

## **The Future Building Standard – PEPA Response**

**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?**

Yes, it appears to set out how to achieve the goal of zero carbon. An interim review mechanism would be good to determine the effectiveness of the 2021 changes.

**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?**

Heat pumps will form an integral part of the solution, but it is important that emerging technologies are able to be included in assessments. It should be noted that moving everything to heat pumps is not always practicable both from a technological and feasibility point of view. Supply of power to sites from the grid will be strained in some areas making it difficult to comply with the new regulations. Consideration should be given to how this can be addressed in practice as upgrading the local network can be very costly and is often passed onto the developer.

Heat networks have potential to be very good but currently there is a large number of existing networks with poor carbon and primary energy factors which are being forced on to design teams through planning, particularly in London. This is a poor solution when not connecting would be better from a carbon and energy point of view. The reality is it is unlikely that existing networks will significantly improve in the next 10-20 years and there is no mechanism to make them.

The use of direct electric heating needs to be kept available for buildings with low demand where alternative solutions are not cost effective.

**Question 3) Do you agree that some non-domestic building types are more suitable for low carbon heating and hot water, and that some nondomestic building types are more challenging?**

Yes, very much so. It is important to make sure the NCM templates are updated to more accurately reflect some building types energy use. In particular hot water which can have a massive bearing on certain building types such as leisure centres. Current technologies are being stretched to meet the requirements and it may be that the emerging technologies are not ready for the next step in 2025.

**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?**

Yes, the allocation appears to be broadly correct.

**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 this will give the industry time to increase heat pump manufacturing capacity

**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)?**

b) while it would be preferable to implement this at the same time as types 1 and 2 this should be reviewed when the FBS is put out to consultation as it will depend on what new technologies emerge – currently viable alternatives to high temperature gas systems are severely limited particularly for large high volume spaces. Forcing a heat pump solution would drive air systems to be used instead which are not efficient in large spaces as they heat the entire volume rather than the occupied areas. It may be better to implement another step to allow this to happen more slowly such as a mix of low carbon and gas.

**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 current technologies are able to meet this demand and are already often used. The new 2021 Regulations will automatically drive buildings in this direction already.

**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)?**

b) while it would be preferable to implement this at the same time as types 1 and 3 this should be reviewed when the FBS is put out to consultation as it will depend on what new technologies emerge. It may be better to implement another step to allow this to happen more slowly such as a mix of low carbon and gas.

### **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.**

Ensure the NCM templates are reviewed to make sure they match actual building use better although it is acknowledged that this will never be perfect.

Better regulation of Part L compliance assessments – currently there is a large amount of poor practice and manipulation which does not align with EPC conventions which causes a lot of problems with projects as they progress from one RIBA stage to the next. This can be very costly for overall build and can be very detrimental to carbon and energy predictions. In reality the EPC conventions can for the most part be used for Part L compliance. Perhaps a regulatory set of SBEM conventions could be developed to minimise issues when buildings are assessed by different assessors at different stages? While there are regular EPC conventions meetings there is nothing for SBEM leaving the whole system open to abuse.

An SBEM / Part L conventions group made up of a mix of regulatory personnel and assessors would be beneficial.

Move more towards DSM assessments as a standard to help minimise the performance gap of Part L assessments and reality.

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

b) Option 2 – average 27% CO2 reduction (this is the Government's preferred option) the fabric first holistic approach should be encouraged as much as possible.

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

Yes, this should help drive the fabric first holistic approach although it is important that the NCM templates are reviewed to ensure they are closer to reality so as to avoid unintended consequences. With some building types it may be necessary to have some leeway in this metric as site, building use and or planning constrains could make it impossible to achieve this.

**Question 12): Do you agree with using CO2 as the secondary performance metric?**

Yes, CO2 should remain as a mandatory requirement. Removal of carbon as one of the metrics would be a backwards step as we have spent so long driving the industry towards zero carbon. The public has recently become far more familiar with this metric and will find it easier to relate to.

**Question 13): Do you agree with the approach to calculating CO2 and primary energy factors, referred to in paragraph 3.5.7 of this consultation document?**

Yes, in principle although the new carbon factor for electric is perhaps a little ambitious initially. The separate PV carbon factors seems to be harsh given that the electric values have been dropped so significantly already. Further penalising PV is too far - the use of the primary energy metric should already deter it being used as a bolt on solution. Making it have so little effect on the building will deter the use of PV when we should be encouraging it to fill every roof.

