the vote in favour is the majority meaningful opinion on which to consider this question.

4.50 On that basis, we shall progress with the substantive majority opinion being those in agreement with the proposed guidance for passenger lifts, escalators and moving walkways in draft Approved Document L, Volume 2: Buildings other than dwellings.

Question 58: 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?

Question 58: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	42	2	2	1	1	5	0	0	8	9	12	2	0	0	0	0
a. Yes (please provide comments)	29%	0%	0%	100%	0%	40%	0%	0%	50%	22%	25%	0%	0%	0%	0%	0%
b. No	48%	0%	50%	0%	100%	20%	0%	0%	38%	67%	50%	100%	0%	0%	0%	0%
c. Unsure	24%	100%	50%	0%	0%	40%	0%	0%	13%	11%	25%	0%	0%	0%	0%	0%

- 4.51 There were 42 responses to this question. Of these, 29% answered that they had further comments on other changes to the proposed guidance.

General comments provided by respondents

- 4.52 There were general comments which generally repeated earlier comments. For completeness, these are summarised here.
- **Broad support:** Supported the overall aim of improving energy efficiency and reducing carbon emissions in non-domestic buildings.
 - **Support for fabric first principles:** Advocated for fabric-first principles, including high levels of insulation, airtightness, minimised thermal bridging, and efficient glazing.
 - **Verification:** Emphasised the need for robust verification that buildings are constructed to the intended standards. This will improve performance and close the performance gap.
 - **Overheating risk:** The guidance should ensure that summer comfort strategies such as shading, natural or controlled ventilation, and passive cooling are integrated from the outset.
 - **Quality and coverage:** Guidance should ensure robust verification and quality assurance for modelling, design, and as-built performance. Distribution, storage, and system losses for heating, cooling, and ventilation systems, particularly for low-carbon and renewable technologies, should be included.
 - **PhPP:** The PhPP methodology was supported for compliance.
 - **Additional considerations:** Requests were made for the guidance to cover specific areas including hybrid HVAC systems, low-carbon heat network connections, and daylight and ventilation from roof windows and rooflights.

More specific comments and requests

- 4.53 There were some more specific comments. Again, several of these repeated earlier comments.
- **Expand rooflight guidance:** One respondent highlighted the need to expand the description of rooflights and roof windows in the guidance to include types used in non-domestic buildings. They also proposed updating terminology for rooflight thermal performance to align with EN1873 and industry standards.
 - **Provide assessment guidance:** One respondent highlighted the need to strengthen the commissioning and evidence requirements for fixed building services. They requested clarification of when alternative compliance routes would be acceptable and how to evidence them. They also requested worked examples of notional building specifications for typical non-domestic building types to reduce the variation in

interpretation.

- **Expand BACS guidance:** One respondent supported the proposed specification for BACS but proposed that it should align with the EU's Energy Performance of Buildings Directive (EPBD), requiring that by 29 May 2026, all BACS should include the functionality to monitor indoor environmental quality (IEQ).
- **Mandate photographic evidence:** One respondent supported mandating photographic evidence focused on high-risk construction details to reduce performance gaps. It was suggested that the requirements should mirror the AD L Vol 1 approach for dwellings, tied to Section 10 documentation. As built drawings must always be evidenced and never assumed.
- **Standards insufficient:** One respondent was concerned that proposed standards for wall U-value and air tightness are not sufficient. They supported higher standards, for example aligned with AECB CarbonLite.

Government response to question 58

4.54 In reviewing the points raised in the further comments we have concluded as follows:

- *Emphasised the need for robust verification that buildings are constructed to the intended standards to improve performance and close the performance gap* – Our proposals to include requirements for photographic evidence in Approved Document L volume 2 will aim to ensure verification of materials and construction.
- *Overheating* – The consultation pertaining to AD-O is proposed to come forward separately during 2026 and will be reviewed at that time against the comments received in this consultation and addressed accordingly.
- *Passivhaus standards* – It is noted that Passivhaus standards, PHPP methodology certification and CarbonLite certification frequently mentioned by respondents, however, it is not a proposal for this consultation and therefore cannot be considered at this juncture, but the responses will be noted for possible consideration if a future consultation might look to specifically address those matters.
- *Expand rooflight guidance, provide commissioning and assessment guidance, expand BACS guidance:* We shall review the proposals in the light of comments received, and where practicable shall aim to update these proposals. Note: where the extent of work or change associated with some of the comments goes beyond the remit of this consultation (e.g. BACS), we shall file the comments and note them for possible consideration if a future consultation might look to specifically address those matters.
- *Mandate photographic evidence* – Our proposals for photographic evidencing flows from the existing framework already adopted within AD-L volume 1 and is adjusted to suit non-domestic buildings.

Question 59: Do you agree with the introduction of photographic evidence as a requirement for producing the as-built energy assessment for new non-domestic buildings?

Question 59: Do you agree with the introduction of photographic evidence as a requirement for producing the as-built energy assessment for new non-domestic buildings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	61	8	2	1	3	7	2	0	8	9	17	2	1	1	0	0
a. Yes	92%	88%	50%	100%	100%	100%	100%	0%	100%	89%	88%	100%	100%	100%	0%	0%
b. No	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	8%	13%	50%	0%	0%	0%	0%	0%	0%	11%	12%	0%	0%	0%	0%	0%

4.55 There were 61 respondents to this question. A high majority (92%) agreed with the proposal, with no disagreement and 8% being unsure.

Feedback from those supporting the proposal

4.56 Reasons for supporting the proposal.

- **Verification of key elements:** Photographic evidence was seen as a robust method to demonstrate correct installation of key fabric and services elements such as insulation, airtightness, thermal bridging details and plant installations.

