



Submission in response to: **Consultation on Part L and F 2020 and the Future Homes Standard: February 2020**

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the Edge is a voluntary built and natural environment think tank and network. It is multi-disciplinary in a landscape remarkable for its abundance of single-discipline institutions. We stand for being:

- **Interdisciplinary:** bringing built environmental professionals together, inclusively along with others who share their concerns.
- **Open and creative:** working across all disciplines with competitors and collaborators.
- **Strategic in approach:** encouraging accessible and shared knowledge and seeking to connect place, practice, policy and research.
- **Visionary:** in identifying the issues and in promoting effective and urgent responses to both local and global challenges.
- **Professional:** developing a broad-based ethic of responsibility to social and environmental demands based on an equitable global framework.
- **Business-like:** furthering the skills and capacity of the UK construction industry to promote prosperity and deliver a better built environment.

the Edge is currently working with the Committee on Climate Change and a broad group of industry bodies and institutions to enable the UK's built environment to deliver net-zero carbon emissions by 2050 in line with the 2019 amendment to the Climate Change Act.

Consultation response:

The Edge is fully supportive of the aims expressed in the Future Homes Standard consultation document, in particular, on page 6:

- 'new build homes to be future-proofed with low carbon heating and world-leading levels of energy efficiency'
- Despite progress reducing emissions from homes, we need to go much further.'
- 'New homes being built now and in the next 5-10 years will still exist in 2050 and therefore we must ensure that the energy efficiency standards we set for them put us on track to meet the 2050 target'
- an average home built to it [the Future Homes Standard] will have 75-80% less carbon emissions than one built to current energy efficiency requirements'
- 'We propose introducing in 2020 a meaningful but achievable uplift to energy efficiency standards as a stepping stone to the Future Homes Standard.'

However, in order to achieve these aspirations the Edge believes that it is necessary to go much further than the changes proposed in the consultation document allow. This is not only necessary to achieve immediate improvements in building performance but also to enable the market to start gearing up its technical capacity and, importantly, to signal to the wider public that a sea change has taken place in response to climate breakdown and that business as usual is no longer an option.

* Including: BSI, CAA, CABE, CCC, CIAT, CIC, CIOB, CIEH, CIH, CIBSE, CPA, Forum for the Future, Good Homes Alliance, InnovateUK, Institute of Chartered Foresters, IEMA, ICE, IStructE, LETI, LI, RIBA, RICS, RTPI, SocEnv, UKBEAG, UKGBC, University of Cambridge Institute for Sustainability Leadership

Summary

The Edge is, above all, a collaborative organisation and this response has been developed in discussion with other expert groups, notably CIBSE and LETI.

Our greatest concern with the proposals is the mismatch between the stated objectives and level of ambition, including the need to meet the UK's legal requirement to achieve net zero carbon emissions by 2050, and the progress towards them evidenced by the proposals. The new Part L should be taking us at least half way towards the envisaged and necessary 2025 standards and ideally 60% of the way there.

Taking the larger picture into account the Edge believes that the built environment needs to take as little of the national energy supply as possible, whatever the level of carbon intensity of that supply, in order that energy supplies can be used for essential and unavoidable purposes elsewhere. This requires that passive energy strategies should be encouraged and/or mandated wherever possible and, above all, a fabric first approach should be taken to maximise heat and energy efficiency. This has the welcome benefit of greatly increasing affordability in addition to delivering a much-reduced environmental impact.

A third major concern for us is that the proposals and their impact should be easy to understand and compare with best practice exemplars. This is as much for the design and construction team as for householders, landlords and agents. A straightforward and easily measurable value that relates to lived experience is therefore a must. It is for this reason that we propose the key metric for homes (and other properties) should be kWh/m²/yr – a value that can be calculated, or at least approximated, using a tape measure and annual utility bills.

Other issues include:

- Compliance should ultimately be based on real data and not on predicted figures;
- First steps should be taken in 2020 towards standards based on assessing total energy use of buildings, at the in-use stage. In particular, government should review legal options for implementing requirements applying to actual in-use performance, starting with disclosure
- Fabric Energy Efficiency Standards (FEES) should be retained and upgraded;
- An early transition to low-carbon heating systems (e.g.heat pumps) should be supported through both guidance and legislation. This should include their use in the notional building model, rather than gas boilers;
- Heat networks should be judged on their own merit without reliance on artificial correction factors;
- Direct electric heating should be allowed only in exceptional circumstances, to limit risks of fuel poverty and excessive demand from the grid;
- Local Authorities have proved to be in the vanguard of low carbon innovation and their freedom to included enhanced levels of low energy and carbon performance in their planning requirements must be retained; and
- The revised regulations should take care to encourage the use of natural ventilation wherever possible and particularly when working in conjunction with mechanical ventilation and heat recovery. Opening windows are important for many reasons including the provision of fresh air and avoiding overheating. Low infiltration rates should not be seen as an injunction to create sealed airtight buildings.

