

## LETI – ‘work in progress’ draft full consultation response

This document outlines LETI’s current draft response (as of 24.03.21), we thought that it might be helpful for others that are putting together a full detailed response. This is an evolving document and intended to be a helpful starting point for others.

**Please do not copy and paste the LETI answers into your own response, repeated responses are not useful for MHCLG, these are provided for guidance only. Feel free to reiterate the messaging if you agree.**

The future building standard is a very long consultation (over 130 questions). If you only have 10-15 minutes to respond to the consultation - download the LETI- short consultation response template that highlights the key 17 questions that we think people and organisations should respond to. Go to [www.leti.london/part-1](http://www.leti.london/part-1)

Respond to the consultation here: <https://www.gov.uk/government/consultations/the-future-buildings-standard>

Questions in red text are the questions that LETI think are most important in this consultation - please focus on these in your consultation response.

The questions highlighted in yellow are questions that LETI would like to develop further evidence by carrying out energy modelling, to help with this sign up at [this](#) link )

## Section A: Non-Domestic Buildings

### The Future Buildings Standard

**Question 1):**

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

**Do you agree that the outline of the Future Buildings Standard in this chapter meets this aim?**

**a) Yes**

**b) No**

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

*The outline generally shows good intent, with a focus on fabric efficiency and low carbon heating technologies.*

*However, we have a number of comments and suggestions on the approach and detail of each element.*

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

*Hydrogen - LETI concludes it is unlikely that zero carbon hydrogen supplied via a re-purposed gas mains network will be available for the vast majority of buildings, for the foreseeable future - [252d09\\_54035c0c27684afca52c7634709b86ec.pdf \(filesusr.com\)](#)*

*Direct Electric - this technology is likely to lead to high fuel cost and carbon emissions (in comparison to alternatives) and should therefore be limited to buildings with very special cases low heating/dhw demand, whereas the current proposal can lead to wide-spread use of the technology*

**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
- b) No**

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

*All building types should be incentivised to opt for low carbon heating and hot water*

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

- a) Yes
- b) No**

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

*Not the right approach, NCM should incentivise reduced heating and DHW demand*

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )

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

- a) 2025 – our proposed date
- b) Another date (please specify)**

Please explain your reasoning.

*2021/2022*

*The magnitude and speed of change is at risk of being insufficient to deliver on the 2050 net zero targets*

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

- a) 2025
- b) Another date (please specify)**

Please explain your reasoning.

*2021/2022*

*The magnitude and speed of change is at risk of being insufficient to deliver on the 2050 net zero targets*

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

- a) 2025 – our proposed date
- b) **Another date (please specify)**

**Please explain your reasoning.**

2021/2022

*The magnitude and speed of change is at risk of being insufficient to deliver on the 2050 net zero targets*

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

- a) 2025
- b) **Another date (please specify)**

**Please explain your reasoning.**

2021/2022

*The magnitude and speed of change is at risk of being insufficient to deliver on the 2050 net zero targets*

### **Interim uplift to Part L standards for non-domestic buildings**

**Question 9):** We would welcome any further suggestions, beyond those provided in this consultation, for improving the modelling process; Part L and Part F compliance; and the actual energy performance of non-domestic buildings. Please provide related evidence.

- *Introduce absolute Energy Use Intensity (EUI) targets for non-domestic buildings. This provides a measure of energy “at the meter” which is influenced by efficient design and energy supply agnostic*
- *Include unregulated energy*

- *No notional building, etc. The way the notional building works means that some essential decisions are not rewarded (e.g. improvement in form factor, decision to adopt a heat pumps in nondomestic buildings, etc.). These decisions should be rewarded.*

*The Consultation cites the results of the Innovate UK, Building Performance Evaluation Programme: Findings from non-domestic projects – Getting the best from buildings, 2016 <https://www.gov.uk/government/publications/low-carbon-buildings-bestpractices-and-what-to-avoid>, to evidence the Performance Gap and solutions to this, from actual BPE carried out. Building modelling relies on validation from building performance in reality during occupancy(e.g comparing to CIBSE TM54). Thus, performance measurements made during occupancy should be recorded on a mandatory basis to improve modelling . These should include annual overall energy use, submetered energy use for regulated areas (e.g.heating, ventilation and lighting) as set out in CIBSE TM39, water consumption, and indoor air quality levels as a minimum to improve modelling reliability. This should apply to all buildings over 1000 sqm.*

(LETI will produce further evidence on this - To help with this sign up at [this link](#))

**Question 10):** What level of uplift to the energy efficiency standards for non- domestic buildings in the Building Regulations should be introduced in 2021?

- a) Option 1 – average 22% CO<sub>2</sub> reduction
- b) Option 2 – average 27% CO<sub>2</sub> reduction (this is the Government’s preferred option)
- c) No change
- d) Other level of uplift (please specify)**

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

*We would suggest at least 40-50% uplift*

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )

**Question 11):** Do you agree with the way that we are proposing to apply primary energy as the principal performance metric?

- a) Yes
- b) No**

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

*Primary energy is derived from energy use. It makes it more complex by multiplying it by a*

*factor. This factor changes dynamically and can be out-of-date very quickly. Adding this complexity would be necessary if decisions driven by energy use only need to be corrected to drive the right outcomes. It is not the case though.*

*It changes independent of the building performance using offsite factors, is not understandable by vast majority of occupants and operators, does not directly relate to meter readings, changes year on year and hence means buildings cannot be compared*

*Out of all metrics it is probably the one which most people will not understand.*

*Adopting energy use EUI as a metric is one of the key LETI messages and has received consistent support in the last 4 years. Through surveys of a total of 800 people, more than 85% expressed a preference for energy use over primary energy.*

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )

**Question 12): Do you agree with using CO<sub>2</sub> as the secondary performance metric?**

**a) Yes**

**b) No**

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

*Useful as an incentive to reduction of carbon emissions  
CO<sub>2</sub> factor should be long term forecast, not 3-year forecast*

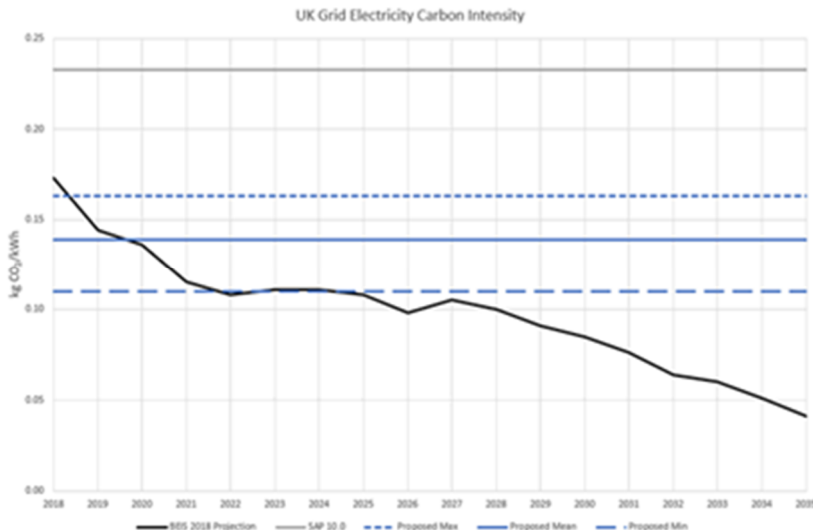
**Question 13): Do you agree with the approach to calculating CO<sub>2</sub> and primary energy factors, referred to in paragraph 3.5.7 of this consultation document?**

**a) Yes**

**b) No**

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

*The proposed carbon factor for electricity is around the current level, so will already be outdated by the time the new guidance comes into effect.  
CO<sub>2</sub> factor should be long term forecast, not 3-year forecast*



*It appears the methodology does not support electricity as the primary energy source as it shows it with a PE factor of 1.501, vs gas of 1.130. This is likely to lead to gas being favoured.*

**Question 14):** Do you agree with the proposals for natural gas being assigned as the heating fuel for any fuels with a worse CO<sub>2</sub> emission factor than natural gas?