4.57 In addition, the following recommendations were made by these respondents.

- **Resources needed for quality assurance:** Sufficient resources must be available to review this evidence to ensure it supports a robust quality assurance process.
- **Clearly defined roles and responsibilities:** There is a need for clear guidance on who is responsible for taking and submitting photographs, when evidence is required, and how to address sequencing constraints on site.
- **Use of building passports:** Several respondents noted that building passports (or logbooks) would be a sensible location to store and reference photographic records.
- **Application to high-risk elements:** For high-risk elements, respondents recommended mandating time-stamped and geo-tagged photographs, supported by a defined list of mandatory images and acceptance criteria.
- **Setting expectations:** Clear expectations should be set for situations in which a construction stage has been missed or the photographic evidence

provided is inconclusive.

- **Clarity of approach where missing photos:** It should remain possible to certify a building if photos are unavailable. Alternative evidence (inspection, measurements or sworn statements) should be permitted so that certification does not rely solely on the availability of photographs.
- **Need for performance monitoring:** Respondents emphasised that photographic evidence alone cannot close the performance gap. Monitoring of in-use building performance should be used alongside photographic evidence and, in some cases, mandated.

4.58 Respondents that selected that they were unsure did not add substantive comments.

Government response to question 59

4.59 Many respondents noted that the introduction of photographic evidence is already working well for the residential sector, and that extending this approach to the non-domestic sector is a logical progression to support improved compliance and building performance.

4.60 Concerns raised in the consultation, such as geotagging, missing photographs, methods of storage, and evidencing procedures, were addressed in Section C.6 of the consultation draft Approved Document L, Volume 2. These provisions will be subject to a final review prior to publication.

4.61 With 92% of respondents in agreement, no responses opposing the proposal, and the remaining respondents being unsure, we will proceed to include this requirement in the final Approved Document guidance.

5. Part L Standards for Existing Non-Domestic Buildings in 2025

5.1 Chapter 5 of the consultation contained our proposals for changes to the application of Building Regulations to existing non-domestic buildings. The main changes proposed were an uplift in building services energy efficiency standards.

Question 60: 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?

Question 60: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	43	2	2	0	1	4	1	0	8	8	15	2	0	0	0	0
a. Yes	63%	0%	0%	0%	100%	50%	100%	0%	100%	63%	53%	100%	0%	0%	0%	0%
b. No	9%	0%	0%	0%	0%	25%	0%	0%	0%	13%	13%	0%	0%	0%	0%	0%
c. Unsure	28%	100%	100%	0%	0%	25%	0%	0%	0%	25%	33%	0%	0%	0%	0%	0%

5.2 Of the 43 respondents to this question, the majority (63%) agreed with the proposal. 9% disagreed with the proposal and 28% were unsure.

Suggestions by those supported the proposed changes

- **Advanced BACS:** One respondent suggested including a requirement for the specification of advanced BACS systems to be installed in all existing buildings with a HVAC output of greater than 70kW. This should align with the specification set out in Section 6, a BS EN ISO 52120 Class A rated system, unless proven unfeasible for the specific building in which case a Class B rated system should be required. An advanced BACS system is critical to optimise the performance of building services and associated controls.
- **Staged approach to improvements:** One respondent suggested that for the existing stock, the guidance should recognise practical constraints (for example retrofit standards such as PAS2038, or access and plant replacement cycles). A staged approach is preferred with clear cost-effective thresholds and alternative measures where impractical. This should be accompanied by mandatory commissioning and verification

when upgrades are installed.

- **Additional controls:** One respondent noted that in addition to the proposed general guidance for controls and zoning in Section 5, any outdoor fans, including cooling towers and dry coolers, should be controlled.

5.3 Additionally, several respondents referred to the suggestions made in their response to question 52.

Reasons for disagreeing with the proposed changes

- **Lighting efficacy limitations:** Two respondents suggested maintaining the existing efficacy of 85 lm/W for display lighting to enable high quality specialist lighting products to remain viable. Alternatively, suggest clarifying the existing note on specialist lighting to prevent misinterpretation by specifiers and enforcing authorities. This would prevent unintentionally restricting the use of high-quality, specialist lighting. Whilst the energy impact of these products are considered negligible in national terms, the economic and cultural benefits are significant as they are created by UK based manufacturers and SMEs.
- **Heat pump efficiency:** One respondent suggested that the proposed changes do not address the overall efficiency of heat pump systems in terms of amount of energy needed to deliver required heat. Suggest the regulations need to cover seasonal performance factor or SCOP instead of unit performance to set a demand profile, as per EU standards.
- **Electric radiant heating:** One respondent stated that electric radiant heating should be separated from other electric heating systems and included as a subsection of Section 6. It should be based on the draft test protocols developed by industry for assessing infrared heaters, in consultation with the Building Research Establishment (BRE), the Department for Energy Security and Net Zero (DESNZ), and leading academics.

Point raised by those that stated they were “unsure”

- **Unchanged fabric limits:** One respondent commented that the limited change in fabric levels could result in higher-than-expected energy bills compared to adopting a ‘fabric first’ approach.

Government response to question 60

5.4 We have reviewed the responses and propose to make the following changes.

5.5 On the question of lighting efficacy, we have reviewed the suggestions made in relation to specialist lighting products, and will revise the guidance as required to reflect these comments in the final Approved Document L2.

5.6 Based on the strength of support in favour of the proposals and considering that most of the 'unsure' voting offered no comment or opinion, we shall proceed 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 but to include the amendments to accommodate revised lighting proposals.

Question 61: 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?

Question 61: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	36	3	2	0	1	3	1	0	8	7	9	2	0	0	0	0
a. Yes	53%	33%	0%	0%	100%	33%	100%	0%	88%	57%	33%	50%	0%	0%	0%	0%
b. No	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%
c. Unsure	44%	67%	100%	0%	0%	67%	0%	0%	13%	43%	56%	50%	0%	0%	0%	0%

5.7 Of the 36 respondents to this question, a small majority (53%) agreed with the proposal. In comparison, 3% disagreed with the proposals and 44% were unsure.