Finally the Edge recognises the need for the construction and housebuilding industries to gear up as fast as possible for the 2025 Future Homes Standard and for market leaders to be trialling ways of achieving the Standard as early as possible. The timetable set out for getting to the FHS is therefore far too slow. Consultation on the new requirements should be underway before the end of 2020 and the new Standard introduced, well in advance of its introduction, during 2021.

Responses to Consultation Questions

Q1 Do you agree with our expectation that a home built to the Future Homes Standard should produce 75-80% less CO2 emissions than one built to current requirements?

a. Yes

b. No – 75-80% is too high a reduction in CO2

c. No – 75-80% is too low a reduction in CO2

If no, please explain your reasoning and provide evidence to support this.

This question is predicated on the assumption that the metrics for calculating emissions are accepted. Yet the Edge believes that the methodology is flawed. Compliance in the 2020 Part L revision should be based on assessed energy consumption per m² in preparation for 2025, when, under the Future Homes Standard, compliance should be based on the actual use of energy using (metered) kWh/m²/yr targets (e.g. domestic display energy certificates (DECs)).

In order to achieve net-zero carbon emissions for the UK's entire built estate in 2050 it will be necessary for all new homes built from 2025 at the latest to work at net-zero level without substantial further works. In practice initial partial compliance might be ameliorated by further decarbonisation of the grid between 2025 and 2050 or the later addition of on-site renewable generation, but this needs to be designed in with a high expectation of its delivery from the outset and included in the Building Regulations approval process. Attention should also be given to the performance gap between intended and in practice energy use, which, however much reduced, will still persist and the ongoing need for unregulated energy for plug in loads. Both these will require additional energy to be delivered to each home that needs to be allowed for at design stage.

Taking a broader view it will be essential that new buildings are designed and built from as early a stage as possible to impose a minimal load on the national grid. This will allow limited energy resources to be deployed elsewhere in the economy as well as to supply existing hard-to-treat properties with the energy necessary for them to keep running.

Q2 We think heat pumps and heat networks should typically be used to deliver the low carbon heating requirement of the Future Homes Standard. What are your views on this and in what circumstances should other low carbon technologies, such as direct electric heating, be used?

We agree that heat pumps currently look like the most promising means to deliver low carbon heat (once the grid is substantially decarbonised and overall heat demand is significantly reduced). We are however concerned that the proposed changes to Part L do little to encourage the widespread adoption of the technology and the development of a substantial and, importantly, skilled specification, installation and maintenance capacity across the country. For example: heat pumps should be part of the default notional building model under SAP and other means of fossil fuel burning heat generation should be discouraged immediately.

Heat networks are not a panacea and their use needs to be restricted to when they offer genuinely low carbon heat from the outset. New gas-fired CHP plants should not be acceptable except under abnormal circumstances. Transmission losses need to be considered and factored into calculations.

Direct electric heating should only be used in exceptional circumstances where heat demand, including hot water demand, is expected to be particularly small and a heat pump is not suitable. Direct electric heating should only be employed in cases where the most efficient fabric has been installed in order to reduce demand on the grid and limit running costs for consumers.

Should other low-carbon solutions prove feasible in the future (e.g. a decarbonised gas grid), this should be taken into account in future amendments to the regulations.

The important principle is one of technology agnosticism. Buildings must be judged fairly, against clear performance requirements.

Q3 Do you agree that the fabric package for Option 1 (Future Homes Fabric) set out in Chapter 3 and Table 4 of the impact assessment provides a reasonable basis for the fabric performance of the Future Homes Standard?

~~a. Yes~~

~~b. No – the fabric standard is too demanding~~

c. No – the fabric standard is not demanding enough.

The fabric standards required by the 2020 Part L AD for new homes should be as ambitious as possible in order to pre-empt the Future Homes Standard and even the stated ambition for a 75-80% carbon reduction. It is also noted that the standards need to be reviewed in tandem with the air tightness requirements (which as proposed are not believed to be demanding enough), efficient form factors and orientation. The retention of upgraded fabric energy efficiency standards (FEES) is also strongly preferred and advocated.

Having taken into account the above comments; on an elemental basis the proposed U-value specifications of the notional building are considered acceptable. It is the bigger picture that is missing.

Q4 When, if at all, should the government commence the amendment to the Planning and Energy Act 2008 to restrict local planning authorities from setting higher energy efficiency standards for dwellings?