- a) Yes
- b) No**

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

*The heating fuel type in the notional building should be based on the best technology for that building type that promotes decarbonisation i.e. heat pumps for offices. This is another good reason to move away from the Notional building approach as it reduces this confusion.*

**Question 15):** Do you agree with our proposal of using a hybrid electric/heat pump heating system in the notional building when electricity is specified as a heating fuel?

- a) Yes
- b) No**

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

*As it stands, given heating demand is underestimate by NCM and there is little incentive to reduce it, the approach of setting a 134% SCOP in the notional building in this instance may lead to wide-spread specification of direct electric heating*

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )

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

- a) Yes
- b) No**

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

*The notional building baseline should not use gas*

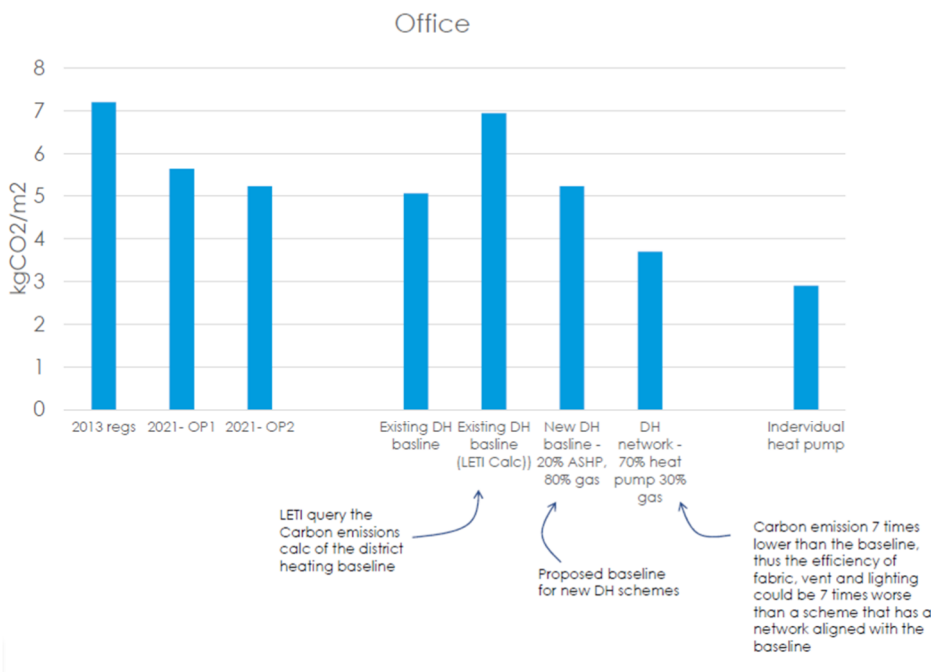
**Question 17):** Do you agree with the proposal for connecting to an existing heat network, as presented in the draft NCM modelling guide?

- a) Yes
- b) No, they give too much of an advantage to heat networks**
- c) No, they do not give enough of an advantage to heat networks
- d) No, I disagree for another reason

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

*If the notional building has a fixed DH baseline, and the existing or new network performs better than this, this gives a 'get out clause' for all buildings connecting to DH*





- New/ existing district heating schemes will have varying carbon factors depending on % and efficiency of heat pumps
- If the notional building has a fixed DH baseline, and the existing or new network performs better than this, this gives a 'get out clause' for all buildings connecting to DH



*The approach of a 0.19 kgCO2/kWh carbon factor is not justified by reality as carbon factors tend to be higher.*

*Most heat networks have not switched to electricity and have no roadmap to zero carbon (there appears to be no economic model to allow this) and using waste heat from the likes of waste incineration is taking waste that should instead be entering the circular economy and not emitting combustion carbon*

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )

**Question 18):** **Do you agree with the proposal for connecting to a new heat network, as presented in the draft NCM modelling guide?**

- Yes
- No, they give too much of an advantage to heat networks**
- No, they do not give enough of an advantage to heat networks
- No, I disagree for another reason

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

*The % of heat pump assumed for new DH networks should be higher to incentivise decarbonisation*

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )



**Question 19):** Do you agree with the proposed changes to the National Calculation Methodology Modelling Guide and activity database?

- a) Yes
- b) Yes, but additional changes should be made
- c) No**

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

*No notional building, etc*

- *NCM underestimates space heating – proposed NCM changes do not seem to address this issue*
- *SBEM uses over inflated unregulated room heat gain assumptions to cope with regulated fabric heat loss – NCM should better consider unregulated energy*
- *A fabric efficiency / heating and cooling demand metric would be useful*

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )

**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.

(LETI will produce further evidence on this - To help with this sign up at [this link](#) )

**Question 21):** Do you agree with the proposals for limiting heat gains in non- domestic buildings?

- a) Yes
- b) No, they go too far
- c) No, they do not go far enough**
- d) No, I disagree for another reason

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

- *A fabric efficiency / heating and cooling demand metric could be introduced as an alternative to this method*
- *Pipework insulation thicknesses are a good addition*

*Further evidence and modelling required*

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

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

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

- *Airtightness values do not go far enough*
- *The range of U-values in the notional building specification for Option 2 would be more adequate as backstop U-values*
- *A fabric efficiency / heating and cooling demand metric would be useful*

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

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

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

Retrofit work to existing non-domestic buildings represent a key opportunity to decarbonise the existing stock. The U-Values proposed for new fabric elements do little to realise this opportunity and should be improved drastically (in particular for external walls).

**Question 24):** Do you agree with the draft guidance in paragraph 4.15 of the draft *Approved Document L, volume 2: buildings other than dwellings* on reducing unwanted air infiltration when carrying out work to existing non-domestic buildings?

- a) Yes

**b) No**

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

The provision of new guidance on reducing unwanted infiltration is welcome. However the current draft is inadequate to achieve the desired outcome. Guidance should also address air leakage paths in retained existing elements (rather than solely new elements). And provide a clearer link to an improved air permeability target (beyond the proposed 8.0 m<sup>3</sup>/h.m<sup>2</sup> @ 50Pa in the notional building). The guidance should refer to 'taping and sealing' to avoid misinterpretation and subsequent inappropriate practice with poor quality outcomes.

**Question 25): Do you agree that the limiting U-value for rooflights in new and existing non-domestic buildings should be based on a rooflight in a horizontal position, as detailed in paragraph 4.4 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

**a) Yes**

**b) No**

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

**Question 26): Do you agree that we should adopt the latest version of BR 443 for calculating U-values in new and existing non-domestic buildings, as detailed in paragraph 4.1 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

**a) Yes**

**b) No**

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

**Question 27): Do you agree with the newly proposed minimum efficiencies for natural gas, oil and LPG boiler and domestic hot water system installations in new non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

**a) Yes**

**b) No, the standards go too far**

**c) No, the standards do not go far enough**

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

Natural Gas Single boiler <2MW: 93% is an acceptable efficiency.

Part L MUST specified that the BOILER is installed in a way that corresponds to the manufacturer's efficiency. E.g. if a boiler achieve 95% efficiency at 45°C return temperature, the system MUST be designed to 60°C temperature. If it is designed to operate at 55°C return temperature it is dishonest to quote the manufacturer's 95%. The majority of boiler designs in the UK have incorrect condensing boiler hydraulic design that actively PREVENTS the low return temperatures. ADDITIONAL REQUIREMENTS SHOULD BE PROVIDED TO PROVE THE DESIGN.