Points raised by those supporting the proposal

- **Status quo support:** Retained guidance prevents unnecessary compliance burden, and that there is little to be gained in buildings of this nature.
- **Enhanced compliance:** Exempt buildings should still be required to undergo a formal energy assessment with a lodged EPC at completion. This provides transparency for building owners and occupiers of energy performance and enables planning for retrofit in the future.
- **Temporary buildings:** There may be scope to reduce the maximum planned lifetime that buildings can be deemed to be temporary (and therefore exempt from Part L) from 2 years to a shorter period.

Reasons for disagreeing with the proposal

- **Low energy demand buildings:** Suggestion that the current guidance for low energy demand buildings should be amended, specifically for industrial sites, workshops and non-residential agricultural buildings. They should be required to install low carbon heating systems with minimum efficiency requirements.
- 5.8 Respondents that stated that they were unsure of the changes proposed did not provide any further suggestions.

Government response to question 61

- 5.9 This question is identical to Q55 but for existing buildings, and therefore most of the responses are the same also with the percentages for responses almost identical (Q55 - 54% / 3% / 43% and Q61 - 53% / 3% / 44%).
- 5.10 Observations regarding EPC's are not relevant under this consideration, as the legislation which stipulates when an EPC is required for existing buildings is not a devolved matter.
- 5.11 There are no current plans for changing the timescales relevant to the definition of a temporary building, any such changes would need to be subject to a separate consultation.
- 5.12 The definition of low energy buildings and their exemptions is based on their using little or nearly no energy in their normal operation, and so the very small gains in energy efficiency for these types of buildings was not considered a matter for detailed review or change at this juncture.
- 5.13 On the strength of the favoured responses received, no changes to 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) is proposed.

Question 62: Do you have any comments on the changes to the proposed guidance in draft Approved Document L, Volume 2: Buildings other than dwellings?

Question 62: Do you have any comments on the changes to the proposed guidance in draft Approved Document L, Volume 2: Buildings other than dwellings?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	41	2	2	0	1	3	0	0	8	9	14	2	0	0	0	0
a. Yes (please provide comments)	34%	0%	0%	0%	0%	0%	0%	0%	63%	22%	43%	50%	0%	0%	0%	0%
b. No	41%	0%	0%	0%	100%	67%	0%	0%	38%	56%	36%	50%	0%	0%	0%	0%
c. Unsure	24%	100%	100%	0%	0%	33%	0%	0%	0%	22%	21%	0%	0%	0%	0%	0%

5.14 Of the 41 respondents to this question, 34% suggested that they had other comments to include.

Respondents made the following comments

- **Transitional arrangements:** One respondent suggested that transitional timings need to provide sufficient lead in time for industry skills, supply chains and testing/commissioning capacities. This will be especially applicable for BACs, heat pumps and specialist services.
- **Lighting efficacy limitations:** Three similar comments from the lighting industry suggested maintaining the existing efficacy limits to enable high quality specialist lighting products to remain viable. Alternatively, they suggest clarifying the existing note on specialist lighting to prevent misinterpretation by specifiers and enforcing authorities. This would prevent unintentionally restricting the use of high-quality, specialist lighting.
- **Section heading change:** Two respondents suggested that on page 81 and 82 of the proposed documents the title refers to section 6. It should be section 7.
- **Requests for additional information or guidance:** There were two requests for additional information. This included adding guidance on integrating renewable energy systems into older non-domestic buildings. Also, additional guidance on heating and cooling system pumps, hotel lighting and BACS systems to provide more robust solutions.
- **Concern of Section 3 removal:** One respondent did not agree with the removal of section 3 and regulations 25A and 25B. They were concerned that there is an over-reliance on low carbon heating and solar PV to

achieve compliance, and this is not always the best way to cut carbon emissions. Regulations 25A and 25B were seen to allow for a greater degree of flexibility in design to investigate alternative technologies or measures on a project-by-project basis to achieve the best results.

- **Triple glazing considerations:** One respondent stated that lower U-values will promote use of higher specification triple glazing. There needs to be a consideration for the impact this will have on additional weight and therefore manual handling issues and associated costs.
- **Rooflight glazing specifications:** One respondent commented that the light transmission and g-value requirements for rooflights in top-lit buildings are unachievable as specialised glazing is not generally suitable.
- **Ventilation design:** One respondent stated that the Approved Document does not adequately account for stratification and ventilation in large volume buildings, such as warehouses and factories, resulting in designs that are reliant on supplementary artificial lighting.
- **Advanced BACS:** One respondent suggested to make the requirement of advanced BACS systems mandatory in Section 6 of the Approved Document, as a cost-effective decarbonisation solution for non-domestic buildings. Currently the Approved Document only recommends Class A BACS in existing non-domestic buildings. The respondent proposes a change to a requirement for Class A BACS (or Class B in buildings where Class A is not feasible) to be installed in all new and existing buildings with a HVAC output of greater than 70kW. This would align with the BACS requirements in the EU, where the EPBD requires all new and existing buildings with HVAC output greater than 70kW to install BACS by the end of 2029.
- **Alignment with Part F:** One respondent proposed to better align Part L and Part F through integrating ventilation and heating strategies more efficiently.
- **Alignment with broader Welsh policy:** One respondent suggested that Part L is aligned with broader policies in Wales, for example the Heat Strategy, and provides funding and support for training and upskilling where required.
- **Post occupancy evaluation:** One respondent commented that post occupancy evaluations should be considered with feedback to provide evidence for future revisions of the Approved Documents.

Government response to question 62

- 5.15 Post completion and occupation stages of a building are currently not a matter for Building Regulations which ends at the issue of a completion certificate; however, these may be covered by other legislation and statutory requirements where applicable.