~~a. In 2020 alongside the introduction of any option to uplift to the energy efficiency standards of Part L~~

~~b. In 2020 but only in the event of the introduction of a 31% uplift (option 2) to the energy efficiency standards of Part L~~

~~c. In 2025 alongside the introduction of the Future Homes Standard~~

d. The government should not commence the amendment to the Planning and Energy Act:

We understand the principle of demanding nationwide standards and the potential economies of scale that this might generate. However there is also a substantial danger that it will only deliver the lowest commonly agreed standard. Unfortunately government cannot be trusted not to water down requirements in the face of sustained lobbying from parts of the housing industry or in order to reduce costs in pursuit of housing delivery targets.

In order to support the proposed amendment to the Planning and Energy Act we would need concrete reassurances that the Future Homes Standard will deliver homes that can become truly net zero carbon, in particular with attention to whole energy consumption and a move to as-built performance. At present the role that local authorities have played in forcing innovation and the achievement of higher standards has been invaluable and should not be jettisoned lightly.

The industry has been able to trial and refine the delivery of the higher standards driven by selected planning authorities able to justify higher standards based on local prosperity levels. This has helped industry drive down the costs of delivering those standards and allowed them to be subsequently rolled out to other parts of the country.

In some jurisdictions, e.g. London, the proposed changes would actually lead to lower standards. This cannot be acceptable.

Q5 Do you agree with the proposed timings presented in Figure 2.1 showing the Roadmap to the Future Homes Standard?

~~a. Yes~~

~~b. No – the timings are too ambitious~~

c. No – the timings are not ambitious enough

The proposed further consultation on the Future Homes Standard in 2024 is far too late for it to be properly brought into action in 2050. The industry needs far greater forewarning and certainty if it is to respond effectively and efficiently. Market leaders should be given the opportunity to voluntarily bring in the higher standards earlier and trial them on behalf of the wider industry

It is essential to deliver carbon savings as early as possible, while doing so effectively and at least cost. There is no rationale for delaying consultation on the FHS until 2024. An early introduction of the FHS will help drive the market and provide very valuable feedback to government before its full introduction to the whole industry in 2025.

Q6 What level of uplift to the energy efficiency standards in the Building Regulations should be introduced in 2020?

~~a. No change~~

~~b. Option 1 – 20% CO2 reduction~~

~~c. Option 2 – 31% CO2 reduction (the government's preferred option)~~

d. Other.

Please explain your reasoning.

We do not consider that a 20% or 31% reduction meets the government's stated goal for a "meaningful but realistic" step towards 2025, i.e. 75% or 80%. Schemes can already achieve more than this and the principle should be to tackle the majority of the relatively easily achievable tasks as soon as possible. A better target would certainly be in excess of 50% and probably most effectively set at 60%. It is noted that under the new regulations new homes could be less insulated in 2020 than under the 2013 Building Regulations.

We welcome the government's ambition but believe that this requires a far more demanding fabric standard with improved air tightness, as otherwise we will create yet more homes whose fabric will not be 2050-ready, and retrofitting fabric is the most disruptive and costly option for consumers.

In addition, the 2025 standard should transition to total energy use and as-built performance and the 2020 amendments should take the first step towards this. The introduction of a requirement to disclose as-built energy performance is therefore strongly advocated. This could allow for a degree of aggregation and anonymity but would provide the necessary data and feedback to the industry for further improvements to design and delivery to be achieved. The industry needs to move forward on a 'What Works' basis.

Q7 Do you agree with using primary energy as the principal performance metric?

~~a. Yes – primary energy should be the principal performance metric~~

~~b. No – CO2 should remain the principal performance metric~~

~~c. No – another measure should be the principal performance metric~~

Please explain your reasoning and provide evidence to support this.

The most critical requirement is that the base metric for energy performance of a home should be comprehensible to householders, landlords, surveyors and agents and that they should be able to see the connection between their actions and that metric. Neither primary energy nor CO₂ calculations meet this criterion. It is therefore recommended that the principle performance metric should be kWh/m²/yr and this should relate directly to energy metering and annual reports from utility providers. This will allow much clearer messaging to consumers and much easier comparison with observable and billed outcomes. The use of kWh/m²/yr also inherently incentivises improved building form factors by not permitting the relaxation inherent in the notional building model.

Q8 Do you agree with using CO2 as the secondary performance metric?

a. Yes.

~~b. No~~

Please explain your reasoning.

CO₂ should remain as a system-level metric just not the principal one. We agree with the statement in the consultation that carbon will become less useful as a metric as the electricity supply decarbonises, but for the time being CO₂ will be required as a metric which allows performance and policy effectiveness to be tracked overall, in a consistent manner with other policies.