Natural Gas Single boiler >2MW: 88%

We think this efficiency should be raised. Yes some large boilers (e.g. Viessmann VitoMax) are non-condensing boilers but they have add-on flue condensers.

Today, in Non-commercial buildings, there is no justification for using systems that require temperatures above 55°C. For new building, high insulation, better heating terminals mean all non-domestic building must achieve condensing boiler efficiencies. Air Handling Units also can operate at very low temperature and weather-compensated temperatures.

On recent projects, we used 6 port valves and double-three port change over-over system for heating and cooling, achieving LTHW temperature or 32/25°C

Existing Buildings:

To satisfy the requirements for low carbon-ready future, we recommend that in any existing boiler replacement scheme, the boilers and heating plant shall be ready to achieve condensing boiler efficiencies (93%) so that future system improvement on the refurbishment of commercial spaces / non-domestic premises can bring down the heat emitters' operating temperatures. For example, facility to add boiler flue condensers.

**Question 28): Do you agree with the proposed set of standards for air distribution systems for new non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

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

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

**Question 29): Do you agree with the proposals for self-regulating devices for new non-domestic buildings, as set out in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

- a) Yes
- b) No

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

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

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

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

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

- a) Yes**
- b) No, the standards go too far**
- c) No, the standards do not go far enough**

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

*Changes on VRF are welcome*

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

- a) Yes**
- b) No, a different trigger point should be used**
- c) No, I do not agree that building automation and control systems should be required in new buildings**
- d) No, I disagree for another reason**

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

*290kW would seem rather a large rated output – virtually all buildings of this scale would already have this feature. We would propose 180kW.*

*Justification – 180kW would equate to a heating system for a building of 3000m<sup>2</sup> or greater*

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

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

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

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

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

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

*C. Whilst we agree with the principles that minimum legal requirements should be clearly set out, expanded and improved upon, we would welcome a more specific set of requirements proposed. We would suggest that at design stage the Part L submission to building control includes specific parameters to be reported for each system to demonstrate the system ties up with the energy strategy requirement. Ideally parameters reported should be standardised and include energy consumed at full and part loads that can be feasibly replicated during commissioning. Provision should be made for shell and core or phased handovers where loads cannot be demonstrated within the contract. Where loads cannot be fully demonstrated prior to PC due to lack of load or environmental conditions, provision should be made to ensure return visits are made to complete commissioning such as via seasonal commissioning. Suitable margins of acceptable discrepancy between required and achieved parameters should be made clear.*

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

- a) Yes**
- b) No

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

*A. Yes we welcome the additional provisions, particularly the assessment and reporting in line with CIBSE TM54. Suitable provision should be made to cover shell and core, CAT A or partially occupied buildings where it may not be feasible to gain information unregulated energy uses.*

**Question 36): Do you agree with the guidance proposals for adequate sizing and**



**controls of building services systems in new non-domestic buildings, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

**a) Yes**

**b) No, I do not agree with providing guidance on this**

**c) No, the guidance should be improved**

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

*Note: 55deg flow temperature should only apply to existing networks, new networks should ideally be lower temperature*

**Question 37):** Do you agree with the proposal that wet space heating systems in new buildings should be designed to operate with a flow temperature of 55°C or lower?

- a) Yes, through a minimum standard set in paragraph 5.9 of the *Approved Document L, volume 2: buildings other than dwellings*
- b) Yes, through carbon and primary energy credit in SBEM
- c) Yes, by another means
- d) No, the temperature should be below 55°C**
- e) No, this standard should not be applied to all new buildings
- f) No, I disagree for another reason

**Please explain your reasoning.**

*To ensure gas heating condensation and heat pump SEERs. In principle this provides a good balance point between lowest temperature and providing some flexibility.*

**Question 38):** Do you agree with the proposals to clarify, rationalise and simplify the guidance for building services in new non-domestic buildings, and to incorporate the standards of the Non-Domestic Building Services guidance into the main body of the *Approved Document L, volume 2: buildings other than dwellings*?

- a) Yes
- b) No**

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

*In the first consultation Q28 'Do you agree with incorporating the Compliance Guides into the Approved Documents?' 76 % of respondents said no. It is still of concern that lots of useful guidance has/will be lost by combining the two documents. The draft approved document appears to cover all regulatory requirements. However, the supplementary guidance that has not been included from the compliance guide is what allows users to put the regulatory requirements in context and understand how they should be implemented. The proposed combination does not ensure that guidance is clear and tailored to the needs of people who need to use it.*

**Question 39):** Do you agree with the proposals to simplify the requirements in the Building Regulations for the consideration of high-efficiency alternative systems in new non-domestic buildings?

- a) Yes

b) No

If you answered no, please explain your reasoning.

**Question 40):** Do you agree with the efficiency proposals for replacement fixed building services in existing non-domestic buildings as detailed in paragraphs 5.4 to 5.7 of draft *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes

b) No

If you answered no, please explain your reasoning.

*Should systems for existing buildings have the same standards as new built?*

**Question 41):** Do you agree with the newly proposed minimum efficiencies for natural gas, oil and LPG boiler and domestic hot water system installations in existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?

a) Yes

b) No, the standards go too far

c) No, the standards do not go far enough

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

*Single boilers >2MW should have efficiencies of 93%.*

*Yes, some large boilers are non condensing (e.g. Viessman VitoMax) but these can be retrofitted or fitted with flue condensers.*

*Yes, some distribution system serve high temperature terminals (fan coils, radiators, air handling units BUT, all of these item must be brought in line to lower temperatures over time either by gradual replacement, or by weather compensated controls.*

*Air handling units for example SHOULD be controlled on weather compensation (albeit not the same 'curve' as for radiators). Domestic hot water system can be controlled by separate boilers or three header systems or controlled by overriding system temperature.*

*In short, there is no sense at present to expect LARGE BOILER from having lower efficiencies.*

*This applies to 6.1 and 6.2*

**Question 42): Should minimum boiler efficiency standards in existing non- domestic buildings still benefit from relaxations through the use of heating efficiency credits?**

- a) Yes, boiler installations should continue to benefit from heating efficiency credits
- b) No, boiler installations should no longer benefit from heating efficiency credits (the Government's proposal)**

If you answered yes, please explain your reasoning.

**Question 43): Do you agree with the proposed set of standards for air distribution systems for existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

- a) Yes**
- b) No, the standards go too far
- c) No, the standards do not go far enough

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

**Question 44): Do you agree with our proposed approach and guidance to mandating self-regulating controls in existing non-domestic buildings, including technical and functional feasibility, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

- a) Yes**
- b) No

If you answered no, please explain your reasoning.

**Question 45): Do you agree with the minimum efficacy proposals for lighting in**

existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?

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

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

**Question 46):** Do you agree with the proposals for cooling in existing non-domestic buildings in Section 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?

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

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

**Question 47):** Do you agree with the proposals that when Building Automation and Control System is installed in an existing non-domestic building with a heating or air-conditioning system over 290 kW, it should meet the same minimum standards as new non-domestic buildings?

- a) Yes
- b) No, a different trigger point should be used
- c) No, a different standard should be used
- d) No, for another reason

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

*290kW would seem rather a large rated output – virtually all buildings of this scale would already have this feature. We would propose 180kW.*

*Justification – 180kW would equate to a heating system for a building of 3000m<sup>2</sup> or greater*

**Question 48):** Do you agree with the proposals for requirements relating to the assessment of overall energy performance of building services installations and providing information to building owners for existing non-domestic buildings?

**a) Yes**

b) No, I do not agree with providing this guidance

c) No, the guidance should be improved

If you answered no (b or c), please explain your reasoning, including any further suggestions.

*Should the requirements go further given the evidence that lack of commissioning is a major contributing factor to the performance gap?*

**Question 49):** Do you agree with the guidance proposals for adequate sizing and controls of building services systems in existing non-domestic buildings, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 2: buildings other than dwellings*?

