

# Building Regulations Part L and F Review: Stage 2B

## Details

Details	
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## Questions

## Question 1

Our aim is that buildings constructed to the Part L 2025 Standard will be capable of becoming carbon neutral over time as the electricity grid and heat networks decarbonise.

Do you agree that the outline of the 2025 Standard in this chapter meets this aim?

a. Yes

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

- We are generally supportive of the proposed outline of the Part L 2025 Standard.
- Whilst we recognise that technologies such as heat pumps currently produce Scope 2 Emissions, resulting from the generation of purchased energy, there is a need to ensure that buildings constructed now are future proofed and the emissions associated with these technologies will reduce as the national grid and heat networks decarbonise.
- There has already been significant progress in decarbonising the national grid; just 10 years ago, fossil fuels provided 75% of Britain's electricity generation, approximately 20 times more than renewables, but in 2020, renewables overtook fossil fuels in Britain to become the biggest source of electricity generation.
- However, more must be done to ensure that buildings constructed to the Part L 2025 Standard do become carbon neutral over time.
- The National Grid Future Energy Scenarios (FES) indicates that whilst net zero carbon emissions by 2050 is achievable, it requires immediate action across all areas of the economy with full engagement across society and end consumers.
- Energy efficiency will be a key no regret action in ensuring the grid can decarbonise without adverse impacts on issues such as energy security.
- Given the importance of energy efficiency, including fabric efficiency, whilst we broadly welcome the Welsh Government's Part L 2025 Standard, we believe there is insufficient detail on fabric efficiency, with the consultation document simply noting that Welsh Government will "consider whether minimum fabric standards need to be reviewed for the 2025 Standard."
- We recognise that for some buildings, such as warehouses, it may not be practical or cost effective to continually tighten fabric standards. However, for buildings essentially domestic in character, there is a clear case for doing so.
- The Welsh Government must not rely upon the proposed Part L Uplift to deliver sufficiently stringent fabric standards and we would caution that these standards should be tightened upon full implementation of the Part L 2025 standard.
- However, if fabric standards are to be tightened, early engagement with industry is required. If buildings are going to look radically different to how they do today, industry needs time to prepare.

### Embodied Carbon

- Finally, we would like to highlight that as the operational carbon of buildings reduces, embodied carbon will become an increasingly large proportion of the overall carbon emissions associated with a building.
- According to the UK Green Building Council (UKGBC), by 2025, embodied carbon emissions could account for 34% of total annual built environment emissions; up from 22% in 2012.
- To this end, accounting for the embodied carbon emissions of buildings will become increasingly important.
- Initially there is perhaps potential to introduce a requirement for reporting on embodied carbon, in advance of the introduction of targets in future. Welsh Government should consider how they intend to implement embodied carbon reduction policies now, and communicate this to industry, to enable the sector to plan and develop in advance of any changes.

## Question 2

We believe that developers will typically deploy heat pumps and heat networks to deliver the low carbon heating requirement of the Part L 2025 Standard where practical. What are your views on this and in what circumstances should other low carbon technologies, such as direct electric heating or hydrogen, be used?

- We believe that it is reasonable to assume developers will typically deploy heat pumps and heat networks to deliver the low carbon heating requirement of the Part L 2025 standard where practical.
- Under the Climate Change Committee's (CCC's) Net Zero Balanced Pathway, scenarios are led by electrification via heat pumps or hybrid heat pumps, with all scenarios including district heating, to some extent .
- However, the NIA welcome the fact that the Welsh Government intend to continue to allow developers the flexibility to innovate and select the most practical and cost-effective solution for the individual building. Under the Net Zero Balanced Pathway, direct electric heating plays a small, yet important role in non-domestic buildings, with Hydrogen heating playing an increasing role in the 2030s .
- Whilst we agree that a low carbon heating system will be integral to the specification of the Part L 2025 Standard, we would highlight that driving high levels of fabric efficiency delivers a range of benefits, regardless of the system installed.
- As noted in our recent report, low temperature heating systems, such as heat pumps perform best in well insulated buildings . It is therefore fundamental that due consideration is placed to fabric efficiency.
- As noted previously, Welsh Government should not be reliant upon the proposed Part L Uplift to deliver sufficiently stringent fabric standards and we would caution that these standards should be tightened upon full implementation of the Part L 2025 standard.

## Question 3

Do you agree that some non-domestic building types are more suitable for low carbon heating and hot water, and that some non-domestic building types are more challenging?

a. Yes

**If you answered no, please explain your reasoning.**

- We recognise that the non-domestic building stock is very varied; in an Innovate UK study that examined 50 non-domestic buildings including offices, supermarkets, schools and health centres, energy use varied significantly .
- However, the challenges posed by the decarbonisation of certain building types must not lead to inaction. High levels of fabric efficiency can help ensure that space heating demand is limited as much as possible, which may be valuable in enabling a low carbon heating system to be installed, where it may not have previously been suitable.
- That said, we acknowledge that certain non-domestic building types are more challenging and support the Welsh Government's consideration of this issue.