Q9 Do you agree with the proposal to set a minimum target to ensure that homes are affordable to run?**a. Yes****b. No****Please explain your reasoning.**

There can be no disagreement with the ambition that homes should be affordable to run. But the Building Regulations can only address some of the issues that relate to affordability. The most important result is that homes can be run and maintained with very low energy input. This will impact both affordability and climate change mitigation.

It is noted that SAP is misleading on assessing energy bills and particularly service charges. For district heating the Heat Trust suggests £1/day as an industry standard reasonable benchmark. This can easily be double the energy bill when added to the kWh bill for small / low energy new homes.

Q10 Should the minimum target used to ensure that homes are affordable to run be a minimum Energy Efficiency Rating?**a. Yes****b. No**

~~If yes, please suggest a minimum Energy Efficiency Rating that should be achieved and provide evidence to support this.~~

If no, please suggest an alternative metric, explain your reason and provide evidence to support this. see above

It is now well recognised that EPC ratings are poor predictors of energy consumption and, in consequence, energy bills. Ratings based on real and known energy use in comparable properties with adjustment factors introduced to cover any further improvements would be far more accurate and should be explored.

Measures should also be introduced to prevent the lowest capital cost option from deciding the energy source used in developments. For example the consultation rightly identifies that because electricity has a lower carbon factor than gas, direct electric heating could be the more attractive option for both developers and housebuilders, but that this wouldn't be the best choice for reducing carbon emissions or protecting against future increases in energy bills. In order to avoid this becoming an issue we recommend that:

- 1) FEES should be retained as a metric for demand reduction before services efficiency;*
- 2) the minimum fabric performance standards should be significantly upgraded; and*
- 3) the notional building should not be permitted to employ a gas boiler.*

Q11 Do you agree with the proposed minimum fabric standards set out in Table 3.1?

If you do not agree with any one or more of the proposed standards, please explain your reasoning and provide evidence to support this.

No. The proposed 2020 minimum standards are far from being effective enough.

We recommend exploring the following as the minimum standard values:

External walls	0.15 W/m ² .K
Party walls	0.10 W/m ² .K
Floor	0.10 W/m ² .K
Roof	0.10 W/m ² .K
Windows, roof windows, glazed roof lights, curtain walling, and pedestrian doors	1.2- 0.8 W/m ² .K
Air permeability	<<3m ³ /m ² .h at 50Pa

To protect consumers in new dwellings from inadvertently suffering dangerously poor indoor air quality, MVHR or other appropriate precautions must be mandatory at these levels of airtightness.

Q12 Do you think that the minimum fabric standards should be set in the Building Regulations or in the Approved Document (as is the current case)?

a. In the Building Regulations

b. In the Approved Document

Please explain your reasoning.

The minimum standards should be in the Approved Document in order to allow them to be reviewed and revisited as necessary, without requiring changes to the regulations. But the regulations should require compliance with the standards in the AD.

Q13 In the context of the proposed move to a primary energy metric and improved minimum fabric standards, do you agree with the proposal to remove the fabric energy efficiency target?

a. Yes

b. No

If no, please explain your reasoning.

The Fabric Energy Efficiency Standard (FEES) is an effective and valuable approach and we strongly recommend that it should be retained with notional fabric U-values and airtightness further improved. It is also the metric best understood by non-energy literate members of construction implementation teams and clients. Without FEES there will be a temptation to use technology to mask a poorly performing building fabric. The U-values set out in the minimum standards for fabric performance are not onerous enough to justify the removal of FEES.

Q14 Do you agree that the limiting U-value for roof-lights should be based on a roof- light in a horizontal position?

a. Yes

b. No

If no, please explain your reasoning and provide evidence to support this.

Q15 Do you agree that we should adopt the latest version of BR 443?

a. Yes

b. No

If no, please explain your reasoning and provide evidence to support this.

Q16 Do you agree with the proposal of removing fuel factors to aid the transition from high-carbon fossil fuels?

a. Yes

b. No

If no, please explain your reasoning.

Q17 Do you agree with the proposed changes to minimum building services efficiencies and controls set out in table 3.2?

a. Yes

b. No

If you do not agree with any or more of the proposed changes, please explain your reasoning and provide evidence to support this.

We support the improvement but recognise that it could be pushed further. For example LETI recommend that Cooling Efficiency should be increased to a SEER 4, and Lighting should be increased to 80 lamp lumens per circuit-watt.

Q18 Do you agree with the proposal that heating systems in new dwellings should be designed to operate with a flow temperature of 55°C?

a. Yes

~~b. No – the temperature should be below 55°C.~~

~~c. No – dwellings should not be designed to operate with a low flow temperature~~

~~d. No – I disagree for another reason~~

If no, please explain your reasoning and provide evidence.