- 5.16 The remaining points raised in this section which we consider appropriate have also been raised in various other sections and addressed therein. We have nothing further to add in this section.
- 5.17 Please note that some comments would necessitate a separate consultation process and therefore cannot be addressed under this consultation, but the observations will be recorded should future consultations arise on the same subjects.

6. Legislative changes to the energy efficiency requirements

6.1 Chapter 6 of the consultation provided the background of enacting the Part L 2025 Standard and how it will primarily involve changes to the Approved Documents and the notional building specification. We also set out how we intend to make some changes to the Building Regulations to ensure they reflect our dual aims under the Part L 2025 Standard of reducing carbon emissions and conserving energy. We also proposed to repeal regulations that will become redundant with these changes.

Amendments to Part L1 of Schedule 1 to reference greenhouse gas emissions reduction

Question 63: 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?

Question 63: 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?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	47	3	2	0	1	5	1	0	8	6	16	3	1	0	0	1
a. Yes	70%	33%	0%	0%	0%	80%	100%	0%	88%	67%	75%	67%	100%	0%	0%	100%
b. No	6%	0%	0%	0%	100%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%
c. Unsure	23%	67%	100%	0%	0%	20%	0%	0%	13%	33%	13%	33%	0%	0%	0%	0%

6.2 In total, 47 respondents provided feedback to this question. Of these, 70% agreed the Schedule 1 should be amended as above. 6% disagreed with the proposal and 23% of respondents were unsure.

- **Greater clarity:** Those in support of the proposals agreed that amendments to Part L1 of Schedule 1 will aim to provide greater clarity regarding the requirements of the Regulations
- **Recognition of importance of carbon emissions reduction:** Supporters of the proposals felt that the amendments will help reinforce Wales's commitment to carbon reduction targets and obligations. They also appreciated that whilst AD-L is primarily concerned with conservation of Fuel and Power, the referencing of carbon emissions and reduction of

greenhouse gasses was a significant step forward in recognising the wider implications of the role of Building Regulations in the construction and operation of buildings in Wales.

- **Embodied and in-use carbon:** Some respondents expressed a desire for proposals to be extended to embodied carbon (construction stages) and in-use carbon (occupation). These were not part of the consultation but will be recorded for future consideration.
- **Preparing houses to be Carbon Neutral:** There was strong support for the proposals that will ensure new houses built in Wales in the future will be 'Carbon Neutral Ready' and will be able to utilise carbon neutral technologies and most importantly will become 'greener' as the energy supply network eventually delivers 100% green renewable energy. Using heating and lighting and ventilation mechanisms that only use electricity will mean the buildings become carbon neutral in tandem with the delivery of 100% carbon neutral energy.
- **Alignment with wider climate objectives:** Several respondents supported the point that amending the Regulations to include references to reduction of greenhouse gas emissions and carbon neutrality was demonstrating that the Regulations were making a meaningful shift toward wider climate objectives.
- **Individual choice:** One response felt the decision to pursue lowering of greenhouse gases should be left to the individual, although it is suspected this might have been a misunderstanding of the proposal.
- **Timely inclusion:** Many respondents feel this amendment to include greenhouse gas reductions was long overdue.
- **Supports Wales's Net Zero policy commitments:** This will assist Wales in the aim to achieve its legal commitment to carbon neutrality by 2050.
- **Inability to control greenhouse gas emissions:** A couple of respondents did not agree with the proposals on the basis they believe greenhouse gas emissions cannot be controlled and have no place in the Building Regulations, which should focus on energy use reductions. They did not feel reduction of greenhouse gas emissions would reduce carbon emissions.
- **Regulatory consistency:** This amendment will help ensure consistency across the devolved administrations where England and Scotland are already moving in this direction and will reduce complexity in the Regulatory workplace for developers and designers.
- **Encourage use of low carbon or carbon neutral technologies:** This move will promote the use of low or zero carbon technologies in buildings in Wales.
- **Lower running costs:** The proposal should assist low income households and businesses to reduce the cost of heating, lighting and ventilations their buildings.

Government response to question 63

- 6.3 It is noted most of the 'unsure' responses offered no comment in favour or against the proposal and therefore offers no material impact on the 70% in agreement to amend Part L1 of Schedule 1.
- 6.4 With 70% in agreement to amend Part L1 of Schedule 1, and those unsure amounting to 23% and only 6% being opposed to the proposal, we shall proceed to include this proposal in the approved document guidance.

Regulations 25A and 25B

Question 64: Do you agree that regulations 25A and 25B will be redundant following the introduction of the Part L 2025 Standard and can be repealed?

Question 64: Do you agree that regulations 25A and 25B will be redundant following the introduction of the Part L 2025 Standard and can be repealed?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	44	3	2	0	1	4	1	0	8	7	13	3	1	0	0	1
a. Yes	59%	33%	50%	0%	0%	25%	100%	0%	88%	57%	46%	100%	100%	0%	0%	100%
b. No	5%	0%	0%	0%	0%	25%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%
c. Unsure	36%	67%	50%	0%	100%	50%	0%	0%	13%	43%	46%	0%	0%	0%	0%	0%

6.5 A total of 44 responses were submitted for this question. A majority of respondents (59%) agreed that regulations 25A and 25B would be redundant and can be repealed compared to 5% that disagreed. 36% of the respondents were unsure.

- **Clarity of the regulations:** removal will make the regulations clear and unambiguous
- **New buildings will be carbon zero ready:** general agreement that as buildings become carbon zero ready then there is no longer a requirement to have definitions as contained in 25A and 25B.
- **Flexibility:** some respondents felt that 25A and 25B still have validity in providing a case by case degree of flexibility of approach, especially when considering which methodology to pursue.
- **Low responses:** Overall there were very few comments submitted.

