

The Future Buildings Standard

Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for non-domestic buildings and dwellings; and overheating in new residential buildings

A word version of our online submission

13th April 2021

Annex B - Consultation questions response

Respondent Details

Please provide the following details about the respondent:

a) Name

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c) Whether you are responding on behalf of an organisation or as an individual

Organisation

d) Which description below best identifies you or the organisation you are responding to this consultation on behalf of:

- Builder/Developer
- Installer/Specialist sub-contractor
- Designer/Engineer/Surveyor
- Architect
- Local Authority
- Building Control Approved Inspector
- Competent Persons Scheme Operator
- Manufacturer/Supply Chain
- Property Management
- National Representative/Trade Body**
- Professional Body or Institution
- Research/Academic Organisation
- Energy Sector
- Member of the Public
- Other (please specify)

If you are responding on behalf of an organisation, please also answer the following questions:

- a) What is the name of the organisation you are responding on behalf of?

The Institution of Engineering and Technology

- b) What is your position in the organisation you are responding on behalf of?

Built Environment Lead

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.

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?

The improvement in operational efficiency through the adoption of highly efficient and sustainable technologies should be considered as the strapline to successfully delivering net zero or beyond targets. The energy equation of decarbonized primary energy coupled with the transfer and consumption of energy within a building must be targeted as the fundamental aspiration of the FBS. The commercial realities of transferring to alternative fuel types e.g. Fuels cells have prevented the advancement of such technologies, solar systems, district heating, hydrogen all

have similar commercial issues to be resolved if they are to be adopted. Reducing demand must be maintained as the key initial focus to minimize the cost of change and to achieve it progressively.

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.

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.

The fundamental categorization is useful, however linking to the vagaries of demand under the current definition is not only confusing but perhaps lacks clarity to achieve its intention. The definition should be aligned to a set of defined metrics akin to those used under BREEAM for example, allowing potential demand to be aligned to effective capacity available and consumption. The proposals within the FBS will outreach certain buildings due to scale and size, therefore simply aligning to future demand would seem constrictive, therefore adopting a set of metrics would appear more appropriate in managing further the energy performance gap. Buildings should be categorized across size and demand/emissions with the appropriate % target of sustainable technologies to be applied within each building type. Such an approach will allow empirical analysis of “performance in use” to be monitored against the relevant building categories. Examples of building demand for example: <100Kwhr; 250Kwhr; 350Kwhr; 500kwhrs; <> 1Mwhr transposed to annual consumption profiles within any design energy model review and analysis.

Potential additional building types should be considered contrasting across spatial and water heating choices as differences in empirical requirements will exist.

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) <2030**

Please explain your reasoning.

The heat pump and water industry are not yet ready to meet this challenge nor indeed are the many planning authorities to whom an understanding of the intricacies of the equipment to which may need to be deployed. The commercial reality of this technology also needs to be marketed, as currently the cost v payback is not attractive in many cases. Any building regulatory change would therefore need to enforce the adoption of such technologies based upon calculated performance characteristics specific to the defined and categorized building types. A phased approach <2030 and >2030 aligned to the specific building categorizations would seem appropriate. This would allow suitable time to model the commercial realities against the defined building types and allow technology funding opportunities to be developed if appropriate. The commercial reality of heat recovery e.g. large cooling tower or air/air chiller installations should be taken into consideration.

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) <2030**

Please explain your reasoning.

As above Q5 – but would propose such buildings are a smaller % of the actual energy demand therefore programmed >2025 but

<2030.

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)

Water heating a mature market and therefore adoption could be deployed faster and directed specifically to available technology and energy types. The adoption of all electric heating within a decarbonized supply industry will need to be managed and the availability of supply arranged per development opportunity.

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)?

- c) 2025 – our proposed date
- d) Another date (please specify)

Water heating a mature market and therefore adoption could be deployed faster and directed specifically to available technology and energy types. The adoption of all electric heating within a decarbonized supply industry will need to be managed and the availability of supply arranged per development opportunity.

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.