Heating systems should be designed to operate at low flow temperatures, but measures should also be put in place to futureproof heating installations to ensure that they are suitable conversion to a supply temperature of as low as 45°C from heat pumps at a future date.

Maximum temperatures should be set according to heat source/application, e.g.

- 55°C for homes connected to low/zero carbon sourced district, communal, etc; heating systems (where convectors will serve the long term)*
- 45°C for GSHP (or WSHP) heated homes (admitting, but not skewed to, convector heating).*
- 40°C for all other cases (requiring LT heat emitters).*

Q19 How should we encourage new dwellings to be designed to operate with a flow temperature of 55°C?

a. By setting a minimum standard

~~b. Through the target primary energy and target emission rate (i.e. through the notional building)~~

~~c. Other~~

Please explain your reasoning.

See Q18 response

Q20 Do you agree with the proposals to simplify the requirements in the Building Regulations for the consideration of high-efficiency alternative systems?

a. Yes

~~b. No~~

~~If no, please explain your reasoning.~~

Q21 Do you agree with the proposal to adopt the latest Standard Assessment Procedure, SAP 10?

a. Yes

~~b. No~~

If no, please explain your reasoning.

Yes, but with conditions:

- FEES should be retained*
- The notional building should not use gas heating*
- The notional building should encourage efficient building form*
- Overheating should be addressed*

Q22 Do you agree with the proposal to update the source of fuel prices to BEIS Domestic energy price indices for SAP 10.2?

a. Yes

~~b. No~~

If no, please explain your reasoning.

Q23 Do you agree with the method in Briefing Note – Derivation and use of Primary Energy factors in SAP for calculating primary energy and CO2 emissions factors?

~~a. Yes~~

b. No

If no, please explain your reasoning.

The calculation/derivation of the Primary Energy factors is not clear, particularly for electricity. The calculation methodology needs further explanation and this must be clearly set out within the documentation

Q24 Do you agree with the removal of government Approved Construction Details from Approved Document L?

~~a. Yes~~

b. No

If no, please explain your reasoning.

It is acknowledged that the ACDs are out of date, but given the need to reach the entire construction industry they may be an invaluable, even irreplaceable, means of communicating successful solutions. Replacing the ACDs should be explored before the decision is made just to dispose of them.

Q25 Do you agree with the proposal to introduce the technology factors for heat networks, as presented in the draft Approved Document?

~~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~~

Please explain your reasoning.

Heat networks should not be regarded as a preferred option by default. They incur higher capital costs and distribution losses not present in communal or individual heating systems. The perceived need to provide artificial support through a technology factor is itself evidence that the justification for heat networks may not be appropriate. With new-build reducing heating demands and convergence with internal heat gains, the economic viability of heat networks is reducing progressively. Heat networks are better suited to difficult-to-decarbonise existing buildings

Heat networks should remain an option, to allow the communal use of low-carbon heat sources where they exist, but this should be assessed on a fair basis against the alternatives.

Q26 Do you agree with removing this supplementary guidance from Approved Document L, as outlined in paragraph 3.59 of the consultation document?

~~a. Yes~~

b. No

If no, please explain your reasoning.

Where the information is useful and appropriate the guidance in the AD should be retained.

Q27 Do you agree with the external references used in the draft Approved Document L, in Appendix C and Appendix D?

a. Yes

~~b. No~~

If no, please explain your reasoning and suggest any alternative sources.

Yes – but it is important that these references are open access and should not be located behind paywalls

Q28 Do you agree with incorporating the Compliance Guides into the Approved Documents?**a. Yes****b. No****If no, please explain your reasoning.**

Yes, it is important that all relevant information is easily accessible and all in one place.

Q29 Do you agree that we have adequately covered matters which are currently in the Domestic Building Services Compliance Guide in the new draft Approved Document L for new dwellings?**a. Yes****b. No****If no, please explain which matters are not adequately covered.****Q30 Do you agree that we have adequately covered matters which are currently in the Domestic Ventilation Compliance Guide in the new draft Approved Document F for new dwellings?****a. Yes****b. No****If no, please explain which matters are not adequately covered.****Q31 Do you agree with all of the proposals for restructuring the Approved Document guidance?****a. Yes****b. No****If no, please explain your reasoning.****Q32 Do you agree with our proposed approach to mandating self-regulating devices in new dwellings?****a. Yes****b. No****If no, please explain your reasoning.**

Note: We believe that self-regulating devices are in need of significant technical development and this should encourage their uptake.