Government response to question 64

- 6.6 59% of responses are supportive of the proposals, with only 5% against. Of the 36% responding unsure, there was only one comment with most others having no comment at all. This would suggest the unsure voters are neither for nor against, and on that basis have no material effect on the 59% majority in favour of the proposal.
- 6.7 We therefore conclude the majority are in favour of repealing regulations 25A and 25B, and we shall proceed on the basis of moving to repeal regulations 25A and 25B.

7. Feedback on the Impact Assessment

7.1 Chapter 7 of the consultation considered the consultation stage Impact Assessment. Building Regulations greatly influence how our buildings are constructed and used. As such, they help to deliver significant benefits to society. Regulation can also impose costs on both businesses and individuals. We published an Impact Assessment with the consultation which considered the costs and benefits of the proposed changes to the Building Regulations.

Question 65: The Impact Assessment makes a number of assumptions on fabric/services/ renewables costs, new build rates, phase-in rates, learning rates, etc for new dwellings. Do you think these assumptions are fair and reasonable?

Question 65: The Impact Assessment makes a number of assumptions on fabric/services/ renewables costs, new build rates, phase-in rates, learning rates, etc for new dwellings. Do you think these assumptions are fair and reasonable?																
	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	44	3	2	1	1	5	0	0	8	6	13	3	1	0	0	1
a. Yes	27%	0%	0%	0%	0%	20%	0%	0%	100%	33%	8%	0%	0%	0%	0%	0%
b. No	23%	0%	50%	100%	0%	40%	0%	0%	0%	17%	31%	33%	0%	0%	0%	0%
c. Unsure	50%	100%	50%	0%	100%	40%	0%	0%	0%	50%	62%	67%	100%	0%	0%	100%

7.2 In total, there were 44 respondents to this question. Of these, a similar number agreed (27%) and disagreed (23%) with the assumptions. 50% were unsure if the assumptions are fair and reasonable.

Comments on the assumptions

7.3 Respondents that did not consider, or were unsure, that the assumptions used in the impact assessment were fair and reasonable made the following points. Similar points were provided by both sets of respondents.

- **Underestimation of construction costs:** Six respondents suggested that the assessment underestimates construction cost impacts associated with the changes. Particularly noted were potential supply chain challenges and the need for specialist installers.
- **Under-valuation of the policy benefits:** Five respondents proposed that the analysis undervalues the benefits of improved fabric. In particular, they noted the health and comfort advantages and the long-term energy

savings of a “fabric-first” approach.

- **Performance of PV:** Four respondents stated that the performance of solar PV is overstated due to maintenance and technical feasibility issues.
- **Broaden the assessment:** Two respondents suggested that the assessment should include a wider range of low-carbon technologies. Also account for variations in house types and designs, as these differences may pose challenges in meeting the proposed requirements.

Question 66: Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for new dwellings?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	55	9	2	1	3	6	1	0	8	7	13	3	0	1	0	1
a. Yes	18%	0%	0%	0%	0%	17%	0%	0%	75%	29%	8%	0%	0%	0%	0%	0%
b. No	49%	89%	100%	100%	67%	83%	100%	0%	0%	29%	31%	33%	0%	100%	0%	0%
c. Unsure	33%	11%	0%	0%	33%	0%	0%	0%	25%	43%	62%	67%	0%	0%	0%	100%

7.4 In total, there were 55 respondents to this question. Of these, 18% agreed with the assessment whilst 49% disagreed. 33% of respondents were unsure.

Comments on the assessment

7.5 Respondents that did not consider, or were unsure, that the assessment of costs and benefits were fair and reasonable made the following points. Similar points were provided by both sets of respondents.

- **The analysis underestimates the benefit of improved fabric:** 19 respondents believed that the analysis does not fully capture all of the benefits of improved fabric. This includes improved health, enhanced heat pump performance in low-demand homes, and the ability of fabric to deliver consistent improvements to energy efficiency.
- **The performance of renewable energy systems is overstated relative to fabric improvements:** 13 respondents suggested that the analysis does not account for poor maintenance or technical challenges that could reduce the long-term performance of solar PV. Respondents noted that fabric improvements offer a more reliable solution.

- **The benefits of MVHR ventilation are not quantified:** Ten respondents highlighted that the analysis does not reflect the potential of MVHR to improve indoor air quality relative to other ventilation systems.
- **More detailed assumptions:** Four respondents requested more detailed assumptions on costs such as square metre rates per building.
- **Underestimation of construction costs:** Three respondents suggested that the assessment underestimates construction cost impacts associated with the changes. Particularly noted was the need for specialist installers.
- **Broaden the assessment:** One respondent stated that the assessment does not fully consider rural issues.

7.6 In addition, the following point was highlighted

- **Specialist lighting:** A respondent provided supplementary information highlighting the adverse impacts on specialist lighting manufacturers whose products may no longer meet the specifications. It was proposed that this should be accounted for in the assessment.

Government response to questions 65 and 66

- 7.7 The overall majority view is that consultees are uncertain about the assumptions on fabric/services/ renewables costs, new build rates, phase-in rates, learning rates, etc for new dwellings, and in some responses there are counter claims about actual real-life costs being notably higher than those stated in the Impact Assessment (IA).
- 7.8 We acknowledge the uncertainties, however, regulatory impact assessments are necessarily reliant on making objective assumptions to appraise policy options and are therefore a representation of the relative impact of the proposed options.
- 7.9 There was general strong opinion against the reasonableness of the assessment of the costs and benefits in the impact assessment, as is reflected in the 49% vote against the IA, with 33% unsure and only 18% agreeing it was a fair reflection of potential costs and benefits.
- 7.10 In the light of the responses to both Q65 and Q66, we shall carefully reconsider the costs and benefits within the impact assessment, and the material comments where relevant in order to inform the final impact assessment.