## Question 4

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

c. Unsure

**If you answered no, please explain your reasoning, including how different building types should be allocated.**

- It is unclear from the Consultation Document how Welsh Government developed the proposed typology so we cannot comment on whether the allocation of building types is appropriate. However, given the heterogeneity of the non-domestic stock, it appears reasonable to categorise buildings and provide specific support to the full adoption of the Part L 2025 Standard, for more challenging demand types.

## Question 5

Do you think the Part L 2025 Standard should introduce low carbon space heating for buildings with Type 1 or Type 2 demand (buildings that have space heating demand more suitable for heat pumps)?

a. Yes in 2025 – our proposed date

**Please explain your reasoning.**

- We agree that the Part L 2025 standard should be introduced for all buildings as quickly as possible but crucially, that we are coming from a low installation base and that every effort must be made to ensure that supply chains grow sustainably.
- We welcome the work that Welsh Government are doing to ensure that the workforce has the skills required to deliver the Part L 2025 standard.
- Whilst we cannot comment on whether the low carbon heat and hot water supply chains are sufficiently prepared to deliver the Part L 2025 standard, we would argue that fabric efficiency is central to ensuring delivery of low carbon space heating.
- Given that fabric efficiency is core to the delivery of low carbon heat, it is important that the Government invest in sustainable growth of the energy efficiency supply chains through supporting upskilling.
- The NIA believe that the industry can deliver on more stringent standards in the future, but the Government must set out its plans for energy efficiency within the Part L 2025 standard as soon as possible.
- We welcome the work being done by Welsh Government in this space and we have outlined our thoughts on some of the key workstreams below:
  - o It is positive to see Welsh Government reviewing, and where necessary, adapting, its apprenticeship offer to ensure that where possible, training provision is aligned with the net zero transition. We agree that Regional Skills Partnerships (RSPs) have a key role to play here.
  - o We welcome the work Welsh Government are doing via the Optimised Retrofit Programme (ORP). However, we would note that skills required for domestic retrofit may differ to commercial retrofit in certain cases and this must be carefully considered.
  - o It is positive to see work being conducted in collaboration with CITB, RSPs and Qualifications Wales to develop a skills audit/mapping exercise; the NIA have previously fed into work conducted by organisations including CITB in this space and we would be happy to continue to provide this support where required.
  - o The introduction of a Personal Learning Account (PLA) appears to be a positive step to help influence people to consider upskilling or reskilling in priority areas of the transition; we hope that fabric efficiency is considered to be a priority area by Welsh Government as part of this.

### Question 6

Do you think the Part L 2025 Standard should introduce low carbon space heating for buildings with Type 3 demand (buildings that have space heating demand less suitable for heat pumps)?

a. Yes in 2025

**Please explain your reasoning.**

Yes, as per question 5. i.e.:

We agree that the Part L 2025 standard should be introduced for all buildings as quickly as possible but crucially, that we are coming from a low installation base and that every effort must be made to ensure that supply chains grow sustainably.

- We welcome the work that Welsh Government are doing to ensure that the workforce has the skills required to deliver the Part L 2025 standard.
- Whilst we cannot comment on whether the low carbon heat and hot water supply chains are sufficiently prepared to deliver the Part L 2025 standard, we would argue that fabric efficiency is central to ensuring delivery of low carbon space heating.
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  - o The introduction of a Personal Learning Account (PLA) appears to be a positive step to help influence people to consider upskilling or reskilling in priority areas of the transition; we hope that fabric efficiency is considered to be a priority area by Welsh Government as part of this.

### Question 7

Do you think the Part L 2025 Standard should introduce low carbon water heating for buildings with Type 1 or Type 3 demand (buildings that have water heating demand more suitable for point-of-use heaters or heat pumps)?

**Please explain your reasoning.**

No comment.

### Question 8

Do you think the Part L 2025 Standard should introduce low carbon water heating for buildings with Type 2 demand (buildings that have water heating demand less suitable for point-of-use heaters or heat pumps)?

**Please explain your reasoning.**

No comment.

## Question 9

We would welcome any further suggestions, beyond those provided in this consultation, for improving the modelling process; Part L and Part F compliance; and the actual energy performance of non-domestic buildings. Please provide related evidence.

- We are broadly supportive of the proposals to improve the building modelling process, improve Part L and F compliance and improve the actual energy performance of non-domestic buildings.
- We have outlined our thoughts on some of the key proposals and some further suggestions below.

We welcome Welsh Government's proposals to improve the modelling process. SBEM has faced criticism in the past. However, SBEM has an important role to play so it is fundamental that it is improved. We are broadly supportive of Welsh Government's proposals to improve the modelling process and we are particularly supportive of the following proposals:

- Revising outputs from SBEM to enable easier checking by building control.
- Changing default assumptions on thermal bridging.
- Providing more accurate ventilation calculation assumptions.
- Review of activity database to better reflect actual use.

We believe that a review of the activity database to better reflect actual use is a valuable interim step. However, a model is only as good as the data inputted and therefore, we would like to see better use of smart meter data as a mechanism for improving data inputs and better reflecting actual activity and occupancy patterns.

The NIA strongly support Welsh Government's consideration of how to improve compliance and actual energy performance. The performance gap is the difference between the designed and as built performance of buildings and it is fundamental that efforts are made to close the performance gap and ensure buildings perform as expected in the design stage.