**a) Yes**

b) No, do not agree with providing this guidance

c) No, the guidance should be improved

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

**Question 50):** Do you agree with the proposal that when whole wet space heating systems (i.e. boiler and radiators) are replaced in existing non-domestic buildings the replacement system should be designed to operate with a flow temperature of 55°C or lower?

a) Yes, through a minimum standard set in paragraph 5.9 of *Approved Document L, volume 2: buildings other than dwellings*

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

c) Yes, by another means

**d) No, the temperature should be below 55°C**

e) No, this standard should not be applied to all existing buildings

f) No, I disagree for another reason

Please explain your reasoning.

*Contributes to low return temperatures which are key to the efficiency of most heating systems*

**Question 51): Do you agree with the proposals to restructure the guidance for building services in existing non-domestic buildings, and to incorporate the standards of the Non-Domestic Building Services guidance into the main body of the *Approved Document L, volume 2: buildings other than dwellings*?**

a) Yes

**b) No**

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

*In the first consultation Q28 'Do you agree with incorporating the Compliance Guides into the Approved Documents?' 76 % of respondents said no. It is still of concern that lots of useful guidance has/will be lost by combining the two documents. The draft approved document appears to cover all regulatory requirements. However, the supplementary guidance that has not been included from the compliance guide is what allows users to put the regulatory requirements in context and understand how they should be implemented. The proposed combination does not ensure that guidance is clear and tailored to the needs of people who need to use it.*

**Question 52): Do you agree the Government should continue to provide guidance for minimum building services efficiencies in existing non-domestic buildings, if the standard does not go significantly further than the Ecodesign regulations?**

**a) Yes**

b) No, the Ecodesign regulations are sufficient

c) No

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

**Question 53): Do you agree with the changes made to simplify, rationalise and clarify the guidance, and the updates to external references in Appendix E and Appendix F, in *Approved Document L, volume 2: buildings other than dwellings*, as outlined in paragraph 3.12.1 of the consultation document?**

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

**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.**

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

- a) Yes
- b) No

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



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

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

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

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

- a) Yes
- b) No

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

**Question 57): Do you agree that we should adopt an independent approved airtightness testing methodology such as the CIBSE draft methodology for non-domestic buildings?**

- a) Yes, and the CIBSE methodology is appropriate
- b) Yes, but with a methodology other than CIBSE
- c) No, an independent approved airtightness methodology shouldn't be adopted.

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

**Question 58): Do you agree with the proposal for guidance on the calibration of devices that carry out airtightness testing in new and existing non-domestic buildings?**

**a) Yes**

b) No

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

**Question 59): Do you agree with the proposed approach to energy sub-metering, as detailed in Section 5 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

**a) Yes**

b) No

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

**Question 60): Do you agree with the proposed approach to energy forecasting, as detailed in paragraph 9.4 of draft *Approved Document L, volume 2: buildings other than dwellings*?**

**a) Yes**

b) No, I do not agree with the proposed approach

c) No, energy forecasting should not form part of the Building Regulations

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

*Prediction of operational energy use with CIBSE TM54 is seen as a positive and can be used for capacity building. This is seen as a positive move in conjunction with the BEIS consultation - [Introducing a performance-based policy framework in large commercial and industrial buildings - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/introducing-a-performance-based-policy-framework-in-large-commercial-and-industrial-buildings)*

*Supplementary guidance could be developed to support the use of TM54 for a number of building types.*

*Design for Performance and NABERS UK would provide a more comprehensive alternative,*

*however, are not possible to implement on a wide scale at the moment due to skills gap.*

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

**a) Yes**

**b) No**

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

### **Interim uplift to Part F standards for non-domestic buildings**

**Question 62): Do you agree with the proposed guidance in Section 1 and Section**

**2 of *Approved Document F, volume 2: buildings other than dwellings* on minimising the ingress of external pollutants and on the proper installation of ventilation systems in non-domestic buildings?**

**a) Yes**

**b) No**

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

**Question 63): Do you agree with the proposed guidance for reducing noise nuisance for ventilation systems in non-domestic buildings?**

**a) Yes**

**b) No**

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

**Question 64)** Do you agree with the additional guidance provided in paragraphs 1.18 to 1.26 of the draft *Approved Document F, volume 2: buildings other than dwellings* on the installation of ventilation systems?

- a) Yes
- b) No

If you answered no, please explain your reasoning.

**Question 65):** Do you agree that the guidance in Appendix B of the draft *Approved Document F, volume 2: buildings other than dwellings* provides an appropriate basis for setting minimum ventilation standards?

- a) Yes
- b) No

If you answered no, please explain your reasoning.

**Question 66):** Do you agree with the list of industry guidance presented in Section 1 of draft *Approved Document F, volume 2: buildings other than dwellings*?

- a) Yes
- b) Yes, but additional guidance should be provided
- c) No

Please explain your reasoning and where relevant provide alternative suggestions for guidance.

**Question 67): Do you agree with the list of references to industry guidance presented in Appendix C and Appendix D in the draft *Approved Document F, volume 2: buildings other than dwellings*?**

- a) Yes
- b) No, the Government should amend the list of references
- c) No, for another reason

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

**Question 68): Do you agree with the proposals to simplify, rationalise and clarify the Approved Document guidance in *Approved Document F, volume 2: buildings other than dwellings* as outlined in paragraph 4.3.7 of the consultation document?**

- a) Yes
- b) No

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

**Question 69): Do you agree that purge ventilation in offices should be designed to provide at least four air changes per hour?**

- a) Yes
- b) No, this standard goes too far
- c) No, this standard does not go far enough

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

**Question 70): Do you agree with the guidance for the ventilation of car parks and offices, as detailed in Section 1 of *Approved Document F, volume 2: buildings other than dwellings*?**

- a) Yes
- b) Yes, but some improvements can be made
- c) No, the guidance should be significantly changed

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.

**Question 71): Do you agree with the proposals in Section 3 of draft *Approved Document F, volume 2: buildings other than dwellings*, when replacing an existing window with no background ventilators?**

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

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

**Question 72): Do you agree with the proposal to provide a completed commissioning sheet to the building owner and associated guidance in Section 4 of draft *Approved Document F, volume 2: buildings other than dwellings*?**

- c) Yes
- d) No

If you answered no, please explain your reasoning.

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

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

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

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

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

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

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

- a) Yes
- b) No

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

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

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

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

**Question 77): If applicable, please provide any suggestions for guidance for indoor air quality monitoring (e.g. CO<sub>2</sub> monitoring) in non- domestic buildings.**

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

- a) Yes
- b) No

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



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

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

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

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

- a) Yes
- b) No

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

## Section B: Domestic Buildings

### Standards for overheating in new residential buildings in 2021

LETI will produce further evidence and testing on overheating in resi- To help with this sign up at [this link](#)

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

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

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

- a) Overheating in new homes is a serious issue and a more robust requirement within building regulations is welcomed.

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

- a) Yes
- b) Yes, but they should be expanded to include more building types and/or existing buildings**
- c) No, they should be reduced to only include flats and houses
- d) No, I disagree for another reason.

**Please explain your reasoning.**

b) We welcome the inclusion of care homes, residential schools and student accommodation within this AD.

It would be good to see an intent to extend the guidance to include

existing homes, as this would start to pick up and mitigate serious overheating risk in the existing building stock; and to ALL new buildings as overheating is not limited to homes, and limiting overheating risk in all buildings will make us more resilient to climate change, and reduce cooling loads where mechanical cooling solutions are used. In addition, with permitted development, the future use of any building is uncertain and could include conversion to homes.