8. Transitional Arrangements

- 8.1 Chapter 8 of the consultation explained how the transitional arrangements for the Part L 2022 uplift were more stringent than previous Part L transitional arrangements. They applied to individual buildings rather than an entire development. For the 2022 Part L uplift, there was a 6-month period between the laying date of the new legislation and the date that the legislation came into force. This was followed by a 12-month transitional period.
- 8.2 We also acknowledged that transitional arrangements need to be proportionate to the scale of the delivery challenge, providing a reasonable period of time for industry to adapt whilst making sure that the momentum towards our net zero targets is maintained. We explained that although fabric requirements and the provision of solar PV panels are similar to what we expect developers to deliver to meet the 2022 Part L uplift, we recognise that both of the proposed domestic and non-domestic options represent a significant shift towards the use of low-carbon technologies.
- 8.3 This chapter in the consultation document proposed further details and asked respondents to provide views on two options for transitional arrangements between laying the regulations and them coming into force, both options would be followed by a 12-month transitional period.

Question 67: Which option describing the timescale between laying the regulations and them coming into force for the Part L 2025 Standard do you prefer?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	56	4	2	1	2	5	1	0	8	8	21	3	0	0	0	1
a. Option 1	41%	75%	0%	0%	100%	40%	0%	0%	13%	38%	57%	0%	0%	0%	0%	0%
b. Option 2	59%	25%	100%	100%	0%	60%	100%	0%	88%	63%	43%	100%	0%	0%	0%	100%
c. Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

- 8.4 For this question there were 56 respondents. The majority (59%) preferred Option 2, with 41% showing preference for Option 1.

Reasons for supporting Option 1

- **Less ambitious standards:** One respondent stated Option 1 will be sufficient if Welsh Government introduces the least ambitious level of uplift to the energy efficiency standards.
- **Alignment with 2022 Part L uplift / precedent:** Two respondents stated Option 1 would align with the period provided for the 2022 Part L uplift, highlighting that the current Part L standards already push fabric standards to challenging levels, and hence developers are already operating at that level. One respondent noted the major change is to include low carbon heating in the notional building specification. This has already been signaled for at least five years, and so there has been plenty of preparation time.
- **Part L 2025 readiness & use of HEM/SAP:** One respondent stated that should SAP be used alongside the Home Energy Model to demonstrate compliance with the energy efficiency standards then Option 1 would give sufficient time for the industry to prepare for the new standards.
- **Decarbonisation urgency / net zero / lower bills:** Three respondents highlighted the new standards should be introduced as soon as possible to ensure as many homes as possible are built to higher standards and are net zero ready. One of the respondents also noted that the new standards are likely to drive jobs and grow the whole low carbon sector to the benefit of Wales as a whole.
- **Avoidance of more stringent standards:** One respondent stated that Option 1 will provide focus for developers and designers, the general proposals have been known for some time which has provided a period for preparation and adjustment. Delays in implementation may lead to developers submitting applications to avoid having to achieve more onerous design standards, a short transitional phase would help offset this.
- **Definition of commencement:** One respondent supported the use of a consistent definition of commencement however stated there is a need for clarity, raising several points in relation to the definition of commencement that was originally proposed.
- **Consistency with England / Future Homes Standard:** One respondent stated Option 1 should be sufficient time for the fenestration industry to move away from U values of windows and doors calculated for standard sizes and configurations to actual ones. Given the innovation that has already happened in the window and door industry in anticipation of the Future Homes Standard, this timeline is realistic, achievable and sensible.
- **Supply chain capacity & readiness:** Two respondents in support of Option 1 highlighted that this is subject to the Welsh Government being satisfied that supply chains for low carbon technologies have been established and are robust enough to deliver the quantity of heat pumps, PV panels, etc. needed. One respondent also noted the importance of the availability of skills/competence/resource in relation to the initial construction and ongoing maintenance of systems once homes are occupied.

Reasons for supporting Option 2

- **Fenestration industry:** One respondent stated that 12 months is the minimum, ideally, many parts of the fenestration industry will need more time to develop new window and door systems and the software packages to generate the required thermal calculations.
- **Fabric-first ambition / more ambitious standards:** Two respondents stated that a 12-month lead-in period provides developers and designers with additional time to prepare for the new Part L 2025 requirements. However, it was emphasised that this extended lead-in is most valuable if accompanied by the adoption of Option 2 (for the uplift to the energy efficiency standards) which represents a more ambitious, fabric-first approach to energy efficiency and net-zero-ready homes.
- **Time to plan and adapt:** One respondent stated that as a developer, they strongly support a 12-month transition period between the laying of the regulations and their enforcement. This provides the necessary time for industry to adapt designs, supply chains, and construction programmes to meet the new Part L 2025 standard in a practical and efficient manner.
- **Supply chain, skills & training constraints:** One respondent stated the new standards will have a significant impact on industry, highlighting that there will be an increase in the need for renewable installers and significant training will be required for assessors.
- **Plot-by-plot issues & customer impacts:** One respondent stated that the transitional period of 12 months is good except where you have only completed three quarters of the site in 12 months and must consider redesigning the remaining plots, this respondent suggested that if 75% of site is complete then the remaining plots are built to the same standard.
- **Balance:** Two respondents noted that in terms of the environment and carbon emission reductions the 6-month timescale is preferable, but the proposed changes are not insignificant, and that they are not sure industry is ready for it. The development of the HEM was an example provided.

Government response to question 67

- 8.5 There was strong support for Option 2, with 59% of respondents favouring a 12-month period between laying the regulations and commencement of the new Part L Standard. Many felt this timeframe would allow industry sufficient time to prepare.
- 8.6 Supporters of Option 1 (41%), preferred a six-month period, highlighted that Welsh Government had already signalled its intention to introduce a more ambitious Part L standard and move to low-carbon heating during the 2022 uplift consultation, giving industry time to prepare. Some noted that if SAP is used alongside HEM, six months should be adequate. Our response to Questions 15 and 16 outlines plans for the Part L Wales dwellings assessment tool.

