

MAYOR OF LONDON

Ministry of Housing, Communities and Local Government consultation response

Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings

Response from the Mayor of London

Consultation response

1. 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.

c. No – the Future Homes Standard should be a net zero carbon standard. The Government has established a net zero carbon target for the UK and building regulations need to be in-keeping with this target if the Government is to achieve it. While a 75-80% reduction in on-site carbon emissions will move the housing industry on considerably, it does not account for the remaining 20-25% reduction that will be needed to comply with the Government's aim. The Government had previously committed to introducing a zero carbon homes standard in 2016 and urgently needs to implement this.

In London, we have been successfully operating a net zero carbon target for new homes since 2016 and will be applying this target to all major non-residential development from 2020. The target has been successfully delivered over a number of years and it is being maintained in the draft London Plan policy based on updated evidence that assesses the feasibility and deliverability of the approaches and technologies involved, including viability.

The Greater London Authority's (GLA) annual monitoring reports demonstrate that developers are complying with our minimum on-site carbon reduction target of a 35% improvement on current building regulations, with the remainder being offset through a cash-in-lieu contribution to a borough's carbon offset fund. In 2018, residential developments approved by the Mayor achieved a 39% improvement on current building regulations on average, comfortably surpassing our minimum improvement target of 35% and maintaining performance levels seen in 2017.¹ Our monitoring reports show that our net zero carbon homes target is an established standard for London that is being delivered.

The offsetting element of London's net zero carbon target is a last resort which is applied only when on-site carbon reductions have been maximised. Since 2016, London's boroughs have collected, or secured for collection, over £50m, which has been ring-fenced for carbon saving projects in the borough. The majority of boroughs are spending these funds on improving the

¹ <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/2018-energy-monitoring-report>

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energy efficiency of existing buildings. Over time, we expect offsetting to take a lesser role as solutions to achieve higher on-site reductions become more technically feasible. The 2019 Carbon Offset Funds report² provides further detail on the offset payments collected in London so far and how they are being spent. It demonstrates that the GLA's net zero carbon target is being successfully implemented through a combination of a minimum carbon reduction target and offsetting to achieve net zero.³

As well as concerns that the Future Homes Standard is not aiming at net zero, we also have reservations about the scope of the target. As operational emissions from buildings reduce, the carbon associated with their full life cycle will become more significant. Actual energy and carbon performance achieved should also start to be measured.

Reporting on whole life cycle emissions and promoting off-site construction

Published Parliamentary reports have outlined that the UK building industry currently directly accounts for 10% of all national carbon emissions and indirectly influences 47% of all emissions through their work.^{4,5} Some evidence has shown that use of precision manufactured housing (PMH) methods (also known as modern methods of construction) can bring significant benefits in limiting CO₂ consumption in the construction phase, as well as in the use of new homes. This can happen by:

- reducing the energy used in the construction process by 67%, and waste produced onsite by 70-90%, in comparison with traditional construction methods, due to fewer vehicle movements and faster building times;⁶
- reducing levels of embodied carbon within homes following completion, with homes built using PMH methods able to reduce levels of embodied energy by at least 50%.⁷

The Government should use the Future Homes Standard to incentivise sustainable development practices, for example by explicitly highlighting the role of precision manufactured housing in achieving carbon reductions in both the off-site and on-site construction phases of home delivery. This could be achieved by requiring developers to start monitoring the whole life-cycle carbon emissions, as is being introduced in the draft London Plan.

The new draft London Plan requires all strategic developments to submit a whole life-cycle carbon assessment to account for the carbon embedded in the extraction of materials, manufacture of those materials into building products, transportation of those products to site, construction emissions and those embedded in the replacement, refurbishment and end of life of a building. This policy is in line with the Committee on Climate Change's recommendation on accounting for whole life-cycle carbon from new build development and should be adopted as part of the Future Homes Standard.

As a minimum, Part L 2020 should account more accurately for unregulated emissions, as well as regulated emissions; however, ideally it would also account for whole life-cycle carbon emissions through the calculation methodology.

² https://www.london.gov.uk/sites/default/files/2019_cof_survey_results_final_0.pdf

³ https://www.london.gov.uk/sites/default/files/2019_cof_survey_results_final_0.pdf. We have also published guidance for boroughs to ensure funds are being operated effectively: https://www.london.gov.uk/sites/default/files/carbon_offset_funds_guidance_2018.pdf

⁴ House of Commons, 2019, *HCLG Report: Modern Methods of Construction Report*

⁵ Low Carbon Construction Report, Innovation & Growth Team, HM Government 2010.