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

- a) Yes
- b) No, there should be one area
- c) No, there should be more areas

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

Unsure - On balance it is probably helpful to treat London as a different case, due to the significant heat island effect. However, overheating is largely driven by solar gains, and many other parts of the country are sunny. The risk is compounded in London due to higher volume of flats over houses, flats tend to be smaller and more commonly single aspect due to land values, and ventilation via opening windows is more often compromised due to noise levels and air pollution.

Alternatively local authorities could be left to set higher overheating limits in boroughs with higher overheating risk due to the microclimates.

The implications of a London location on glazing areas and openable areas do not currently seem appropriate - see questions 86 & 87

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

- a) Yes
- b) No**

**If you answered no, please explain how buildings should be re-categorised.**

b) The rationale for why this distinction has been made is not clear, and should be better

evidenced. It is counter-intuitive that single aspect flats be allowed a higher glazing percentage than triple aspect flats (or top floor dual aspects) which generally have a lower overheating risk.

As it's written, a top floor dual aspect unit would be group A while the identical unit on the floor below would be group B (without the exposed roof element), leading to different criteria for almost identical units.

The implications for the glazing area and free areas based on these groupings are so small that this feels like an unnecessary complication.

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

- a) Yes
- b) No, the method should be more sophisticated
- c) No, the method is too easy to pass
- d) No, for another reason**

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

d) Whilst we are very supportive of having a simplified method of compliance with this regulation, the simplified method as proposed is not fit for purpose. The glazing areas are excessive as a backstop and will not prevent overheating in flats, and the free areas look to be unachievable. The simplified method does need to set sensible limits on glazing, encourage generous free areas of openings, and require shading when glazing areas are high, but the current proposals are more complicated to apply in practice than they first appear, and lead to unintended consequences such as encouraging higher glazing areas in order to meet the free area requirements.

An alternative simplified method could be based on a glazing limit for ALL new homes of (approx 20%) with an additional requirement that if the glazing area:external wall ratio exceeds around 50% for any one room, then the glazing in that room should be shaded and more openable. This would tackle any room with more concentrated levels of glazing whilst allowing other rooms with more modest glazing not to be penalised. More evidence would be needed to set these percentages, but this feels like a more robust approach with fewer unintended consequences.

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

- a) Yes
- b) No**

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

b) - no these areas are very generous and could lead to increased overheating risk.

What is difficult is that larger homes, especially detached houses can include higher glazing areas without increased overheating risk as this will be spread over more facades and receive sun at different times of day. For these homes 20% might be reasonable, but in homes with glazing on only 1 or two facades, glazing will be more concentrated and 20% could mean full height, full width glazing with consequently high overheating risk.

For this reason a requirement looking at the concentration of glazing on exposed facades would be recommended, and shading measures targeted on where the glazing concentration exceeds approx 50% of the exposed facade area for any one room.

The shading options proposed make sense, but need to be better targeted to where glazing is more concentrated, rather than applying to the whole unit.

Analysis of past projects suggests that most new homes have a glazing: floor ratio of between 8-25%, with those at the upper end (often flats) usually experiencing high overheating risk.

In section 1.8 more clarification is required around the definition of 'evenly distributed' - it would be unusual for a semi-detached home to have the same amount of glazing on the side wall as on the front and back, due to the lack of view (often facing the house next door).

See also the difficulties of achieving these glazing areas whilst complying with the sill height and reach requirements - Q97

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

a) Yes

**b) No**

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

b) No - the free areas proposed are unfeasibly high. Whilst very supportive of encouraging generous and flexible window openings, the proposals set out seem impractical and excessive.

A review of past projects did not locate a single scheme where this criteria would have been met, and the free area:floor area for the homes looked at ranged from 3-12%. A target around 8%, or half of all windows fully openable would still be ambitious but significantly more practicable.

The guidance as written would preclude some forms of openings including sash windows and sliding doors.

NB the requirement gets closer to being achievable if frame thicknesses are increased, decreasing the glazing area whilst still contributing to the openable area - this could have unintended consequences.

Combined with the protection from falling guidance on maximum reach, the width of openable windows would be reduced to around 300mm in homes with thicker walls (e.g. passivhaus).

The term 'designed to open' could be misinterpreted to include windows that are capable of opening wide, but have restrictors applied to prevent this.

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

**a) Yes**

**b) No**

**Please explain your reasoning**

Yes - daylight levels are as much a function of good window design as glazing area. Constraining the glazing area should encourage more care in how glazing is utilised. Considerations such as placement of windows high in walls, and limiting low level glazing which does little for daylight, but still contributes to overheating should be applied.

Where designers choose to use higher glazing proportions then they should demonstrate how this extra risk is mitigated using a TM59 assessment rather than via the simplified method.

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

**a) Yes, as described in the draft *Overheating Approved Document***

**b) Yes, but not as described in the draft *Overheating Approved Document***

**c) No**

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

b) Yes - TM59 provides a more flexible approach which is widely recognised, and required by some planning authorities.

It is not clear why there are minor changes to the TM59 proposed around window openings. This runs the risk of confusion with modellers following the TM guidance not complying with the AD. It might be more robust for these tweaks to be agreed with the TM59 authors and an update published by CIBSE to work with this AD. These changes are also hard to follow and apply accurately to a model - wording could be improved.

2.6 b suggests that all ground floor windows should be modelled as closed at night regardless of whether there are security measures in place.

If communal heating systems are proposed, then the TM59 route must always be used.

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

This is a hard one to evidence as everyone is different. TM59 takes a stance that homes should be designed to achieve good comfort levels with occupants taking reasonable actions, but there will always be some people with unpredicted reasons for not wanting to open windows.

Security is a key issue. Designing windows that people will feel secure opening (both from burglars and from the toddlers escaping) is a challenge that window manufacturers need to step up to. There is resistance to the 'prison bar' aesthetic, but solutions on the continent are widespread and generally

considered elegant.  
Noise is another major issue - see Q94

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

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

**Please explain your reasoning and provide any suggested amendments where applicable.**

The shading solutions set out in 2.7 are reasonable, and the requirement to exclude internal blinds from the assessment is supported.

Whilst shading from trees/plants can be beneficial, it is not possible to model this effect accurately and for this reason the exclusion of these effects is supported.

Clarification is needed in 2.10 re using mechanical ventilation systems for removing excess heat. It should be made clear that this cannot be the boost function from a standard MVHR unit as these are not designed to operate continuously and tend to be noisy.

Where a site is too noisy to open the windows a mechanical ventilation solution is not always viable. This is because TM59 states that where a home is not 'predominantly naturally ventilated' the adaptive thermal comfort criteria no longer apply, and a fixed criteria of all occupied rooms not exceeding 26°C for more than 3% of occupied hours is used. There are weather files that don't meet this criteria which makes it almost impossible to achieve without some mechanical comfort cooling. The AD precludes the use of comfort cooling, so the logical conclusion is that there will be sites that are too noisy to build homes on.

Clarification on acceptable hybrid solutions would be welcomed.

Ceiling fans should be mentioned as a potential aid to keeping cool. Currently not included in TM59 as the evidence on how to model their impact has not been secured, but as and when it is, it could be included in the model.

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

- a) Yes, curtains, blinds and tree cover should be excluded
- b) Yes, but only curtains and blinds should be excluded
- c) Yes, but only tree cover should be excluded
- d) No, none of these should be excluded

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

A - yes - see response to Q92

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

**a) Yes**

**b) No**

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

A - yes, this will mean that cooling is not a recruitment to maintain reasonable comfort. It will also ensure that cooling loads (if mechanical cooling is subsequently installed) do not include excessive solar gains, that occupants will not suffer coolth poverty maintaining reasonable comfort levels, and that if this cooling equipment fails for any reason, the homes will not suffer excess overheating.

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

**a) Yes**

**b) Yes, but with amendments to the guidance**

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

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

b). Yes, it is essential that noise is considered in this AD, but a number of issues require addressing.