**Question 14): Do you agree with the proposals for natural gas being assigned as the heating fuel for any fuels with a worse CO2 emission factor than natural gas?**

Yes, this seems a logical approach and should work in practice.

**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?**

Yes this will deter its use and should mean it is only used where there is a low demand for a small area. This approach will preserve flexibility which is required in some building types where installation of heat pumps is not cost effective.

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

In principle yes although the NCM templates require reviewing to ensure they match current building types actual usage. There is a danger assessors' will manipulate models close to the switch point to cause the notional building to change in their favour. An SBEM / Part L conventions group could help prevent this.

For lower demand the Notional building should also consider that POU often requires units with small amounts of storage 5,10,15, 30litre, in order to meet demand requirements. Creating a completely unrealistic notional building could have unintentional consequences and make getting a pass in some situations beyond reasonable. The notional should match the actual building in terms of small storage in this situation.

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

Existing heat networks carbon emissions and primary energy factors are often overestimated and are unlikely to be improved in the near future as there is no driver to achieve this. the proposal for existing networks could prove to be unviable in reality. Better data should be sought on actual factors of a number of systems installed and perhaps an average of actual delivered values should be used. It should also be noted that the electrical power is often not given to the building so inclusion of the electric generated should only be included if it is being sent to the building.

The new Part L should include a prescribed standard robust methodology for calculating the delivered CO2 and Primary Energy factor for the network.

**Question 18): Do you agree with the proposal for connecting to a new 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.**

No, it will be too beneficial to connect to a new network on this basis. For new networks the proposals to include heat pumps is reasonable but given the other changes in the regulations the use of CHP is contradictory for the main heat source. Heat pumps should form a larger proportion perhaps with gas as the make-up. In London the use of CHP is being actively discouraged by the new London Plan so basing any new heat networks on this seems unrealistic. Perhaps an option to select if CHP is available in the network would be beneficial allowing for an alternative notional building set of values. It should also be noted that the electrical power is often not given to the building so inclusion of the electric generated should only be included if it is being sent to the building.

The new Part L should include a prescribed standard robust methodology for calculating the delivered CO2 and Primary Energy factor for the network.

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

Yes, the proposals are good it is important that the NCM templates reflect the actual building usage as best as possible.

Showers could do with a subcategory to determine if they are high or low use – for example not all changing rooms are the same intensity of use.

Thermal bridging is of far less importance in the commercial sector with regards to SBEM / DSM. Generally speaking the proportion of junction to surface is far less than it is in the domestic market. Which will reduce its saving potential. It is also far more difficult to achieve meaningful savings as details are often determined by buildability rather than performance. To make this a real option a huge amount of notional values would be needed to represent the massive myriad of options in the commercial sector which makes increasing emphasis in SBEM is a bit of a none starter at this time. There are more savings to be had elsewhere for now.

PV should be treated the same in SBEM and DSM

**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.**

The BRUKL output document needs to be made comparable from each software. Currently there are elements left to the software developer to interpret such as the table relating to fan system type and SFP. This causes a lot of confusion for clients and can be difficult to explain.

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

Yes, although the use of internal blinds should not be considered a solution for passively cooled buildings in much the same way as TM59 and BB101 restrict their use.

**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?**

Yes – although this should be superfluous as in order to pass it is likely these values will need to be improved upon.

**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?**

Yes

**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?**

Yes – why not require an air test to better inform where the leakage actually is so improvements can be more targeted?

**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?**

Agree - no particular opinion.

**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?**

Yes – the latest documents should always be adopted.

**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?**

Yes - it is right to uplift the minimum efficiencies inline with current technologies. Produce Fiche documents should have to report efficiency inline with Part L2 requirements which currently they do not always. Alternatively manufactures should be made to publish Part L2 efficiencies.

**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?**

Yes – however, a new category of default system is required for Fan Coil systems with natural ventilation. Currently the NCM system types do not allow for this and it will become

more prevalent with packaged ASHP which provide LTHW and Chilled water. It needs to be possible to input the system without a central AHU.

Manufacturers should be made to publish calculated SFPs for their product for use in Part L2 calculations in the UK. Many give misleading alternative SFP calculations used in Europe.