⁶ WRAP, *Waste Reduction Potential of Offsite Volumetric Construction*; WRAP (2007), *Current Practices and Future Potential in Modern Methods of Construction*.

⁷ National Federation of Builders, (2019). *Transforming Construction for a Low Carbon Future*. P. 21.

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Predicting and monitoring in use energy and carbon performance

A wider question that has not been addressed in this consultation is whether Part L is a suitable methodology for predicting energy performance. There is industry-wide agreement that Part L is not fit for purpose and is leading to a wide performance gap; with buildings being constructed that may be using up to five times as much energy as they were intended to. This needs to be urgently addressed in Part L 2020 with design calculations needing to be far more accurate and mandatory disclosure of in-use energy performance required to encourage better building design and lower bills. It is understood that the intention is for the Government to consult on introducing mandatory in-use energy performance ratings for non-domestic buildings in the private sector in 2020; the same aspiration should be followed for domestic buildings. The draft London Plan addresses this issue by requiring all major developments to report on their energy performance post-construction to address the performance gap. We would welcome the opportunity to work with the Government on this.

2. 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?

Our analysis shows that the Part L 2020 proposals are not sufficiently supporting efficient heat pump systems due to the removal of the Fabric Energy Efficiency Standard and are actively discouraging heat networks connections. Further information on the impact on heat networks is covered in our responses to questions 7 and 8.

The modelling we have undertaken to put London on a zero-carbon pathway shows that a significant increase in both heat networks and heat pumps is crucial in delivering a zero-carbon London.⁸ Our 1.5C Climate Action Plan⁹ summarises the results of the detailed modelling and analysis we have undertaken to establish London's zero-carbon pathway. Specifically, with regard to new homes:

- All new buildings need to be net zero carbon, hence the extension of our zero-carbon target to all major development in London from early next year.
- All new buildings should be supplied by heat pumps or low-carbon district heating, with London requiring 312,000 heat pumps and a total of 100,00 heat network connections by 2025.
- At least 70% of buildings need to reach EPC of C by 2030.

Fundamental to this will be ensuring that energy demand reduction is prioritised first of all to prevent costly retrofitting of housing in the future. New homes need to have high levels of fabric efficiency to ensure heat networks and heat pumps can operate efficiently and ensure that occupant energy bills are low, and to avoid putting unnecessary strain on the electricity network.

The draft London Plan establishes a heating hierarchy for developers to follow in selecting the most appropriate low-carbon heat source for their development that will not worsen air quality (policy S13 – Energy Infrastructure). The hierarchy prioritises connection to district heating

⁸ https://www.london.gov.uk/sites/default/files/element_zero_carbon_energy_systems_report.pdf.

⁹ https://www.london.gov.uk/sites/default/files/1.5_action_plan_amended.pdf

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networks for developments in Heat Network Priority Areas, followed by utilising zero-emission or local secondary heat sources (in conjunction with heat pumps, if required), followed by low emission CHP (only in developments which are facilitating area-wide heat networks) and finally low NOx gas boilers. The Government's proposed approach to low-carbon heating broadly fits with the draft London Plan. However, we are concerned that decisions on low-carbon heating are not being made as part of Part L 2020 and are being delayed until 2025. The Committee on Climate Change has also been clear that we cannot wait to take these decisions and that we need to see a rapid roll-out of low-carbon heating solutions which will be less costly than having to retrofit new buildings later on. This delay also gives negative signals to the developing market that could slow investment in innovation and supply chains in these heating systems, slowing the rate at which these new markets will mature and impacting on their ability to deliver quality at increasingly competitive prices.

Direct electric is not a solution that we would typically allow in London, unless very high standards of energy efficiency are being pursued e.g. Passivhaus standards. Our research into low-carbon heat in London demonstrates that direct electric is the most expensive solution for occupants as it is far less efficient compared to systems such as heat pumps. There is a real risk that, without sufficient safeguards, developers will see direct electric as an easy, cost-effective solution to install in new homes without taking account of the higher bills occupants will face as a consequence. Our low carbon heat study can be found here: https://www.london.gov.uk/sites/default/files/low_carbon_heat_-_heat_pumps_in_london_.pdf.

From a heat network perspective, it is vital that the planning system is supporting their build-out now, where heat density makes them a viable solution, as they will then be well established in towns and cities and better able to support both the implementation of the 2025 Future Homes Standards and wider decarbonisation of the existing building stock.

We are already rolling out policies in London which prioritise low-carbon heating solutions, such as heat networks and heat pumps. Specifically, we have been encouraging the use of SAP 10 emissions factors since January 2019. This is resulting in a step change among planning applicants to pursue heat pump solutions as opposed to traditional gas boiler or gas engine CHP solutions. This is the shift we need to see urgently.