Q33 Are there circumstances in which installing self-regulating devices in new dwellings would not be technically or economically feasible?**a. Yes****b. No****If yes, please explain your reasoning and provide evidence.**

Self-regulating devices would not be necessary in dwellings where the heat demand is insufficient to need the cost and complexity of a wet heating system. For example: where the background fresh air supply is used for the space heating delivery

Q34 Do you agree with proposed guidance on providing information about building automation and control systems for new dwellings?**a. Yes****b. No****If no, please explain your reasoning.**

Chapter 4 – Part F

Q35

Do you agree that the guidance in Appendix B to draft Approved Document F provides an appropriate basis for setting minimum ventilation standards?

~~a. Yes~~

b. No

If no, please explain your reasoning.

The allowance for infiltration rate of 0.15 for less airtight buildings (under B.7) should be omitted. No benefit should be given for less airtight buildings. The route of infiltration air into the building is unknown and may not be available to all occupied rooms. This would mean a significant reduction in indoor air quality and increased health issues.

It should also be noted that there is a suggestion in the proposed new Part F that 'natural ventilation' is no longer appropriate for low energy homes – implying opening windows are optional and no longer required. Just because mechanical supplements are required for certain purposes (min fresh air, local pollutant extract, etc.) as they have been for years, does not mean that buildings are no longer naturally ventilated. Part F needs to be far more accurate in saying 'supplementary' mechanical ventilation.

Q36

Do you agree that using individual volatile organic compounds, informed by Public Health England guidelines, is an appropriate alternative to using a total volatile organic compound limit?

a. Yes

~~b. No – the Public Health England guidelines are not sufficient~~

~~c. No – individual volatile organic compounds should not be used to determine ventilation rates~~

~~d. No – I disagree for another reason~~

If no, please explain your reasoning, and provide alternative evidence sources if appropriate.

Q37

Do you agree with the proposed guidance on minimising the ingress of external pollutants in the draft Approved Document F?

a. Yes

~~b. No~~

If no, please explain your reasoning.

Q38

Do you agree with the proposed guidance on noise in the draft Approved Document F?

a. Yes

~~b. No – this should not form part of the statutory guidance for ventilation, or the guidance goes too far~~

c. No – the guidance does not sufficiently address the problem

~~d. No – I disagree for another reason~~

If no, please explain your reasoning.

The guidance is welcome as noise is one of the main reasons that occupants turn off their mechanical ventilation. However, it should provide prescriptive sound levels thresholds for individual rooms, or fans and requirements for attenuation.

Under 1.7 the guidance should be reworded to account for external noise generally. Priority should be given to considering external noise for background ventilation. Noise can also transfer into the home through mechanical ducts.

There is no mention of 'cross-talk' noise transmission between rooms.

Q39

Do you agree with the proposal to remove guidance for passive stack ventilation systems from the Approved Document?

a. Yes

~~b. No~~

If no, please explain your reasoning.

Q40

Do you agree with the proposal to remove guidance for more airtight naturally ventilated homes?

~~a. Yes~~

b. No

If no, please explain your reasoning.

It is unclear what the boundary is between more airtight and less airtight homes. We suggest homes should have a maximum air permeability of $<3\text{m}^3/\text{m}^2.\text{h}$ at 50Pa. Any guidance for naturally ventilated homes operating at a higher air permeability should be removed. With an air permeability of $\ll 3\text{m}^3/\text{m}^2.\text{h}$ at 50Pa mechanical ventilation with heat recovery should be required, hence all guidance on naturally ventilated homes should be removed.

In addition the AD should not imply that natural ventilation is no longer suitable, even if the level of detailed design may take it beyond the practicalities of inclusion in the AD. It should also be noted that this presumption in favour of mechanical ventilation is for minimum fresh air supply and not for 'purge' ventilation. Beware of the un-intended consequence of saying no natural ventilation and hence cost savings taken by providing no opening windows.

Q41

Do you agree with the proposal to remove guidance for less airtight homes with mechanical extract ventilation?

a. Yes

~~b. No~~

If no, please explain your reasoning.

Q42

Do you agree with the proposed guidance for background ventilators in naturally ventilated dwellings in the draft Approved Document F?

a. Yes

~~b. No – the ventilator areas are too large~~

~~c. No – the ventilator areas are too small~~

~~d. No – I disagree for another reason~~

If no, please explain your reasoning.

Greater encouragement should be provided for using mechanical ventilation with heat recovery using a default air permeability of $\ll 3\text{m}^3/\text{m}^2.\text{h}$ at 50Pa.

Q43

Do you agree with the proposed approach in the draft Approved Document for determining minimum whole building ventilation rates in the draft Approved Document F?

a. Yes

~~b. No – the ventilation rate is too high~~

~~c. No – the ventilation rate is too low~~

~~d. No – I disagree for another reason~~

If no, please explain your reasoning.