1. "bedrooms" should be better defined so that the AD can't be evaded by claiming a flat has 2 home offices and one bedroom?

2. The noise limits should align with the AVO Guide - i.e. 42 dB LAeq, 8 hrs and 65 dB LAF,max, as described in the AVO Guide, as upper limits.

Lower limits are preferable following the AVO Guide method - does legislation allow these to be requested through Planning?

The noise from a mechanical system should be described as 30 dB LAeq, nT - i.e. a standardised level. This could potentially be lifted to 35 dBA, there is little known research covering this question for mechanical services providing thermal comfort under the control of the occupant.

Para 3.3 - demonstrating compliance - places an unfair burden on Building Control, who do not have



the skills and experience to interpret noise modelling or assertions by someone claiming to be an acoustician. An alternative "gatekeeper" is required, e.g. an industry body to review and approve reports submitted, potentially with a lodgement system that is publicly searchable, and could then be linked to the SAP / EPC / Air tightness test result / etc. Suggest site testing maintained for a small percentage of plots, to keep everything real.

The implication is that some sites are too noisy and cannot be used for residential development. If this is the intention (and we would support this) it should be stated more clearly.

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

- a) Yes
- b) Yes, but with amendments to the guidance**
- c) No, I do not agree with minimising the ingress of external pollutants when the overheating strategy is in use

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

b) Yes, but it is felt that AD-F does not really supply much practical advice on minimising the ingress.

There should be a defined maximum level of pollution, above which windows should not be the only means of rejecting heat.

The impact of sourcing fresh air remotely is that a mechanical ventilation system or a system with filters will be required. As for Q91: TM59 states that where a home is not 'predominantly naturally ventilated' the adaptive thermal comfort criteria no longer apply, and a fixed criteria of all occupied rooms not exceeding 26°C for more than 3% of occupied hours is used. There are weather files that don't meet this criteria which makes it almost impossible to achieve without some mechanical comfort cooling. The AD precludes the use of comfort cooling, so the logical conclusion is that there will be sites that are too polluted to build homes on.

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

- a) Yes**
- b) No

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

a) Yes - but must also comply with other ADs including means of escape

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

**a) Yes**

**b) No**

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

b) No - too many clashes with Part B,K and M. Adding requirements that contradict other AD's will confuse. This AD should focus on overheating risk, and reference other ADs to ensure proposed solutions meet all other building regulation requirements.

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

- a) Yes**
- b) No**

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

- a) Yes but - it is not felt the correct place to have guidance/requirements on this issue - this section should point to AD-K.

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

- a) Yes**
- b) No**

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

- a) Yes. The micro climate. Add note to explain that it must be considered when looking at a dwelling in its local environment. Modelling only considers the building fabric and a weather file, the micro climate may make heat rejection strategies totally ineffective. This could reference GHA guidance <https://goodhomes.org.uk/overheating-in-new-homes>

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

- a) Yes, I agree with the requirement, the list provided and that this should be within a Home User Guide**
- b) Yes, I agree with the requirement, but think that the list provided should be changed or that this should not be provided within a Home User Guide**
- c) No, I do not agree with providing information**

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

a) Yes.

LETI aims to create diagrams explaining when and why that include ceiling fans

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

All LAs should have the authority to require the TM59 route in certain areas of a city if it is deemed a requirement, i.e. UHI, nature of residential buildings, etc.

If communal heating systems are to be a requirement, then the TM59 route must always be used.

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

**a) Yes**

b) No

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

a) Yes.

If mechanical cooling is proposed then Part L should evaluate the probable cooling load and include the energy consumption within the assessment.

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

**a) Yes**

b) No

**Please explain your reasoning and provide alternative suggestions where applicable. If you answered no, please also propose an alternative reasonable period that could apply.**

a) Yes

## **Part L standards for domestic buildings in 2021**

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

a) Yes

**b) No**

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

As improvements may be elemental, compliance with the proposed standards can be achieved simply by meeting the minimum u-values. Therefore, these need to be much better. All U-values for new elements within existing dwellings should be more ambitious and closer to Passivhaus standards given increasing industry familiarity and falling costs. Bearing in mind Government policy to get existing homes to an EPC 'C' rating, it would be dramatically cheaper to achieve these enhancements during normal element replacement than during separate energy retrofit. The Window/Door Energy Rating system is inappropriate for urban existing stock which due to winter overshadowing do not get the assumed beneficial solar gain - indeed it results in enlarged window areas and increasing summer overheating when the windows are more likely to be solar exposed.

**Question 105): Do you agree with the draft guidance in section 4 of the draft *Approved Document L, volume 1: dwellings* on reducing unwanted air infiltration when carrying out work to existing homes?**

a) Yes

**b) No**

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

Whilst the intent to reduce air-infiltration is welcomed, cross-reference should be made to other relevant guidance. Enhancing building fabric thermal performance often inherently brings issues with increased moisture/ condensation creation. Reference should be made to Approved Document Part F, Section 3: Work on existing dwellings, and there should be an obligation on a party replacing/ changing an element under Approved Document Part L to also consider the implications of Approved Document Part F and ensure the ventilation provision of the dwelling is not reduced below the minimum standards. A Whole House Approach should be adopted to avoid unintended consequences of elemental improvements, and reference should be made to PAS 2035 Retrofitting dwellings for improved energy efficiency – Specification and guidance. The design should also adopt a coherent approach to managing moisture risk, consistent with the guidance in BS 5250

**Question 106):** Do you agree that we should control the primary energy and fabric energy efficiency of new extensions to existing homes when using the SAP method of compliance?

- a) Yes
- b) No**

If you answered no, please explain your reasoning.

Fabric energy efficiency, Energy Use Intensity and space heating demand (KWh/m<sup>2</sup>/yr) should be controlled when creating new extensions to existing homes. EUI is a more accurate and useful measurement of energy use that encourages actual fabric efficiency while the primary energy metric fails to do so.

**Question 107):** Do you agree that the limiting U-value for rooflights in existing domestic buildings should be based on a rooflight in a horizontal position, as detailed in Section 4 of draft *Approved Document L, volume 1: dwellings*?

- a) Yes**
- b) No

If you answered no, please explain your reasoning.

However the proposed u-values should be more ambitious.

**Question 108):** Do you agree that we should adopt the latest version of BR 443 for calculating U-values in existing domestic buildings, as detailed in Section 4 of draft *Approved Document L, volume 1: dwellings*?

- a) Yes**
- b) No

If you answered no, please explain your reasoning.

**Question 109):** Do you agree with the proposed minimum fabric standards set out in Table 6.2 of this consultation document, and Sections 4 and 11 of draft *Approved Document L, volume 1: dwellings*?

- a) Yes
- b) No**

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

Wall U values could be lowered without adversely affecting hygrothermal conditions for EWL and IWL. Building Control submissions should include evidence of thermal bridging Psi values at key junctions - floor to wall, party walls and roof eaves. This is to mitigate significant heat loss. The proposed U value for roofs of 0.16 needs careful attention to avoid condensation especially in cold roofs. Provide also photographic evidence for IWL workmanship refer to Regulation 7. Walls should be split to reflect values for EWL and IWL with more ambitious values for EWL which are less of a risk for interstitial condensation. The U values for cavity walls should be clarified for cavity widths available and the exposure.

**Question 110): What level of FEES should be used for Part L 2021?**

- a) Option 1, full fabric specification
- b) Option 2, fabric specification x1.15
- c) Neither, it should be higher**
- d) Neither, it should be lower

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

c) Neither, it should be higher;

A higher level of FEES, that still results in a cost effective design (ie. Cheaper than the notional building gas boiler and solar panels [see section 6.6.7]), will improve energy efficiency whilst still promoting low carbon heat.