3. 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
- If no, please explain your reasoning.

a. Yes – We are already pursuing these standards in London, with the exception of triple glazing. However, our new energy efficiency targets, which will require a 10% carbon improvement on Part L 2013 building regulations, anticipate the need for triple glazing to form part of a standard fabric specification.

We already see improvements on the air permeability rate proposed ($5 \text{ m}^3/\text{h}\cdot\text{m}^2$ at 50 Pa) with the majority of applicants aspiring to an airtightness of $3 \text{ m}^3/\text{h}\cdot\text{m}^2$ at 50 Pa, and so we consider the air permeability rate could be tightened.

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4. 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 standard for dwellings?

- a. In 2020 alongside the introduction of any option to uplift 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

Please explain your reasoning.

d. The amendment to the Planning and Energy Act should not be commenced. The intention to amend the Planning and Energy Act to remove the ability of Local Plans to require energy performance standards that exceed building regulations was expected to apply alongside the introduction of the zero-carbon homes policy in late 2016. Whilst this did not happen nationally, London has been on a trajectory to zero-carbon homes and has successfully been implementing this for major developments since 2016 through the London Plan. This proposal is therefore considered to be inconsistent with the original intention of the proposed legislative amendment. It is not clear why this is now being pursued again five years later within a different context and without full details of the Future Homes Standard being available.

In 2018, the Government provided a response to the NPPF consultation, clarifying its position on local authorities setting their own standards. This stated that [emphasis added]:

“A number of local authority respondents stated the view that the text in the revised Framework restricted their ability to require energy efficiency standards above Building Regulations. To clarify, the Framework does not prevent local authorities from using their existing powers under the Planning and Energy Act 2008 or other legislation where applicable to set higher ambition. In particular, local authorities are not restricted in their ability to require energy efficiency standards above Building Regulations. The Government remains committed to delivering the clean growth mission to halve the energy usage of new buildings by 2030.”

It is not clear why this position and the responses raised through the NPPF consultation have not informed this consultation, or what the circumstances are that have altered this position having given local authorities certainty just last year that they can set their own standards. The Planning and Energy Act allows local authorities to introduce *reasonable* requirements for energy efficiency policies and Local Plans are also required to demonstrate they are sound as part of the examination process. This includes demonstrating that policies are deliverable. Given this context, it is clear that there are sufficient mechanisms to ensure that such policies are scrutinised so that they do not harm housing delivery and can achieve sustainable development outcomes, including in relation to tackling climate change.

Through the recent Examination in Public (EiP) of the draft London Plan, the policy approach to reducing carbon emissions on-site for new developments was found to be sound. It was demonstrated that the policy would not have a significant impact on development viability. The approach in London is deliverable and effective and plays an important role in achieving overall carbon reduction targets. There is, therefore, considered to be no justification for removing this

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or introducing a national legal requirement which is inconsistent with the Government's own objectives to achieve net zero.

The consultation documents suggest that the reasons for reviving the change now are also about addressing confusion around different standards in different local authorities and concerns that technical issues are being considered through the planning process. There is a consistent approach in London that has been successfully delivering higher standards across local authority boundaries, supported by guidance and other implementation measures. There does not appear to be evidence that allowing local authorities to set their own standards has created any issues with implementing national building regulations.

London has been successfully applying carbon targets beyond national standards since 2011. The Government's preferred Part L 2020 standards are far below London's current standards and it would be hugely detrimental to attempt to align these with national standards, undoing the innovative work being done in London. For London to revert to the Government's less ambitious carbon standard would be a retrograde step and inconsistent with the Government's own objectives. We need to continue to implement our own established and more ambitious carbon standards.

The energy efficiency targets within the draft London Plan play an important role in driving carbon reductions within the context of an established energy hierarchy. Without these targets there is no incentive to ensure that energy efficiency is optimised first before exploring carbon savings through low-carbon energy supply technologies. It may be possible for developments to meet the new building regulations standards using certain heating technologies without making any improvements to energy efficiency. Good standards of energy efficiency are a key driver of carbon savings in the operation of London's zero-carbon policy. Using the proposed standards in the Part L consultation alone would negatively impact on this.

The Government's preferred option of a 31% improvement on current standards is only for individual houses, whereas for apartments this results in a 22% improvement, although our modelling shows this figure is likely to be even lower based on the specifications proposed: only 14% (see chart included in our response to question 6). If we were to adopt the Government's standards, this would have a disproportionate impact on London, given that nearly 90% of recent major housing development completions are flats/apartments. This is far below our minimum 35% on-site reduction target which our annual monitoring shows has been achieved in London for a number of years.¹⁰ It would therefore be a significant backward step to lower London's standards, and we do not consider it is appropriate or practical to do this.