Q44

Do you agree that background ventilators should be installed for a continuous mechanical extract system, at 5000mm² per habitable room?

a. Yes

~~**b. No – the minimum background ventilator area is too low**~~

~~**c. No – the minimum background ventilator area is too high**~~

d. No – other

If no, please explain your reasoning.

The ventilator should be sized based on the ventilation rate required to the room. Guidance should be given in relation to the room type extract rates in table 1.2.

Not all rooms may require a background ventilator. For example, a kitchen dining room could take make up supply air from the bedrooms and this would ensure corridors and intermediate spaces were adequately ventilated.

Q45

Do you agree with the external references used in the draft Approved Document F, in Appendices B, D and E?

a. Yes

~~**b. No**~~

If no, please explain your reasoning and suggest any alternative sources.

Yes – but it is important that these references are open access and should not be located behind paywalls

Q46

Do you agree with the proposed commissioning sheet proforma given in Appendix C of the draft Approved Document F, volume 1?

a. Yes

b. No

If no, please explain your reasoning.

Additional information is required.

2.3b should include a statement about balance between total supply and extract ventilation rates. Are the total mechanical supply and extract ventilation rates measured at the unit within 10% of one another for all fan speeds to ensure balance through the heat exchanger?

2.3b Only mentions insulation in unheated spaces. Insulation is also critical on the ventilation unit and between the ventilation unit and the thermal envelope for units in heated spaces with heat recovery. These ducts are cold and condensation could form on the ducts.

2.3c There is no mention of noise in individual rooms. Noise may be caused by poor ductwork or terminal installation and a comment should be included. "During normal operation is there undue noise from any of the room terminals, air supply from bedroom and living area supply terminals should be inaudible".

3.3 and 3.4 should include a total air flow rate measured at the intake and exhaust from the building and a column to record comments on noise.

Q47

Do you agree with the proposal to provide a completed checklist and commissioning sheet to the building owner?

a. Yes

~~**b. No**~~

If no, please explain your reasoning.

Chapter 5 – Airtightness

Q48

Do you agree that there should be a limit to the credit given in SAP for energy savings from airtightness for naturally ventilated dwellings?

a. Yes

b. No

If no, please explain your reasoning.

If natural ventilation without supplementary mechanically supplied fresh air is to be included as an option, the credit for airtightness should be limited.

However all homes should have a maximum air permeability of $<3\text{m}^3/\text{m}^2.\text{h}$ at 50Pa. Any guidance for naturally ventilated homes operating at a higher air permeability should be removed. With an air permeability of $<3\text{m}^3/\text{m}^2.\text{h}$ at 50Pa mechanical ventilation with heat recovery should be required.

Q49

Do you agree that the limit should be set at $3\text{m}^3/\text{m}^2.\text{h}$?

a. Yes

b. No – it is too low

c. No – it is too high

If no, please explain your reasoning and provide evidence.

As per Q 48. if natural ventilation without supplementary mechanically supplied fresh air or other appropriate measures is to be included as an option, the credit for airtightness should be limited, this could be limited to $<3\text{m}^3/\text{m}^2.\text{h}$.

However, we feel that airtightness in general should be limited to $<3\text{m}^3/\text{m}^2.\text{h}$, therefore natural ventilation is no longer applicable.

Q50

Is having a standard level of uncertainty of $0.5\text{m}^3/\text{m}^2.\text{h}$ appropriate for all dwellings undergoing an airtightness test?

a. Yes

b. No – a percentage uncertainty would be more appropriate

c. No – I agree with having a standard level of uncertainty, but $0.5\text{m}^3/\text{m}^2.\text{h}$ is not an appropriate figure.

d. No – I disagree for another reason

If no, please explain your reasoning.

A percentage reduction would be more appropriate. This would require proportional precision requirements based on the target airtightness (i.e. very airtight dwellings would require higher accuracy).

When dealing with very low air permeability specification the use $0.5\text{m}^3/\text{m}^2.\text{h}$ would be too punitive – it would be more than double the test reading. Smaller and correctly sized accurate blower door fans should be used, for example duct testing equipment.

Q51

Currently only a proportion of new dwellings are required to be airtightness tested. Do you agree with the proposal that all new dwellings should be airtightness tested?

a. Yes

b. No

If no, please explain your reasoning and provide evidence to support this.

Q52

Currently, small developments are excluded from the requirement to undergo any airtightness tests. Do you agree with including small developments in this requirement?

a. Yes

b. No

If no, please explain your reasoning and provide evidence to support this.

Q53

Do you agree that the Pulse test should be introduced into statutory guidance as an alternative airtightness testing method alongside the blower door test?

a. Yes

b. No

If no, please explain your reasoning.

It should be an option, but the blower door test should be kept as the main technology. It allows diagnosis and improvement during construction works.