Whilst inaccuracies in modelling can contribute to the performance gap, other factors such as poor construction practices can also lead to a building not performing as anticipated. We welcome Welsh Government's proposals to improve Part L and F Compliance and Actual Energy Performance and are generally supportive of the proposals listed below which we will further discuss in our responses to the relevant questions within this consultation.

- Updated minimum standards for building services efficiency and fabric specification standards.
- Making commissioning procedures clearer, including via making reference to the need for a specialist commissioning manager and making the legal requirement for adequate commissioning much clearer within the guidance.
- Improving the guidance for more accurately calculating insulation performance, referring to the latest industry standard.
- Activities to better assure the quality and provision of building logbooks to building owners.

However, we believe that there is potential for more to be done, particularly given that the performance gap is a significant issue; in fact, only 1 of the 49 buildings investigated in the Innovate UK study had actual carbon emissions that matched the design estimate.

For example, the introduction of a requirement to produce photographic evidence that could be traced directly to the reported building could be a valuable mechanism in ensuring that standards are adhered to, as installations and products would be more traceable.

The NIA are committed to promoting high quality installations within industry. However, we believe that at the Government level, more needs to be done in terms of standards and training to ensure actual building energy performance is improved. Dame Judith Hackitt's Review indicated the importance of Continuing Professional Development (CPD) and ensuring that those who undertake vocational training gain the skills, knowledge and experience required to work in the construction sector. As outlined previously within this response, we welcome the work Welsh Government are doing to support growth and upskilling of the retrofit workforce. However, it is important that continued focus is placed on training and development within the sector, and we are committed to working with Government and Industry partners as part of this journey.

## Question 10

What level of uplift to the energy efficiency standards for non-domestic buildings in the Building Regulations should be introduced in 2021?

b. Option 2 – average 28% CO2 reduction (this is the Government's preferred option)

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

- For the 2022 uplift, we support Option 2 which would be associated with an average of 28% CO2 reduction compared to the current Part L standard, across the build-mix of non – domestic buildings. We support this option as it would be associated with greater emissions savings.

- However, we propose that the measurement of energy performance should not be based on a notional uplift as is currently proposed. Instead, we propose that CO2 and energy performance should be set for individual buildings. We believe this is a far more effective way of defining emissions and other EE targets. This approach would help drive a step change in performance, whilst at the same time allowing design flexibility and encouraging innovation. We propose that a simple but nonetheless challenging space heating target should be adopted for each building type, together with a CO2 target. Implementation of such a target would:

- be straightforward and easy to understand
- facilitate design flexibility
- provide technical safeguards
- make compliance easy to check (driving real-life as opposed to theoretical performance).

- This approach is already well-researched (and was proposed) by the ZCH, so is supported by solid scientific principles and real-life practical experience:

([https://www.zerocarbonhub.org/sites/default/files/resources/reports/Defining\\_a\\_Fabric\\_Energy\\_Efficiency\\_Standard-Task\\_Group\\_Recommendations.pdf](https://www.zerocarbonhub.org/sites/default/files/resources/reports/Defining_a_Fabric_Energy_Efficiency_Standard-Task_Group_Recommendations.pdf))

- Increased ambition now is technically feasible; under the London Plan, buildings are being constructed now with a CO2 reduction of 35% below current standards .

- However, we acknowledge that the cost and practicality of increased ambition is highly dependent upon the building type, due to the heterogeneity of the stock, with the figure of 28% only representing an average.

- Crucially, the energy efficiency supply chain cannot afford a situation where ambition is set at a high level, not met, and reverted from; we would therefore prefer a situation whereby a 28% average target is met now, with extensions to this introduced upon full implementation of the Part L 2025 standard.

- However, in order to provide industry with the certainty it needs, we would welcome further detail about the fabric standards that will be introduced under the Part L 2025 standard, as soon as possible. Whilst we welcome the Welsh Government's acknowledgement of the importance of fabric standards in noting that "providing the best fabric standards possible will be essential for buildings constructed to the 2025 Standard", there is a lack of detail at present.

- We would like to see detail on how standards on fabric performance will be tightened in the future, which will be important if we are to meet our net zero ambitions.

## Question 11

Do you agree with the way that we are proposing to apply primary energy as the principal performance metric?

a. Yes

**If you answered no, please explain your reasoning.**

We support the use of primary energy as the principal performance metric.

#### Question 12

Do you agree with using CO2 as the secondary performance metric?

a. Yes

**If you answered no, please explain your reasoning.**

- We support the retention of CO2 as a secondary performance metric, as a means to encourage low carbon fuel choices and deployment of on-site renewable generation where appropriate.
- The retention of CO2 as a metric enables the carbon emissions of buildings to be assessed and accounted for within national carbon budgets.
- However, greater focus should be placed on primary energy than emissions, as proposed, as a good means of driving energy efficiency.

#### Question 13

Do you agree with the approach to calculating CO2 and primary energy factors, referred to in paragraph 3.5.7 of this consultation document?

a. Yes

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

- We are guardedly supportive of the proposed changes to calculating CO2 and Primary Energy Factors.
- Ensuring that CO2 and Primary Energy Factors are up to date is fundamental and we would like to see these updated as regularly as possible.