**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?**

Yes - better controls will improve efficiency assuming they are commissioned correctly and details of their use included in the building hand over pack.

**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?**

Yes this is in line with what is available on the market.

**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?**

c) no the EER should be used as well as the SEER which is used in the SBEM calculation. There should also be a single standard SEER calculation methodology adopted. Many manufacturers calculate in different ways to make their products look better than competitors making it difficult to obtain accurate information.

**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?**

d) a BACS should be implemented to smaller buildings. A 290 kW system is relatively large and will miss out a lot of buildings this could also be missed in shell and core buildings such as warehouses with moderate offices which will when fitted out consume large amounts of

energy. This could easily be missed at fit out stage. Perhaps building size should be considered instead of or as well as system size.

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

A) Agree - no particular opinion.

**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?**

c) Yes better commissioning will help ensure complex systems are set up correctly in the first instance but it is still necessary to ensure the information passed onto the owner/operator is clear on how the building is to be operated. There is still a huge void between the designers and the operators of the buildings which causes buildings to be operated incorrectly and inefficiently.

**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

**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

**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.**

A) Yes this needs to be set in the Regulations if it is left to choice it wont happen as it will require additional cost to install the system. The system operating temperatures need to be reduced in order to make integration of low carbon heat sources easier in the future.

**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?**

Yes, providing the Data from the NDBSCG are not watered down and remain clear and unambiguous. Less documents will simplify the requirements.

**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 this will have to form part of the design process in order to meet compliance anyway

**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

**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

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

b) No - allowing credit claiming gets abused as there is no one enforcing it and it is unrealistic to expect Building Control bodies to be looking at this level

**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, although some flexibility may be needed in some buildings due to physical constraints.

**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

**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

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

a) Yes

**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?**

B) No, a different trigger point should be used – as with new build a BACS should be implemented to smaller buildings. A 290 kW system is relatively large and will miss out a lot of buildings. Perhaps building size should be considered instead of or as well as system size.

**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

**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

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

a) Yes as with new buildings this needs to be set in the Regulations if it is left to choice it wont happen as it will require additional cost to install the system. The system operating temperatures need to be reduced in order to make integration of low carbon heat sources easier in the future.

**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 – less documents is less confusing although it must be clear where new and existing elements apply.

**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

**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 simplification is very much needed there are too many ambiguous areas in the current documents.

**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

**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, but at some point an old building should no longer be allowed and should be upgraded or retired

**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.**

b) No, as an early adopter of the technology we have been trialling it as a solution for testing in the domestic market (which we are still very early into that process), however the initial observations raise concerns over the practicalities (numerous tests required to achieve valid result) and scalability (the limit at the time of writing is 2 air receivers).

**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.**

b) Yes, providing the industry does not "throw the baby out with the bathwater". The methodology should be an independently chaired technical committee formed from industry experts from both industry bodies (ATTMA & iATS). The methodology currently referenced (ATTMA TSL2), is a very useful starting point, but it would benefit the industry to clarify more complex situations (which is where the industry experts can bring their respective experiences to bear).

**Question 58): Do you agree with the proposal for guidance on the calibration of devices that carry out airtightness testing in new and existing nondomestic buildings? a) Yes b) No If you answered no, please explain your reasoning and provide alternative suggestions.**

b) No, as the current period for calibration recommendation for blower door manufacturer Retrotec is 5yrs for the fan equipment, and hence there is a huge discrepancy between 1yr and 5yrs.

Based purely on risk-based thinking that the 5yr period is simply too long, when considering the calibrated equipment is lifted into and out of a vehicle daily, carry, transported – the likelihood is remarkably high that any damage / significant drift could potentially go unnoticed for 4+ years, the impact of which will affect all the projects the equipment has been used to test in that period.

The limitation will be on the equipment type, pressure (absolute and differential) and temperature instrumentation should continue to be on a 1yr period (and if the idea is to align the new testing methodology with ISO 9972, then this be driven by tighter tolerances required upon the instrumentation), whereas the fan equipment could go to 2yrs (providing the equipment overall uncertainty of measurement including drift is less than the prescribed 7%).