Reduced occupant consumption and volumetric allowances must be developed, accepted, and incorporated into the FBS. The energy performance gap is fundamentally driven by too high design allowances, poor occupation profiling and now the

change in non-domestic (office) operations will be become a fundamental calculation consideration. The commercial office will change to meet workplace challenges and a reduction in daily occupation can be expected. This will drive efficiency metrics, emission levels and determine respective future building /occupant consumption ratios. Modelling should become a fundamental part of the design stages and into use. A single focused design statement should be produced and issued at each design stage, construction phase and handover milestone, and annually >5yrs operation. The design and construction process are fundamental phases in determining the eventual building energy performance characteristic, therefore setting the design and selection of systems, assets and controls should become the sole responsibility of the designer and not the construction supply chain. Key also is to STOP the over design of systems such that redundant systems are installed within non-domestic buildings. Duplicate power supply, cooling or heating systems are not required within the ICT industrial revolution we are currently experiencing. Designing to “N” levels of system redundancy while maintaining functional operational uptime of the selected business output is realistically achievable and would provide significant embedded and operational carbon savings over the >50yr life expectancy of a building. A clear “system configuration” clause within the FBS and subsequently building regulations would deliver real and tangible energy and emissions reductions. The clause - “that any installed system within a non-domestic building should only be arranged within a single “N” configured arrangement such as to minimize the construction and operational emissions impact from the building”. Exceptions to this requirement being Life Safety systems; effluent management systems; heat reclaim systems; and management systems to effectively control the safe operation of the building and to safeguard building occupants. Building commissioning to be made a certification requirement from Building Control, and such certification to be made a statutory obligation to be maintained on a <5yr basis returning to baseline and determined through an improved calculation model.

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% CO₂ reduction

- b) Option 2 – average 27% CO₂ 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.

Propose that Option 1 (22%) is targeted at refurbished building types and Option 2 (27%) for all new developments, with further proportional increases based upon a reducing rate of return to a steady state minimal impact position.

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.

Although in principle a primary energy metric is essential, it cannot be allocated as a single metric given the multiple system efficiencies that exist within a building, and the differing types of primary fuels that may be ultimately consumed. Biofuels; heat recovery; hydrogen; Natural Gas; Water; Electricity; Renewable can all be classified as direct building energy sources, however, where fuels are converted such as District Heating Systems, CCHP; Biomas etc, there will need to be an association between Primary and Secondary fuel types. A term "Building Energy Limit" set against defined building types and consumption profiles would enable a mix of primary and secondary fuel-based systems to be mixed while still satisfying a primary energy aspiration. This will provide the designer with some flexibility in selecting available technologies based upon grid and tertiary system selection and availability. The development of Building Analytic and Digital Twin software technology can drive a similar agenda and provide long-term operational emission benefits.

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

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

If you answered no, please explain your reasoning.

CO₂ is an important metric, but is a calculated metric based upon the building's primary energy consumption profile. If a secondary performance metric were to be considered, then perhaps a suite of metrics linked to occupation would be better sourced. Including building occupants and exact profiling into the performance calculation would allow the design model to be referenced back to design more acutely, and therefore enhance the operational performance and profiling of the building. Occupants drive consumption not the building! therefore, it would seem to be appropriate to include as a Secondary efficiency metric/s – Occupant/Kwhr/CO₂/m². This would drive the relationship of occupant, energy, building and emissions to target and focus efficient design and operations directly. This would also focus designs to maximise space and to change workplaces in relation to a new workplace future, evolving to a mixture of workplace types, and more integrated energy and emission profiles.

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

- a) Yes
- b) No

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

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?

- a) Yes
- b) No**

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

The FBS is about future buildings, therefore there should be no inclusion of any fuels with a worse emission factor greater than Natural Gas. The use of Natural Gas in refurbished buildings should remain an option up to 2030, but with a short-term phase out >2030. Unless Natural Gas can form a part of primary/secondary mix within the FBS approved criteria, then it should be phased out completely by 2035.

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.

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.

Providing the model has alternative system combinations and options the designer can select create to enable the best performing system design.

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.

The NCM should include a calculation method to utilize the specifics of the District Heating System at the point of common coupling and through the appropriate Heat Exchanger efficiency transfer figures. Primary and secondary energies need to be accounted for when using these system types.