#### Question 14

Do you agree with the proposals for natural gas being assigned as the heating fuel for any fuels with a worse CO2 emission factor than natural gas?

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

No comment.

#### Question 15

Do you agree with our proposal of using a natural gas heating system in the notional building when electricity is specified as a heating fuel?

a. Yes

#### Question 16

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

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

No comment.



### Question 17

Do you agree with the proposals for the details of the district heating system for the notional building described when connecting to an existing heat network, as presented in the draft NCM modelling guide?

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

No comment.

### Question 18

Do you agree with the proposal for connecting to a new heat network, as presented above?

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

No comment.

### Question 19

Do you agree with the proposed changes to the National Calculation Methodology Modelling Guide and activity database?

a. Yes

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

- We are generally supportive of the proposed changes to the NCM Modelling Guide and Activity Database.
- As highlighted previously within this response, a model is only as accurate as the data inputted, and we welcome any changes that will make models more reflective of in-use performance, including the proposal to revise the activity database to reflect the latest evidence regarding how buildings are used.
- We also support the proposals developed surrounding the design process, particularly the proposed changes to thermal bridging assumptions to encourage better design detailing.
- However, we would caution that as noted on the NCM website, "SBEM is a compliance procedure and not a design tool." Whilst the proposed changes are welcomed, Welsh Government must continue to caution that SBEM should not be used as a design tool.

### Question 20

We would welcome any further suggestions for revising the outputs from SBEM, which would enable easier checking by building control on building completion. Please provide related evidence.

We suggest that there should be clearer and stronger proposals concerning data capture, possibly along the lines of the BREL Compliance Report proposed in England.

### Question 21

Do you agree with the proposals for limiting heat gains in non-domestic buildings?

c. No, they don't go far enough

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

- A well- insulated fabric can help to regulate the temperature of a building, limiting both heat loss and overheating, provided other sources of heat loss and gain are well controlled.
- However, if heat gains are poorly controlled, high levels of fabric efficiency can lead to overheating as heat is retained within the building fabric; as such, solar gains must be limited as much as possible.
- The g-values for glass must be as stringent as possible in order to minimise the risk of heat gains.
- There is perhaps potential for further ambition for top-lit spaces at both average zone heights given the values proposed in the Future Buildings Standard consultation were lower than the values proposed by Welsh Government and given that there are products currently on the market that are able to deliver lower g-values than those proposed .
- We also believe it would be more practical to align with the levels now set in England to provide consistency for an industry that works across borders.

### Question 22

Do you agree with the proposed minimum standards for fabric performance in new non-domestic buildings as presented in Table 3.5 of this consultation document?

b. No, the standards go too far

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

- We agree that there should be a minimum level of fabric performance set for new non-domestic buildings, and that this should be increased in 2021/22 compared to the 2014 level. However, we do not agree with using prescriptive, inflexible, and somewhat arbitrary 'backstop' U-values for individual elements to achieve the desired outcome. Backstops should be true backstops, there to prevent fabric performance falling to levels which might create moisture and other issues around 'unintended consequences'.
- Furthermore, the backstops proposed for walls, roofs and floors are almost identical to the notional building specification, meaning that even though the intention is to be able to vary the design parameters away from the notional building specification, the reality is that this will not be possible for the fabric, which we believe is not the WG's intention.
- Instead, we strongly recommend a challenging yet feasible whole-building Fabric Target is consulted on and set for each main non-domestic archetype – rather than based on an opaque notional building – using a kWh metric. Such an approach more directly links fabric performance to overall space heating demand, better preparing the way for the switchover to low/zero carbon heating. It would also be more transparent, easier to enforce and easier to verify.

### Question 23

Do you agree with the proposed improvement in the minimum standards for new or replacement windows in existing non-domestic buildings which are domestic in character?

a. Yes

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

- Yes, we broadly support this proposal.
- Whilst this may present added complexity for industry as, if implemented, this would create a further disparity between limiting U – values for new and replacement elements in existing buildings in England compared to Wales, we welcome the Welsh Government's ambition.

#### Question 24

Do you agree with the further guidance on reducing moisture risks when upgrading retained thermal elements?

a. Yes

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

- The NIA broadly support this proposal as a potential mechanism to minimise the risk of unintended consequences that can arise when fabric efficiency measures are poorly specified and/or installed.
- Implementing stringent performance standards for new thermal elements in existing buildings, whilst absolutely necessary, can lead to the creation of a disparity between new and existing thermal elements, resulting in unintended consequences, such as condensation and mould if not adequately managed. Careful design detailing between the new and existing thermal elements and ensuring the provision of adequate ventilation can help to mitigate against unintended consequences.
- The provision of additional guidance in this space is therefore welcomed to highlight the potential moisture risks when upgrading retained thermal elements and we are pleased to see recommendations for the risk to be assessed and mitigated by a person who is competent to do so.

#### Question 25

Do you agree with the draft guidance in paragraph 4.15 of the draft Approved Document L, volume 2: buildings other than dwellings on reducing unwanted air infiltration when carrying out work to existing non-domestic buildings?

a. Yes

**If you answered no, please explain your reasoning.**

- The NIA are broadly supportive of the draft guidance to mitigate against unwanted air infiltration and are particularly supportive of point (b) which states that when installing or renovating thermal elements, the element installed must be draft proofed and air leakage gaps in renovated thermal elements must be filled.
- Minimising unwanted air infiltration is important. However, it is important that there is adequate ventilation when increasing the fabric efficiency of buildings to avoid unintended consequences. To this end, we welcome reference to Approved Document Part F within this section of the guidance.