- 8.7 One respondent in support of Option 1 agreed with the use of a consistent definition of commencement, however noted there is a need for clarity. In November 2025 we published our Government response to the [Consultation on the new building control regime for higher-risk buildings and wider changes to the building regulations in Wales](#). Our response sets out the definition of commencement that we have introduced. The regulations containing this provision have now been laid and will come into force in July 2026.⁵
- 8.8 Several respondents choosing option 2, cited the expected inclusion of MVHR in the notional dwelling specification as their reason. Our response to Question 1 explains our rationale for adopting option 1 for the notional dwelling specification.
- 8.9 After considering all responses, we will proceed with option 2, a 12-month period before commencement, followed by a 12-month transitional phase. This approach balances the need to introduce a significant Part L uplift standard that supports our commitment to achieving net zero by 2050, while giving industry some additional time to adapt, build competence, and finalise skills development, particularly around low-carbon technologies.

Question 68: Will the changes to 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?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	43	3	2	1	1	4	1	0	8	6	12	3	1	0	0	1
a. Yes	51%	67%	50%	0%	0%	50%	0%	0%	75%	17%	42%	100%	100%	0%	0%	100%
b. No	2%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	47%	33%	50%	100%	0%	50%	100%	0%	25%	83%	58%	0%	0%	0%	0%	0%

- 8.10 A total of 43 respondents provided feedback to this question. 51% agreed that the changes proposed in the consultation will lead to the need to amend existing planning permissions, whilst 2% disagreed. 47% of respondents were unsure.

⁵ [The Building etc. \(Amendment\) \(No. 2\) \(Wales\) Regulations 2025](#)

Feedback provided from those who think the changes will lead to the need to amend existing planning permissions

- **Transitional arrangements & longer lead-in to avoid issues:** Four respondents stated that a longer transitional period would reduce instances where planning conditions need to be revisited.
- **Permitted development rights:** Several respondents raised concern about permitted development rights for heat pumps in Wales, it was suggested that the existing 3-meter rule is removed.
- **Need for flexibility/fast-track or reduced fees for minor changes:** Two respondents suggested planning authorities should provide streamlined amendment routes to prevent delays in delivery.
- **Guidance & process clarity:** Four respondents noted this. Respondents suggested that local planning authorities should provide clear guidance to enable developers to make necessary adjustments efficiently.
- **Planning officers' awareness:** Two Respondents noted this. One respondent suggested that better coordination between planning and building control teams will be essential to ensure regulatory compliance is achieved without causing delays or increasing administrative burdens. One other respondent noted planning officers often seem unaware of the requirements that compliance with Building Regulations can have on master plans, suggesting CPD for planning officers on changes to the Building Regulations.
- **Not expected to be highly disruptive:** One respondent stated that while the proposed changes may require minor amendments to existing planning permissions, these are not expected to be widespread or highly disruptive.
- **Amendments due to solar PV requirement affecting roof design:** Several respondents noted that the proposed solar PV requirement will lead to the need to amend existing planning permissions. One respondent noted that the Part L 2022 uplift resulted in changes to the roofscape / street scene of their developments which were different than those approved under the existing planning permission. One other respondent stated the requirement for 40% PV will make dormers problematic, noting that planning needs to be sympathetic to amendment applications to remove dormers.
- **Similar to Part L 2022 uplift:** One respondent stated the changes are similar to those introduced by the Part L 2022 uplift, which resulted in the need to amend existing planning permissions. The respondent noted that many local planning authorities take a cautious approach when it comes to the type of application necessary to regularise design requirements, and provided an example of a Section 73 application, opposed to a Section 96a (of the Town and Country Planning Act 1990) application being required. The respondent noted the key difference between these applications is the statutory timeframe for determination, which can lead to project delays.
- **Heat pump location:** One respondent noted that the requirement to site heat pumps no more than 1M from the property could also cause obstacles to installation in existing dwellings where consideration to building layout was not with an external heat pump in mind.

- **HEM:** One respondent stated that the HEM may have a big implication in terms of existing site layouts with orientation of homes and windows having an impact on calculations.

Government response to question 68

- 8.11 A majority of respondents, 51% thought that the proposed changes will lead to the need to amend existing planning permissions, while 2% didn't think so.
- 8.12 We received feedback on the proposal to require solar PV on new buildings, particularly concerns that the requirement may necessitate amendments to existing planning permissions, potentially leading to delays. When the new Part L standard is introduced, it will be for each Local Planning Authority to determine how any potential amendments to existing planning permissions are dealt with, on a case-by-case basis. As outlined in our response to Question 67, we intend to allow a 12-month period between laying the new regulations and their coming into force, followed by a further 12-month transitional period. This approach provides additional time for developers to adapt and reduces the impact on projects with existing planning permissions.
- 8.13 In response to those who raised concern about the proposed solar PV requirement for new dwellings and its impact on certain dwelling types such as those with dormers, we have reconsidered this requirement as explained in our response to question 12.
- 8.14 Respondents also raised concerns about the guidance in Section 4 of Approved Document L, Volume 1, which requires heat pumps to be located within one metre of the dwelling. As described in the response to questions 23 and 24 above, we will amend the guidance to remove the suggested 1m limit from the dwelling for the heat pump and to allow some flexibility/innovation by advising that the heat pump should be as close as practicable to the dwelling.
- 8.15 Respondents highlighted issues about planning permission and permitted development rights for air source heat pumps in Wales. Current permitted development rights require a minimum 3-metre distance from a neighbouring boundary. In 2025, Welsh Government consulted on proposed changes to these rights, including removing the 3-metre rule. The Government response was published at the end of last year and sets out how we intend to proceed. The Government response can be found on the following web link: [Changes to permitted development rights GOV.Wales](#)

Question 69: Do you agree that the 2010 and 2014 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 Part L 2025 standard?