**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 – it is very important to ensure sufficient metering is incorporated into buildings so later energy analysis can be undertaken effectively

**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?**

C) No, we do not agree with the proposed approach – there is currently a significant skills shortage in the industry to effectively implement this and it will also add significant cost to the build. While we don't disagree with the need for detailed energy forecasting it is too ambitious to implement this to this level at this time. This really needs a softer implementation period over a longer time period to allow the industry to keep up. As it stands detailed modelling like this would cause hold ups on projects and would inevitably cause poor quality modelling to take hold which would not be fit for purpose and would certainly not close the performance gap.

To give the industry a chance to catch up sufficiently the building size should initially be larger say 7,000 or 8,000m<sup>2</sup> with a drop in floor area to the 1000m<sup>2</sup> in a few of years or even in the FBS. There is no point implementing something which is unrealistic and unachievable at this time. Note - many of the assessors who will be carrying this out will also be dealing with all the new compliance challenges which the proposed changes will present. It is also important to note that the lack of any regulatory body to ensure that the modelling carried out is to a good standard.

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

a) Yes- the proposals appear to be a workable solution and it will help that they are in alignment with the residential sector.

## **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.**

Section 2, table 2.1 of Approved Document F refers to the Air Quality Standard Regulations for external air pollutants. The exposure limit for PM2.5 within the regulations is currently 25 µg/m<sup>3</sup>, however the WHO recommendation is 10 µg/m<sup>3</sup> which would be a better metric for creating healthier environments.

**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.**

No comment

**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.**

No comment

**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.**

Yes – However guidance should be made available for the testing procedure for these pollutants.

**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.**

No comment

**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.**

Agree with the PHE indoor Air Quality Guidelines. No comment on the industry guidance documents.

**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.**

No comment

**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.**

No comment

**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.**

No comment

**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.**

No comment

**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.**

No comment

**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.**

No comment

**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.**

No comment

**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.**

No comment

**Question 77): If applicable, please provide any suggestions for guidance for indoor air quality monitoring (e.g. CO2 monitoring) in nondomestic buildings.**

No comment

**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.**

No comment

**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.**

No comment

**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.**

No comment

## **Section B: Domestic Buildings**

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

**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.**

Option A

New Approved Document will ensure the industry take this issue seriously.

**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.**

**Option B - Yes, but they should be expanded to include more building types and/or existing buildings**

TM59 methodology was originally defined as a Risk Assessment tool. It is now proposed to be used as a compliance tool. Experience illustrates that you are very unlikely to get a scheme to fully comply with all the TM59 criteria.

The Consultation document does not indicate whether a sample assessment or the complete scheme need to be completed. Can the client split the scheme assessment, using simplified method and only doing TM59 on the plots that fail the glazing areas ratio.

A number of features that mitigate overheating require returning the planning (external shading) and therefore this is not normally feasible once the building regulation process has started.

Note a TM59 assessment cost starts at around 2K for a small scheme (30-40 units). For a large scheme (400 plus) the fee increases to 8K plus.

This consultation does not include other commercial spaces such as offices. The London Plan is already enforcing overheating assessments on all buildings over a certain size not just residential it should be the case in Building Regulations to prevent poor quality buildings being built.

**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.**

Option C - No there should be more areas.

All large metropolitan areas (Manchester, Birmingham, Leeds etc) experience an Urban heat island effect and therefore all such areas should be included within the significant risk category.

**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 recategorised.**

Option A

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

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

Unable to answer

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

No comment at present

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option B - No

**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.**

Option A - Yes

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

The local plans should include a review of overheating. A number of the features to mitigate overheating need to be reviewed at planning stage as these will affect the elevations of the buildings.

**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.**

Option A - Yes

**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.**

Option 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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Option 1, full fabric specification.

The fabric specification needs to be advanced as this is set the performance for the life of the construction. We do not want dwellings to comply with via plant & renewables only. The long-term drive toward ASHP needs to be supported with improved fabric thermal resistance.

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**Question 114): Do you agree with our proposed approach to mandating selfregulating 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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes

**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.**

Option A - Yes agreed.

**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.**

Option A - yes, agreed.

**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.**

Option A - Yes agreed.

**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.**

Option A - Yes, agreed

**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.**

**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.**

#### **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.**

No comment.

**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.**

No comment.

**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.**

No comment.

**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.**

No comment.

**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.**

No comment.

**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.**

No comment.

**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.**

No comment.

**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.**

No comment.