#### Question 26

Do you agree that the limiting U-value for rooflights in new and existing non-domestic buildings should be based on a rooflight in a horizontal position, as detailed in paragraph 4.4 of draft Approved Document L, volume 2: buildings other than dwellings?

**If you answered no, please explain your reasoning.**

No comment.

#### Question 27

Do you agree that we should adopt the latest version of BR 443 for calculating U-values in new and existing non-domestic buildings, as detailed in paragraph 4.1 of draft Approved Document L, volume 2: buildings other than dwellings?

**If you answered no, please explain your reasoning.**

- The latest version of BR 443 encompasses the latest changes in British and International standards; industry practice; and industry publications and we believe that the most up to date guidance should be used wherever possible.
- However, this is a significant document that requires further consideration, and it should therefore be subjected to a full consultation review.

Question 28

Do you agree with the newly proposed minimum efficiencies for natural gas, oil and LPG boiler and domestic hot water system installations in new non-domestic buildings in Section 6 of draft Approved Document L, volume 2: buildings other than dwellings?

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

No comment.

Question 29

Do you agree with the proposed set of standards for air distribution systems for new non-domestic buildings in Section 6 of draft Approved Document L, volume 2: buildings other than dwellings?

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

No comment.

Question 30

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

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

No comment.

Question 31

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

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

No comment.

### Question 32

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

a. Yes

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

- As highlighted within the Consultation Document, the specification of stringent standards on the performance of building services is only effective if these services and controls are tested and adjusted properly after installation (a process known as 'commissioning')
- According to the National Energy Foundation, whilst the root causes of poor energy performance in buildings can arise at all stages of the building project, poor commissioning is a key cause of poor performance.
  
- The Hackitt Review raised a number of key issues within the construction sector, including a lack of clarity surrounding where responsibility lies, particularly in commissioning, and we welcome the Welsh Government's consideration of this key issue.
- The proposals appear reasonable and crucially, aim to directly address some of the challenges raised.
- We are also supportive of the proposal to provide the commissioning notice to the building owner. However, it is crucial that any documentation is not too complex and is in a form that can be easily understood by the owner so that redress can be sought where an aspect of the commissioning plan was not adhered to or where the energy performance of the system differs significantly from the projected performance.

### Question 33

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

a. Yes

### Question 34

Do you agree with the proposal that wet space heating systems in new buildings should be designed to operate with a flow temperature of 55°C or lower?

b. Yes, through carbon and primary energy credit in SBEM

**Please explain your reasoning.**

- The NIA agree that wet space heating systems in new buildings should be designed to operate with a flow temperature of 55°C or lower.
- Designing heating systems to operate with a flow temperature of 55°C or lower delivers benefits, regardless of the system installed.
- We would however highlight the importance of focusing on the overall outcome, as opposed to setting too many detailed sub-targets and we maintain this view.

#### Question 35

Do you agree with the proposals to clarify, rationalise and simplify the guidance for building services in new non-domestic buildings, and to incorporate the standards of the Non-Domestic Building Services guidance into the main body of the draft Approved Document L, volume 2: buildings other than dwellings?

b. No

**If you answered no, please explain your reasoning.**

- Dame Judith Hackitt's interim report noted that "current regulations and guidance are too complex and unclear" and to this end, we recognise the importance of clarifying, rationalising and simplifying guidance for building services in new non-domestic buildings.
- However, there is a risk that if the compliance guides are not adequately incorporated into the relevant approved documents, valuable information and best practice guidance will be lost.
- We do not believe that matters within the Non-Domestic Building Services Compliance Guide have been adequately incorporated into the main body of Approved Document L, Volume 2: Buildings Other Than Dwellings.
  - o Whilst Table 4.4 of Approved Document L provides minimum insulation thicknesses, it does not fully incorporate the information in Table 39 of the Compliance Guide which provides recommended maximum heat losses for direct hot water and heating pipes.
  - o Whilst we acknowledge that the proposed standards in Table 4.4 are one way of demonstrating compliance with BS 5422, we would argue that ultimately BS 5422 is based on limiting permissible heat losses and therefore providing minimum insulation thicknesses alone is inadequate.

#### Question 36

Do you agree with the proposals to simplify the requirements in the Building Regulations for the consideration of high-efficiency alternative systems in new non-domestic buildings?

**If you answered no, please explain your reasoning.**

No comment.

#### Question 37

Do you agree with the proposals for replacement of fixed building services in existing non-domestic buildings as detailed in paragraphs 5.4 to 5.7 of draft Approved Document L, volume 2: buildings other than dwellings?

**If you answered no, please explain your reasoning.**

No comment.

#### Question 38

Do you agree with the newly proposed minimum efficiencies for natural gas, oil and LPG boiler and domestic hot water system installations in existing non-domestic buildings in Section 6 of draft Approved Document L, volume 2: buildings other than dwellings?

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

No comment.