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.

The NCM should include a calculation method to utilize the specifics of the District Heating System at the point of common coupling and through the appropriate Heat Exchanger efficiency transfer figures. Primary and secondary energies need to be accounted for when using these system types.

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.

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.

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.

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.

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.

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.

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.

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.

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.

The trigger points should be aligned to the defined building types as commented within answer to Q 4. In addition, where heating systems are modular in design, then a control system should be installed to allow part demand efficiencies to be achieved.

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.

The proposals should be aligned to the defined building types as commented within answer to Q 4. The commissioning process should not be left solely to the development or building contractor but augmented through an independent validation service. The focus of validation should be upon systems which have maximum impact to minimizing emissions e.g., Heating; Cooling; Ventilation systems. The independent commissioning validation engineer to be appointed by the building owner. The validation of the systems at building practical completion, generally have no reflection to seasonal or occupation profiles or performance in use, therefore an independently validated annual seasonal review must be included <5yrs, or thereafter 1yr from 85% occupancy.

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.

The building designer and MEP engineer should be retained for a period of 5yrs post practical completion to calculate building performance assessments or 1yr post 85% occupancy. The design SBEM model shall be used as the design baseline assessment and compared to actual performance in occupation. Where buildings are developed for 3rd party occupation, then a fit out SBEM model impact report including base building model should be submitted as part of future building control approval.

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.

Guidance to be improved by incorporating a clause to prevent duplicate redundant systems being installed for any purpose other than Life Safety systems; effluent management systems; heat reclaim systems; management systems to effectively control the safe operation of the building and/or systems to safeguard building occupants.

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.

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.

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.

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.

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.

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.

The building designer and MEP engineer should be retained for a period of 5yrs post practical completion to calculate building performance assessments or 1yr post 85% occupancy. The

design SBEM model shall be used as the design baseline assessment and compared to actual performance in occupation. Where buildings are developed for 3rd party occupation, then a fit out SBEM impact report including aggregated base building model should be submitted as part of future building control approval.

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.

Providing a design assessment has been completed to maintain environmental conditions and energy performance objectives.

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.

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.

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.

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.

Embedded and operational carbon intensities will be compromised, and the rationale to make such a provision given existing volumetric provisions would seem excessive. Adopting typical design standards, and with a direct link to occupation profiles, more intelligent controls could achieve a similar output, mindful that commercial office workplaces as an example are likely to become different environments in the future. Alternative active technologies should be considered to complement any active control strategy for minimizing the need for enhanced ventilation strategies. Further empirical research is also required to support this approach.

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.

Embedded and operational carbon intensities will be compromised, and the rationale to make such a provision given existing volumetric provisions would seem excessive. Adopting typical design standards, and with a direct link to occupation profiles, more intelligent controls could achieve a similar output, mindful that commercial office workplaces as an example are likely to become different environments in the future. Alternative active technologies should be considered to complement any active control strategy for minimizing the need for enhanced ventilation strategies. Further empirical research is also required to support this approach.

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.

Particulate monitoring also to be included PM0.1 – 10.

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

CIBSE; REHVA; ASHRAE; BSRIA

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.

Further empirical research is required before UV, Bi-polar ionization, germicidal filters, enhanced filtration or a combination of such technology may be considered for using recirculatory air paths. The amount of volumetric air within large systems can be prohibitive to such technologies, therefore an approach based upon volumetric limits may be required.

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.

IAQ solutions should be considered holistically using all available technology and a review of intelligent controls and monitoring functionality should be further considered prior to any adoption.

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

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.

Individual Approved Documents (AD) set out standards that can/do cause confusion through apparent contradictory requirements. A further AD specifically to address overheating in buildings will exacerbate this problem.

If ADs F & L are considered to be unsatisfactory at present, then

those ADs need to be amended to properly address the problem of overheating.

It is clear that reduction in solar gain and increase in ventilation rates in periods of high internal heat and poor air quality will reduce the risk to health & life. SAP needs to be upgraded to more accurately reflect true circumstances, rather than the current approximation of performance.

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.

The Buildings in scope should include existing buildings when significant building is undertaken.

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.