Modelling shows that air permeability can have a significant improvement on heating demand and therefore we suggest that the air permeability requirements are improved to <math>1\text{m}^3/\text{h}\cdot\text{m}^2@50\text{Pa}</math>. Reducing the air permeability should be paired with mandating mechanical ventilation with heat recovery. (LETI will test this - To help with this sign up at [this link](#) )

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

- a) Yes
- b) No**

**If you answered no, please explain which matters are not adequately covered.**

Whilst the principle of relocating information from the Domestic Building Services Compliance Guide into the Approved Document is agreed, cross-reference should be made

to other relevant guidance. Enhancing building fabric thermal performance often inherently brings issues with increased moisture/ condensation creation. Reference should be made to Approved Document Part F, Section 3: Work on existing dwellings, and there should be an obligation on a party replacing/ changing an element under Approved Document Part L to also consider the implications of Approved Document Part F and ensure the ventilation provision of the dwelling is not reduced below the minimum standards. A Whole House Approach should be adopted to avoid unintended consequences of elemental improvements, and reference should be made to PAS 2035 Retrofitting dwellings for improved energy efficiency – Specification and guidance. The design should also adopt a coherent approach to managing moisture risk, consistent with the guidance in BS 5250

Note: In the first consultation Q28 'Do you agree with incorporating the Compliance Guides into the Approved Documents?' 76 % of respondents said no. It is still of concern that lots of useful guidance has/will be lost by combining the two documents. The draft approved document appears to cover all regulatory requirements. However, the supplementary guidance that has not been included from the compliance guide is what allows users to put the regulatory requirements in context and understand how they should be implemented. The proposed combination does not ensure that guidance is clear and tailored to the needs of people who need to use it.

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

- a) Yes
- b) No, the standards go too far
- c) No, the standards do not go far enough**

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

Government policy is to get existing homes to EPC 'C' - It is dramatically cheaper to achieve these enhancements during normal element replacement than during a subsequent separate energy retrofit.

Section 6.15 - Wood-fuelled heat generation should not be Building Regulations approved in any urban areas given the now proven link to high urban air pollution levels (WHO, etc.)

Section 6.21 pumping energy - the specified minimum 20degC is not suitable for heat pump community systems that for improved efficiency operate at lower flow temperatures and smaller temperature differences.

Section 6.34 heat pump efficiencies - this clause is absolutely meaningless. Specifying the coefficient of performance without giving the outdoor (source) temperature is a basic error. The COPs could easily vary by 2-fold between summer and winter.

Section 6.54 The minimum lighting efficacy should be increased to 100 lumens per Watt for both internal and external lighting.



**Question 113): Do you agree with the proposals for replacement fixed building services in existing homes, as detailed in Section 5 of draft *Approved Document L, volume 1: dwellings*?**

**a) Yes**

**b) No**

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

Requirements for replacement building services provides a massive opportunity to drive towards net zero carbon emissions. We know that we need to drive down emissions from the UK's existing building stock. The current proposal essentially states that systems should be no worse than the ones they replace. When actually we need replacement systems to perform a lot better to reduce energy demand and carbon emissions. Currently the proposal gives no advocacy or priority to non-fossil fuel or low carbon systems.

When/how are you going to incentivise not putting a gas boiler from 2021/2025. Feasibility study on other options first as a minimum?

Section 5.4 It is government policy to start phasing out fossil-fueled systems and to achieve existing homes EPC 'C'. It is very much more economical to do this during normal replacement than during subsequent separate energy retrofit. Thus these proposals should go further in encouraging upgrades to more efficient and non-fossil fuel systems, rather than replacing them with equivalent systems.

Note that most systems steadily lose efficiency through their service life - so statements relating replacements to efficiency to the 'appliance being replaced' are incorrect and retrograde.

Section 5.7 The referenced CE54 Domestic Heating Sizing Method is out of date and inappropriate (eg: sizing heating on equivalent of 15 air changes test pressure infiltration, etc.). Basic draughtstripping measures cost less than the extra heat generation plant cost. Allowing 20% as heating oversizing factor is not appropriate for heat pumps and is likely to reduce their SCOP efficiency by a similar scale.

**Question 114): Do you agree with our proposed approach to mandating self-regulating controls in existing domestic buildings, including technical and economic feasibility, as detailed in Sections 5 and 6 of draft *Approved Document L, volume 1: dwellings*?**

**a) Yes**

**b) No**

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

We agree with the self regulating devices in each room/zone.

**BUT**

There is no justification that TRV's should be subject to economic viability.

**Question 115): Do you agree with the proposed specifications for building automation and control systems installed in a new or existing home, as detailed in Section 6 of *draft Approved Document L, volume 1: dwellings*?**

a) Yes

**b) No**

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

a) No

5.4 - we agree, as dwellings >150m<sup>2</sup> can reasonably be expected to have two separate time zones.

5.5 - we agree, as pump energy can be significant, and losses from pipes would be important.

5.6 - we agree, as this represents the majority of installations already.

5.7 - we **disagree** with the statement:

*“Primary hot water circuits for domestic hot water or heating should have fully pumped circulation where this is compatible with the heat generator”*

This depends on the system used. New condensing boilers work best without primary circulation. Primary circulation was practiced to **prevent** condensation in boilers that **could** corrode. It does not have a place in many newer designs. We would leave out this clause:

*“Hydraulic design shall be conceived to maximise the energy efficiency of the heat generator”.*

**Question 116): Do you agree with the proposals for extending commissioning requirements to Building Automation and Control Systems and on-site electricity generation systems, as detailed in Sections 8 and 9 of draft *Approved Document L, volume 1: dwellings*?**

**a) Yes**

**b) No**

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

a) Yes

The industry must gear up to an effective commissioning regime to close the performance gap. However, in relation to Community Heating Systems, the following clause is **not** acceptable:

*“b. flow rates in individual heat emitters should be balanced by either:*

*i. using appropriate return temperatures”*

It should only be acceptable to use control valves. CIBSE CP1 2021 clearly states that many communal systems perform very poorly if emitters are not properly controlled and “*using appropriate return temperature*” is too vague, and does not guarantee the system will work correctly the day after the handover of the building.

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

**a) Yes**

**b) No, I do not agree with providing this guidance**

**c) No, the guidance should be improved**

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

c) *No, the guidance should be improved*

- Commissioning plans to include on-site generation and design stage space heating demand (kWh/m<sup>2</sup>/yr)
- Overheating mitigation clearly explained in building user manuals.

With building with central energy systems, information about the billing methodology should be provided, together with details on how to change suppliers (where possible) and how to make a complaint (including how to contact an ombudsman).

We recommend the following changes should be made:

- Section 8.2 – commissioning plans should include design stage space heating demand (kWh/sqm/yr). This should not be difficult because the heat and cooling

generation plant are deemed to have been based on room by room demand calculations (this helps verify that this proper plant sizing was actually done).

- Section 8.3 – on site electricity generation should be included in commissioning plan to ensure full functionality and compliance with carbon reduction targets.
- Section 9 – overheating mitigation strategies (e.g. purge ventilation, use and maintenance of MVHR systems) should be clearly set out within building user manuals provided at hand over.
- Section 9 - where emitters are sized ready for retrofit of heat pumps (eg flow low temperatures) this information must be specifically included in the pack to the occupier / owner.

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

**a) Yes**

**b) No**

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

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

**a) Yes**

**b) No, I do not agree with providing this guidance**

**c) No, the guidance should be improved**

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

c) No, the guidance should be improved

The CIBSE guide A is out of date, and for large residential buildings it is recommended to use CIBSE Code of Practice 1 (2021) referred to as CP1 2020.

CIBSE Guide A, B & C lead to vast oversizing of district heating systems, in which it can take 1 hour for the heating water to go from the boiler to an apartment at night time low demand due to oversized pipes.