#### Question 39

Should minimum boiler efficiency standards in existing non-domestic buildings still benefit from relaxations through the use of heating efficiency credits?

**If you answered yes, please explain your reasoning.**

No comment.

#### Question 40

Do you agree with the proposed set of standards for air distribution systems for existing non-domestic buildings in Section 6 of draft Approved Document L, volume 2: buildings other than dwellings?

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

No comment.

#### Question 41

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

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

No comment.

#### Question 42

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

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

No comment.

#### Question 43

Do you agree with the proposals for requirements relating to the commissioning and providing information to building owners for existing non-domestic buildings?

a. Yes

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

- The NIA support the extension of proposals concerning commissioning in new non-domestic buildings to work undertaken in existing non-domestic buildings.
- We are broadly supportive of the proposed guidance focused towards work undertaken in existing buildings. It appears reasonable that separate guidance should apply when installing a complete new or replacement system to when work is undertaken on an existing system, unless the work undertaken on an existing system fundamentally alters the energy or CO2 performance.
- It is important to highlight that some of the permitted forms of documentation for both new and existing systems will not enable the energy performance of the actual system to be truly assessed (see examples below).
  - o New or Replacement System: One of the permitted forms of documentation for a new or replacement system is "a documented assessment of a reasonably representative complete system produced by the product manufacturer."
  - o Existing System: One of the permitted forms of documentation for existing systems is "product data sheets produced by the product manager."
- However, we recognise that resource limitations mean that it is not possible to undertake a full energy assessment of every system installed.
- We support the proposal that a copy of the commissioning sheet should be provided to the building owner.
- However, as noted previously in our response, this must be in a format that is not too complex and can be easily understood by the owner so that redress can be sought where an aspect of the commissioning plan was not adhered to or where the energy performance of the system differs significantly from the projected performance.

#### Question 44

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

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

No comment.

#### Question 45

Do you agree with the proposal that when whole wet space heating systems (i.e. boiler and radiators) are replaced in existing non-domestic buildings the replacement system should be designed to operate with a flow temperature of 55°C or lower?

b. Yes, through carbon and primary energy credit in SBEM

**Please explain your reasoning.**

- The NIA agree that new wet space heating systems installed in existing buildings should be designed to operate with a flow temperature of 55°C or lower.
- Designing heating systems to operate with a flow temperature of 55°C or lower delivers benefits, regardless of the system installed.
- We would however like to highlight the importance of focusing on the overall outcome, as opposed to setting too many detailed sub-targets.

#### Question 46

Do you agree with the proposals to restructure the guidance for building services in existing non-domestic buildings, and to incorporate the standards of the Non-Domestic Building Services guidance into the main body of the draft Approved Document L, volume 2: buildings other than dwellings?

b. No

**If you answered no, please explain your reasoning.**

- Dame Judith Hackitt's interim report noted that "current regulations and guidance are too complex and unclear" and to this end, we recognise the importance of clarifying, rationalising and simplifying guidance for building services in new non-domestic buildings.
- However, there is a risk that if the compliance guides are not adequately incorporated into the relevant approved documents, valuable information and best practice guidance will be lost.
- We do not believe that matters within the Non-Domestic Building Services Compliance Guide have been adequately incorporated into the main body of Approved Document L, Volume 2: Buildings Other Than Dwellings.
- Whilst Table 4.4 of Approved Document L provides minimum insulation thicknesses, it does not fully incorporate the information in Table 39 of the Compliance Guide which provides recommended maximum heat losses for direct hot water and heating pipes.
- Whilst we acknowledge that the proposed standards in Table 4.4 are one way of demonstrating compliance with BS 5422, we would argue that ultimately BS 5422 is based on limiting permissible heat losses and therefore providing minimum insulation thicknesses alone is inadequate.

#### Question 47

Do you agree the Government should continue to provide guidance for minimum building services efficiencies in existing non-domestic buildings, if the standard does not go significantly further than the Ecodesign regulations?

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

No comment.



#### Question 48

Do you agree with the changes made to simplify, rationalise and clarify the guidance, and the updates to external references in Appendix E and Appendix F, in draft Approved Document L, volume 2: buildings other than dwellings, as outlined in paragraph 3.12.1 of the consultation document?

a. Yes

**If you answered no, please explain your reasoning. Please do not repeat comments on the changes made to simplify, rationalise and clarify the guidance for Building Services which you have already provided under Questions 38, 51 and 52.**

- The proposed changes appear to be reasonable.
- We are broadly supportive of efforts to simplify, rationalise and clarify guidance where this will not have implications on the quality of work undertaken and/or installers' ability to understand and correctly apply Building Regulations.
- We do not believe that proposals such as the removal of guidance on EPCs and the removal of an example of economic payback will have an adverse impact on the quality of installation or application of the regulations.

## Question 49

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

a. Yes

**If you answered no, please explain your reasoning.**

- The NIA are unable to comment on the technical, functional and economic feasibility of all measures within Tables D.1 and D.2 of Appendix D.

- However, we can comment on the items which concern, either directly or indirectly, fabric insulation products.

- Whilst we have provided some insight into the feasibility of measures that concern fabric efficiency, we would highlight that each building is different and to this end, improving the thermal elements of an existing building should depend on an assessment of the building, wherever possible.