Q54

Do you think that the proposed design airtightness range of between 1.5 m³/m².h and the maximum allowable airtightness value in Approved Document L Volume 1 is appropriate for the introduction of the Pulse test?

a. Yes

b. No

If no, please explain your reasoning and provide evidence to support this

Any new technology should be able to test down to 0.1m³/m²/h at 50Pa, new buildings are already achieving this level of airtightness.

Q55

Do you agree that we should adopt an independent approved airtightness testing methodology?

a. Yes

b. No

Please explain your reasoning.

There should be an independent approved airtightness testing methodology. This should incorporate both the new Pulse method and established Q50 methodology in one standard.

Furthermore it should lean heavily on previous Air Tightness Measurement Association (ATTMA) technical standards, now Building Compliance Testers Association (BCTA).

Q56

Do you agree with the content of the CIBSE draft methodology which will be available via the link in the consultation document? Please make any comments here.

Yes.

Chapter 6 – Compliance, Performance and Providing Information

Q57 Do you agree with the introduction of guidance for Build Quality in the Approved Document becoming part of the reasonable provision for compliance with the minimum standards of Part L?

a. Yes

b. No

Please explain your reasoning and provide evidence to support this.

Q58 Do you have any comments on the Build Quality guidance in Annex C?

No

Q59 Do you agree with the introduction of a standardised compliance report, the Building Regulations England Part L (BREL) report, as presented in Annex D?

a. Yes

b. No – there is no need for a standardised compliance report

c. No – I agree there should be a standardised compliance report, but do not agree with the draft in Annex D

If no, please explain your reasoning.

Q60 Do you agree with the introduction of photographic evidence as a requirement for producing the as-built energy assessment for new dwellings?

a. Yes

~~b. No~~

~~If no, please explain your reasoning.~~

While we agree in principle with the idea to provide photographic evidence, we note the implied impact on the available resources of Building Control bodies.

Q61 Do you agree with the proposal to require the signed standardised compliance report (BREL) and the supporting photographic evidence to be provided to Building Control?

a. Yes

~~b. No~~

~~Please explain your reasoning.~~

Q62 Do you agree with the proposal to provide the homeowner with the signed standardised compliance report (BREL) and photographic evidence?

a. Yes

~~b. No~~

~~Please explain your reasoning.~~

Q63 Do you agree with the proposal to specify the version of Part L that the home is built to on the EPC?

a. Yes

~~b. No~~

~~Please explain your reasoning.~~

Q64 Do you agree Approved Document L should provide a set format for a home user guide in order to inform homeowners how to efficiently operate their dwelling?

a. Yes

~~b. No~~

~~If yes, please provide your views on what should be included in the guide.~~

Chapter 7 – Transitional Arrangements

Q65 Do you agree that the transitional arrangements for the energy efficiency changes in 2020 should not apply to individual buildings where work has not started within a reasonable period – resulting in those buildings having to be built to the new energy efficiency standard?

a. Yes – where building work has commenced on an individual building within a reasonable period, the transitional arrangements should apply to that building, but not to the buildings on which building work has not commenced

~~b. No – the transitional arrangements should continue to apply to all building work on a development, irrespective of whether or not building work has commenced on individual buildings~~

~~If yes, please suggest a suitable length of time for the reasonable period in which building work should have started.~~

~~If no, please explain your reasoning and provide evidence to support this.~~

Q66 Do you foresee any issues that may arise from the proposed 2020 transitional arrangements outlined in this consultation?

a. Yes

b. No

Q67 What is your view on the possible transitional arrangements regarding changes to be made in 2025?

Consultation should start as early as possible on proposed 2025 regulations to encourage a smooth transition.

Chapter 8 - Feedback on the Impact Assessment

Q68 The Impact Assessment makes a number of assumptions on fabric/services/ renewables costs, new build rates, phase-in rates, learning rates, etc for new homes. Do you think these assumptions are fair and reasonable?

a. Yes

b. No

Please explain your reasoning and provide evidence to support this.

No comment

Q69 Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for new homes?

a. Yes

b. No

If no, please explain your reasoning and provide evidence to support this.

We are concerned that the impact assessment is based on limited evidence (one dwelling type – a semi-detached house). As a result we strongly urge a review of the assessment using a more representative sample, in order that more realistic estimates of carbon savings can be made and communicated.

We are further concerned that the assessment of Option 2 is based on a technology-driven scenario. This has implications in terms of capital costs and maintenance, and is typically less reliable than simple solutions at providing energy and carbon savings. This could (intentionally or not) send a signal that this is the recommended compliance route; we strongly recommend the development of a fabric-first compliance scenario, to be provided as another illustration of how to achieve this option.

- END -

the Edge 7th February 2020