As the effects of climate change are predicated to spread further north and to become more severe, then any residential construction undertaken now will suffer overheating at a point in the future. It is very short-term to address only the area that is currently considered to be significant. This is an opportunity to improve the quality of housing overall and not discriminate against occupants of housing outside Greater London by subjecting those occupants to significant risk and mitigation costs in the future.

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.

A single standard applying to all residential buildings will enable greater flexibility in the housing market and a more consistent approach to the provision of quality housing.

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.

To be consistent with the response to Q84, the mitigation measures to prevent overheating need to be applied throughout England.

The mitigation measures proposed are manual; there are already systems to provide automatic ventilation for controlling humidity and these should be expanded to provide control of internal heat levels. Passive Stack Ventilation (PSV) or Demand Controlled Ventilation both automate the supply/removal of fresh air to homes and are predominantly automatic and do not require input energy.

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.

Merely re-locating glazing to North & East elevations will not resolve the overall energy consumption of a building, as excessive glazing will lead to greater heat loss. Any greater reduction of the use of daylight will also increase the use of artificial lighting. It must remain possible to provide sufficient natural light to rooms that are in use during daylight hours and to install additional measures to limit solar gain to manage the problem when it arises.

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.

The purge ventilation requirements of AD Part F should be updated to the minimum standard proposed in paras, 1.10 – 1.13

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.

From calculation/assessments of current design typologies it should be possible to provide adequate daylight levels using the max. figures stated. However, the actual window size and configuration will continue to play a part in meeting daylight factors and also limiting solar gains, just as much as being acceptable to occupants.

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.

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

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.

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.

We are seeking a methodology that will persist beyond the occupancy of an individual user or the life of trees.

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.

This approach will require passive measures such as orientation or the provision of vegetation shading providing cooling through latent heat of evaporation.

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.

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.

There is no good reason to amend the provisions of AD Part F on the ingress of external pollutants. With the increase in non-polluting vehicles, the levels of nighttime pollutants will fall.

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.

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.

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.

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.

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.

It is important for the Home User to understand the measures incorporated into accommodation to reduce the risk that occupants from interfering with the mitigation measures designed into the building.

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

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.

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.

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.

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.

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.

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.

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.

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.

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.

This is a time of significant change in the industry, and downgrading the compliance guides to manufacturer groups guides is a big mistake and will ensure minimum standard only possible outcome

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.

This is a time of significant change in the industry, and downgrading the compliance guides to manufacturer groups guides is a big mistake and will ensure minimum standard only possible outcome

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.

Incorrect wording relating to primary energy – should be consumption not production; this would actually preclude heat pumps from being installed

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.

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.

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.

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.

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.

Hardness is a huge efficiency issue as it creates scaling

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, volume1: 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.

We fully support the principle of driving towards correctly sized boilers but the objective of ensuring efficient systems will only happen if there is also a greater focus on clearly specifying and enforcing commissioning requirements for heating systems in dwellings.

Tests carried out by the University of Salford on behalf of BEAMA show that a 24 kW combination boiler installed in a dwelling with an 8 kW design heat load can be set up so that the boiler operates in condensing mode even with a Class I on/off room thermostat as long as the system is commissioned and balanced suitably. This needs to be dealt with alongside requirements for boiler sizing.

Hydraulic balancing was described in the 2018 Boiler Plus policy document as 'expected practice' and it is noted that 'consumers should expect their installer to undertake this'. Despite this, and the Part L requirement for systems to be commissioned it is still commonly felt by industry that this does not happen. A specific reference to the need for heating system balancing within the *Approved Document* would help to ensure that, alongside the requirement for additional efficiency measures the basic efficiency of the heating system would be ensured

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.

55 deg C is not the design / mean water temp – it is the max permissible for both condensing boilers and heat pumps. For energy efficiency needs to be a lot lower – for low temperature systems the MWT should be 45degC with a DT of 5 for heat pumps and DT0 for boilers

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.

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.

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.

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.

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.

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.

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.

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.

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.

Question 131): Please provide any feedback you have on the impact assessment there, including the assumptions made and the assessment of the

potential costs and benefits of the proposed options we have made.

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.