- Table D.1, Item 6: Upgrading thermal elements that have U-values worse than those in Table 4.2, column (a) following the guidance in paragraphs 4.7 and 4.8.

o The threshold U values for upgrading retained thermal elements remain unchanged compared to the previous building regulations and we believe that under normal circumstances, it should be technically, functionally and economically feasible to upgrade retained thermal elements with U values greater than those displayed in column (a) of Table 4.2 up to the improved value.

o However, it is important to note that each building is different and therefore the feasibility of all measures displayed in Table D.1 and D.2 will vary by property.

- Table D.1, Item 9: Measures specified in the Recommendations Report that accompanies a valid Energy Performance Certificate which will achieve a simple payback of 15 years or less.

o We do not believe that Item 9 will be consistently technically, functionally and economically feasible.

o EPC recommendations are based upon generic input assumptions and as a result, EPCs are not fully reflective of in-use energy performance.

o Assumptions in the development of EPCs means that there is no guarantee recommendations are feasible and appropriate, particularly for older and more complex properties

o Further to this, EPCs are a static document, which means that recommendations can quickly become outdated or inappropriate.

- Table D.2 outlines a range of additional energy efficiency measures which should usually be installed wherever consequential improvements apply as a result of either the provision of a fixed building service in the building for the first time or increasing the capacity of any fixed building service.

- Specifically, if the installed capacity per unit area of a heating system is increased or area-weighted installed capacity of a cooling system is increased, thermal elements within the area served that have U-values worse than those in Table 4.2, column (a), should be replaced or renovated.

o As noted above, we believe that under normal circumstances, it should be technically, functionally and economically feasible to upgrade retained thermal elements with U values greater than those displayed in column (a) of Table 4.2 up to the improved value.

o However, it is important to note that each building is different and therefore the feasibility of all measures displayed in Table D.1 and D.2 will vary by property.

#### Question 50

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

a. Yes

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

- We are generally supportive of the proposals for relaxation factors for modular and portable buildings.
- Whilst the NIA advocate for the attainment of the highest possible energy efficiency standards where possible, we recognise that it may not be technically or economically feasible to hold all modular and portable buildings to the same standards as other buildings.
- We agree with the principal of setting higher standards for long-term hire or permanent buildings constructed using refurbished modules in order to recognise the greater potential for improving these building types.

#### Question 51

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

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

No comment.

#### Question 52

Do you agree that we should adopt an independent approved airtightness testing methodology such as the CIBSE draft methodology for non-domestic buildings?

**If you answered no, please explain your reasoning.**

No comment.

#### Question 53

Do you agree with the proposal for guidance on the calibration of devices that carry out airtightness testing in new and existing non-domestic buildings?

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

No comment.

#### Question 54

Do you agree with the proposed approach to energy sub-metering, as detailed in Section 5 of draft Approved Document L, volume 2: buildings other than dwellings?

a. Yes

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

- The ability to accurately monitor in-use performance, relative to a benchmark enables the performance gap to be assessed and ultimately reduced, through energy saving measures.
- The NIA are therefore supportive of the Welsh Government's proposals that sub-metering should enable a useful comparison to be made between design-stage energy forecasts, such as TM54, and measured results, in addition to meeting CIBSE's TM39 standard.
- Energy sub-metering is a key component for assessing in-built performance but in order for it to be a valuable mechanism there must be a means of comparing measured results with design stage energy forecasts.

Question 55

Do you agree with the proposals for transitional arrangements for buildings other than dwellings?

a. Yes

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

Yes, we support this proposal.

Question 56

Do you agree with the proposed guidance in Section 1 and Section 2 of draft Approved Document F, volume 2: buildings other than dwellings on minimising the ingress of external pollutants and on the proper installation of ventilation systems in non-domestic buildings?

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

No comment.

Question 57

Do you agree with the proposed guidance for reducing noise nuisance for ventilation systems in non-domestic buildings?

b. No

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

- Section 1.6 of Draft Approved Document F for Buildings Other than Dwellings states "for mechanical ventilation systems, fan units should be appropriately sized so that fans operating in normal background ventilation mode are not unduly noisy." We do not believe that statements such as these provide a basis for assessing acoustic performance.

- We believe that Approved Document F should include limits for the noise produced by ventilation extract systems and require in-situ noise testing.

- If ventilation systems produce a noise nuisance, there is a risk that they will be overridden by the building occupier, potentially leading to poor indoor air quality and as such, ensuring stringent guidance is in place to minimise noise nuisance is important.

Question 58

Do you agree with the additional guidance provided in paragraphs 1.18 to 1.26 of the draft Approved Document F, volume 2: buildings other than dwellings on the installation of ventilation systems?

**If you answered no, please explain your reasoning.**

No comment.

Question 59

Do you agree that the guidance in Appendix B of the draft Approved Document F, volume 2: buildings other than dwellings provides an appropriate basis for setting minimum ventilation standards?

**If you answered no, please explain your reasoning.**

No comment.