Heating flow temperature should be dropped to 50°C as recommended in CP1. Larger sizes of radiators is not a problem given how insulated the buildings become, and 55°C is too hot for most commercially available heat pumps.

Section 6.43 The cooling reference to CIBSE Guide A is insufficient and in itself delivers the very oversizing this clause seeks to avoid. This reference to 'customary' levels allows dwelling cooling down to a completely unnecessary 21degC. A cooling setpoint temperature

of 25degC would be far more appropriate. As a direct consequence, the seasonal efficiency should be increased to a minimum of at least 5 (6.44).

Section 6.60 Stating that on-site electricity generation 'should be sized appropriately for the site' means absolutely nothing and is unenforceable. This is bad regulations.

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

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

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

c) No, the guidance should be improved

The primary heat in district heating systems should run at 60°C flow and return of 35°C, therefore the heat in the apartment (behind a heat exchanger) needs to run at 50°C maximum. Ideally 45°/35°C.

This is as per CIBSE's recommendation Code of Practice CP1, and is in line with much colder countries (Sweden, Norway, Denmark [Ref. DS439])

It is essential to reduce temperatures to make heat pumps possible. 55°C is beyond the capability of the majority of heat pumps and above the sweet efficiency point of the others.

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

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

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

Removal of guidance on thermal bridging is problematic. Whilst referring to accredited construction details isn't ideal (as they aren't always appropriate for existing buildings), there needs to be some guidance and standards for thermal bridging

**Question 122): Do you agree with the proposal for guidance on the calibration of devices that carry out airtightness testing in new and existing domestic buildings?**

**a) Yes**

b) No

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

(No comments)

## **Part F standards for existing domestic buildings in 2021**

**Question 123): Do you agree that we have adequately covered matters for existing dwellings which are currently in the Domestic Ventilation Compliance Guide in draft *Approved Document F, volume 1: dwellings*?**

**a) Yes**

**b) No**

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

Surveys in accordance with PAS2035 should be undertaken to assess infiltration and evidence of that submitted.

There is a conflict in Part L - don't lose heat by infiltration.

Heritage buildings, those in conservation areas and traditional construction should not be exempt from ventilation standards. The onus is on the designer to prove ventilation is adequate.

There is concern on existing buildings with change of use that undergo refurbishment and converted into dwellings. Often this dwellings are under Part L1B (existing homes) although the built is all new and should have been under Part L1B. Ventilation criteria for these case should apply as new not existing.

**Question 124): Do you agree with the proposed changes to supplementary guidance and the external references used in Appendix E and Appendix F, for existing domestic buildings from the draft *Approved Document F, volume 1: dwellings*?**

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

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

General comment:

Standards do not go far enough to support low carbon and thermally efficient ventilation solutions.

PAS 2035:

A reference to PAS 2035 is good and should further be developed to include interaction with airtightness.

External references:

Would we need to comply with all the external references? Not clear.

Also, a reference to AVOG (Appendix F) should be added <https://www.association-of-noise-consultants.co.uk/avo-guide/>

**Question 125): Do you agree with the proposal to align the guidance and standards for work to existing homes to that outlined in Chapter 4 of the Government Response to the Future Homes Standard consultation?**

**a) Yes**

**b) No**

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

Whilst we agree that the guidance and standards for work to existing homes should be aligned with that for new homes, the standards outlined in Chapter 4 of the Government response to the Future Homes Standard need to be more robust, especially in relation to airtightness and ventilation.

**Question 126): Do you agree with the proposed guidance for installing energy efficiency measures in existing homes, as detailed in Section 3 of draft *Approved Document F, volume 1: dwellings*.**

**a) Yes**

**b) No**

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

Simplified method:

How is the simplified method assumption proven of 'existing dwelling assumed to have adequate means of ventilation through a combination of purpose provided ventilation and advantageous infiltration' For a large proportion this is not the case - regarding condensation and mould growth etc.

Intermittent Extract:

Should be phased out and replaced with demand control ventilation and /or whole house ventilation without trickle vents.

Better than just 'no worse':

The opportunity should be taken to 'make it adequate' or 'better' rather than just no worse.

Energy Efficient Measures:

Seem to be referring to 'as when building built', while ventilation criteria are applicable for when refurbishment is taking place'.

Diagram 3.1:

Is a little confusing, we suggest to split the diagram for mech vent only and another for natural vent only, to make measures more clear for each type.



Give reference to 'expert advice' in paragraph 3.11.

**Question 127): Do you agree with the content of the proposed checklist for ventilation provision detailed in Appendix D of draft *Approved Document F, volume 1: dwellings*?**

- a) Yes
- b) No**

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

The proposal for the simplified method of assessment is not practical. Trickle vents are not labelled with their equivalent ventilation, and site measurement of trickle vents and other openings (e.g. gaps, cracks etc.) is not practical.

We would suggest that reference be made to the existing PAS 2035 ventilation requirements, or that the ventilations requirements of PAS 2035 be adopted in their entirety in-lieu of this new simplified method.

**Question 128): Do you agree with the guidance in Section 3 of draft *Approved Document F, volume 1: dwellings* when replacing an existing window with no background ventilators?**

- a) Yes
- b) No, the standards go too far
- c) No, the standards do not go far enough**

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

- Whole house approach:

Replacing windows does increase air tightness and reduces infiltration, a combined study should be issued including whole house ventilation, could include MVHR design. A holistic approach to thermal and ventilation should be encouraged. Avoid a piecemeal approach which won't ensure adequate ventilation.

- Trickle vents:

Too much relying on occupier action, risk to fail and be mis-managed/blocked-up.

- Background ventilator:

Generally inadequate unless designed to suit the extract fans (single room or whole house). Allowing houses to put in no or undersized background ventilators, could well mean there is inadequate ventilation.

- Room ventilation with heat recovery:

Consideration to be given to Heat Recovery wall units, as these may be considered more achievable than a whole house MVHR system.

**Question 129): Do you agree with the proposals in paragraphs 3.29 to 3.31 of draft *Approved Document F, volume 1: dwellings* in 7.4.11 of this consultation document on work to existing kitchens or bathrooms?**

- a) Yes
- b) No, the standards go too far
- c) No, the standards do not go far enough**

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

Additional guidance is needed to ensure Approved Document Part J is met separately from requirements of Approved Document Part F.

Under 3.30, if a kitchen or bathroom without ventilation is refurbished, there is no requirement to provide a ventilation system unless the refurbishment works make the building less compliant with ventilation requirements of the building regulations.

A high percentage of existing UK homes have inadequate ventilation, with knock on impacts on occupant health. The building regulations should ensure adequate levels of ventilation are provided, rather than a requirement to merely not make the current situation worse

The guidance should therefore refer back to checklist 3.1 to help determine what further ventilation (if any) may be required.

**Question 130): Do you agree with the proposal to provide a completed commissioning sheet to the homeowner, as detailed in Section 4 of draft *Approved Document F volume 1: dwellings*?**

- a) Yes**
- b) No

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

a) Yes - however:

Occupants should be provided with a clear, user-friendly guide explaining how to use their

system, similar to the “*Home User Guide*” required for new dwellings under Approved Document Part L1A.

Findings from Peabody Thamesmead estate project and Retrofit for the Future Programme demonstrated the importance of occupant behaviour and understanding in addressing ventilation issues to ensure good performance and comfort.

The guidance should also reinforce that testing certificates must be sent to the Local Authority.

## Impact and Equalities Assessment

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

If you have any evidence on this please share with LETI on [FBSconsultation@leti.london](mailto:FBSconsultation@leti.london)

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

If you have any feedback on this please share with LETI on [FBSconsultation@leti.london](mailto:FBSconsultation@leti.london)