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	All who responded	Architect	Builder/Developer	Building Occupier/Resident	Construction professional	Designer/Engineer/Surveyor	Energy Assessor	Energy sector	Local Authority	Manufacturer/supply chain	Other interested party (please specify)	Property Manager/Housing Association/Landlord	Registered Building Control Approver	Small/medium builder	Unspecified	Volume house builder
Total	66	9	2	1	3	6	2	0	8	7	23	3	1	0	0	1
a. Yes	91%	100%	100%	100%	100%	100%	100%	0%	63%	86%	91%	100%	100%	0%	0%	100%
b. No	3%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%
c. Unsure	6%	0%	0%	0%	0%	0%	0%	0%	13%	14%	9%	0%	0%	0%	0%	0%

8.16 In total there were 66 respondents to this question. Of the responses, a majority (91%) agreed that the transitional arrangements for 2010 and 2014 should be closed down, with 3 % disagreeing and 6% being unsure.

Feedback provided by those supporting the proposal

- **Future proof buildings:** Most of the respondents who agreed stated this is an important move to ensure as many new buildings as possible are built to new standards and is key to achieving net zero targets.
- **Prevent gaming/ loopholes:** Eight respondents stated sunsetting historical transitional arrangements will ensure consistency and fairness noting that there has been significant gaming of requirements by part building homes/properties in the past.
- **Definition of commencement:** One respondent who was supportive of developing new homes to the highest standards highlighted the need for a balanced approach, stating that it is crucial to consider the planning implications of any measures introduced and the effect this could have on the availability of houses that can be constructed under existing planning permissions.
- **Alignment with England:** One respondent noted the sunsetting of historical regulations is consistent with other similar legislation in England.
- **Clear guidance:** One respondent noted that clear guidance is required to clarify upon the sunsetting of the previous transitional arrangements which regulations will apply, including those associated and un-associated with

Approved Document L. For example, whether the overheating requirements contained within Approved Document O and Regulation 40B of the Building Regulations 2010 will also apply.

- **SAP:** One respondent stated that many homes are still being built out to Part L 2010 and 2014 and many developers are actively using older SAP software products to create compliance reports. Due to the age of these software products, it is becoming unviable to maintain them to modern security standards and could result in a position where there is no available software solution for calculations against these older versions of Part L.
- **Support for higher ambition:** Three respondents suggested a move towards a more ambitious target, suggesting passive house as a Welsh building standard to target climate change.

Feedback for not supporting the proposal

- **Construction delays:** One respondent questioned whether this proposal would cause delays for any projects currently in development.
- **Increased costs:** Two respondents raised concerns about increased costs for developers to comply with higher specifications because of changing the goal posts on already agreed provisional requirements.

Government response to question 69

- 8.17 There was very strong support for this proposal, with 91% of respondents agreeing that the 2010 and 2014 energy efficiency transitional arrangements should be closed, and only 3% disagreeing. Respondents emphasised the importance of ensuring new developments are built to current standards to help achieve our net zero target. In light of this feedback, we intend to proceed with the proposal.

9. Welsh Language

Question 70: What, in your opinion, would be the likely effects of the proposals on the Welsh language? We are particularly interested in any likely effects on opportunities to use the Welsh language and on not treating the Welsh language less favourably than English.

Do you think that there are opportunities to promote any positive effects?

Do you think that there are opportunities to mitigate any adverse effects?

9.1 Respondents generally believed that the proposals would have limited or no direct impact on the Welsh language, as they are primarily technical in nature. Many respondents expressed no specific view, or they were uncertain on the effects, indicating that Welsh language considerations were not central to the proposals. Where impacts were identified, respondents emphasised that providing legislation, guidance, and supporting materials bilingually would have a positive effect by ensuring Welsh is not treated less favourably than English. A small number of respondents highlighted opportunities to standardise the use of Welsh in professional and technical documents produced by Welsh Government weighted against isolated concerns on the practical and resource implications of translation.

Question 71: In your opinion, could the proposals be formulated or changed so as to:

- **have positive effects or more positive effects on using the Welsh language and on not treating the Welsh language less favourably than English; or**
- **mitigate any negative effects on using the Welsh language and on not treating the Welsh language less favourably than English?**

9.2 Respondents generally considered that the proposals could be implemented or adapted to have positive effects on the Welsh language and to mitigate any potential negative impacts. While many respondents expressed no views or they were unsure on the effects, those who answered, agreed that embedding bilingualism throughout implementation, including in guidance, templates, digital systems, software outputs, and training, would support greater use of the Welsh language and ensure it is not treated less favourably than English. There was a broad consensus that no fundamental changes to the proposals were required, and that any potential adverse effects could be effectively mitigated through clear, consistent, and proportionate bilingual provision.

Government response to questions 70 and 71

- 9.3 Promoting the Welsh language remains a key strategic priority for the Welsh Government, with a clear commitment to ensuring it prospers. To support this goal, the Welsh Language Standards set out legally binding duties that apply to the Welsh Government. All Building Regulations documents are assessed in line with these standards and published accordingly.

10.Next Steps

- 10.1 The Approved Documents will be finalised and regulations drafted in line with the Government responses to each of the sections above. It is proposed to make the amendment regulations in spring 2026, and to come into effect in Spring 2027. The final approved documents (statutory guidance) will be published in Spring/Summer 2026.
- 10.2 The Government response for questions 44 to 47 (within chapter 3 of the consultation) which included proposals for the changes to Part O (overheating) to capture certain high risk building work on existing dwellings will be published separately later this year.