#### Question 60

Do you agree with the list of industry guidance presented in Section 1 of draft Approved Document F, volume 2: buildings other than dwellings?

a. Yes

#### Question 61

Do you agree with the list of references to industry guidance presented in Appendix C and Appendix D in the draft Approved Document F, volume 2: buildings other than dwellings?

a. Yes

#### Question 62

Do you agree with the proposals to simplify, rationalise and clarify the Approved Document guidance in draft Approved Document F, volume 2: buildings other than dwellings as outlined in paragraph 4.3.7 of the consultation document?

a. Yes

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

- The NIA are generally supportive of the proposals to simplify, rationalise and clarify the Approved Document guidance in ADF Volume 2: Buildings Other than Dwellings.

- Increasing fabric efficiency without due consideration for ventilation provision can lead to unintended consequences and we are therefore supportive of additional guidance, provided it is clear and accessible, and the removal of guidance where it may lead to confusion.

- Additional thoughts on some of the specific proposals have been outlined below.

o Additional advice on ventilation through infiltration: We are particularly supportive of the acknowledgement that reducing infiltration can reduce indoor air quality.

o Additional guidance on providing clear, non-technical information: As noted previously, it is crucial that any documentation provided to the building owner is not too complex and is in a form that can be easily understood. We are therefore particularly supportive of Paragraph 4.7.

- We agree with proposals to remove information which only applies to dwellings and general information. However, we are more cautious of proposals to remove specific guidance such as guidance on ductwork leakage testing and advice on trickle ventilators.

#### Question 63

Do you agree with the guidance for the ventilation of car parks and offices, as detailed in Section 1 of draft Approved Document F, volume 2: buildings other than dwellings?

**If you answered b or c, please explain your reasoning and provide alternative suggestions. Please note that the appropriate questions on measures to prevent the spread of infection are detailed in section 4.4 of this consultation document.**

No comment.

#### Question 64

Do you agree with the proposals in Section 3 of draft Approved Document F, volume 2: buildings other than dwellings, when replacing an existing window with no background ventilators?

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

No comment.

#### Question 65

Do you agree with the proposal to provide a completed commissioning sheet to the building owner and associated guidance in Section 4 of draft Approved Document F, volume 2: buildings other than dwellings?

a. Yes

**If you answered no, please explain your reasoning.**

- Whilst the NIA are supportive of the proposal to provide a completed commissioning sheet to the building owner, there is a risk that the information provided will be too complex for a non-technical person to understand.
- Building owners should be provided with information on how their ventilation systems perform in practice, in a form that can be easily understood. We therefore welcome the proposal that any operation and maintenance information should provide the building owner with specific instructions surrounding how and when to use the ventilation system.

#### Question 66

Do you agree with the proposed standards for provision of ventilation for common spaces in offices, shown in paragraph 1.36 of draft Approved Document F, volume 2: buildings other than dwellings?

**If you answered no, please explain your reasoning.**

No comment.

#### Question 67

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

**If you answered no, please explain your reasoning.**

No comment.

#### Question 68

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

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

No comment.

#### Question 69

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

No comment.

#### Question 70

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

**If you answered no, please explain your reasoning.**

No comment.

#### Question 71

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

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

No comment.

#### Question 72

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

**If you answered yes, please explain your reasoning and provide evidence to support this.**

No comment.

#### Question 73

Do you agree with the extension of the scope to cover residential (institutional) and residential (other) buildings described in Table 0.1 in the draft Approved Document S?

a. Yes

**Please explain your reasoning.**

- Yes, we support this proposal.
- Beyond dwellings, there are other residential buildings which may be at risk of overheating, putting occupants at risk.
- We therefore welcome the Welsh Government's proposal to extend the scope of overheating standards to these buildings.
- We would note that the risk of overheating in other buildings that remain out of scope (including existing residential buildings) should be further investigated and standards extended if appropriate.
- However, we agree with the Welsh Government that implementation of the overheating standard for new residential buildings should not be delayed.

#### Question 74

Do you agree with the proposed changes to the simplified method as outlined in Table 1.2 of draft Overheating Approved Document?

**If you answered no, please explain your reasoning.**

No comment.

#### Question 75

Do you agree with the proposals to ensure noise is considered in new residential buildings when the overheating strategy is in use, and the proposed guidance in Section 2 of the draft Overheating Approved Document?

a. Yes

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

- We welcome Welsh Government's consideration of noise which is an important issue that will impact the usability of the overheating strategy.
- In particular, we welcome the fact that Welsh Government have considered both external noise when openings are used, which will be particularly important in city centre locations, as well as noise from mechanical systems.

#### Question 76

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

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

No comment.

#### Question 77

Do you agree with the proposals on security in Section 2 of the draft Overheating Approved Document in new residential buildings?

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

No comment.

#### Question 78

Do you agree with the protection from falling guidance proposed in Section 3 of the draft Overheating Approved Document?

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

No comment.

#### Question 79

Do you consider the guidance on protection from falling proposed in Section 2 of the draft Overheating Approved Document should also include requirements to avoid overstretching? (such a maximum distance between the inside face of the wall and the maximum position of the window handle?)

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

No comment.

#### Question 80

Are there any further issues which affect usability that should be included in the draft Overheating Approved Document?

**Please explain your reasoning and provide supporting evidence.**

No comment.



### Question 81

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

No comment.

## Submit your response

If you want to receive a receipt of your response, please provide an email address.

Email address

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