The Government must reconsider if the proposal is appropriate, given the significant change in circumstances since it was originally announced. This should include taking into account updated evidence, fully assessing its potential impacts and revisiting the decision in the context of the current legislative and policy context – such as the Government's amendment to the Climate Change Act to reflect in law the Government's own net zero-carbon target by 2050, with the Secretary of State acknowledging that this was due to significant developments in scientific knowledge about climate change since the act was passed.

The Government should be considering evidence from cities, such as London, to ensure its policies are responding adequately to the climate emergency alongside any evidence from the housing industry. The importance of certainty is understood and should be provided, but alongside more ambitious targets. This can be easily achieved, as we have shown in London,

¹⁰ <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/energy-monitoring-reports>

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with housebuilders demonstrating their ability to meet London Plan targets that go beyond building regulations since 2011.

The standards set in the London Plan are helping to drive understanding amongst the development industry and the advancement of the supply chain for low-carbon energy. This approach should be supported and used to help drive wider progress to zero-carbon buildings across the UK. We have a wealth of evidence demonstrating the success of our London carbon targets for new builds. We strongly believe that to diminish our standards goes against what the Government is trying to achieve. This proposal should not be implemented.

5. Do you agree with the proposed timings presented in Figure 2.1 (displayed in Chapter 2) 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
- If no, please explain your reasoning.

c. No – the Government should be pursuing a net zero-carbon Future Homes Standard now, not waiting until 2025 which would be almost ten years later than the original zero-carbon homes standard was due to be introduced in the UK. Delaying the Future Homes Standard until 2025 does not reflect the urgency with which the Government needs to start taking action to achieve its net zero-carbon ambitions. It will result in costly retrofits later on which the Committee on Climate Change has been very clear that the Government needs to avoid.

Chapter 3 Part L Standards for New Homes in 2020

6. 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.

d. Both of the proposed options represent a lower energy performance standard compared to London's 35% carbon improvement target. Our view is that Option 2 would be preferable nationally, provided London and other local authorities are able to continue to set higher standards where this is justified and deliverable. Our 35% carbon improvement target translates as a 25% improvement on Option 2¹¹ and therefore goes much further than the Government's preferred option.

Whilst the preferred Part L 2020 option is quoted in the Government consultation as a 31% carbon improvement over Part L 2013 (Option 2); this is based on a semi-detached dwelling and therefore not representative of a typical London development. The consultation states that the Part L 2020 preferred specification would only give a 22% improvement over Part L 2013 for flats. There are two issues with this:

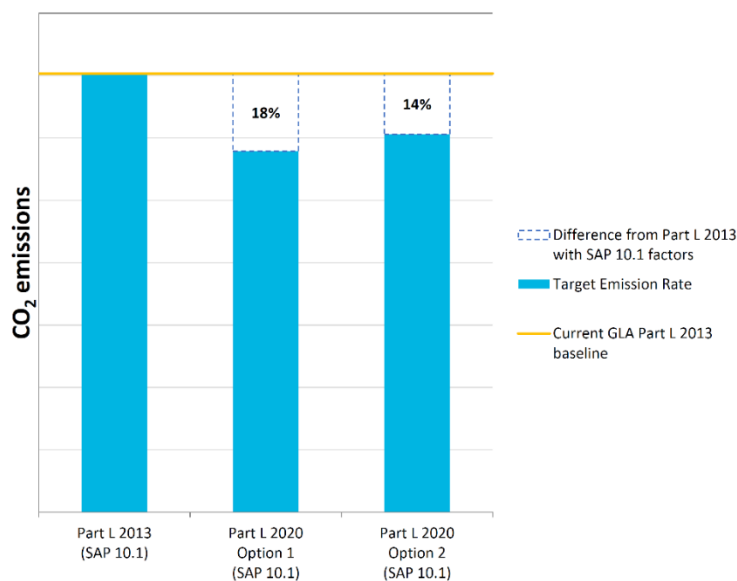
¹¹ We have removed the impact of the lower emission factors by comparing Option 2 to a Part L 2013 baseline using SAP 10.1 emission factor. This does not include the impact of the technology factor. The result is based on indicative modelling of the consultation options using a small sample.

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- Based on our modelling of a typical London development, the results suggest that the Part L 2020 preferred specification translates to a 14% improvement over Part L 2013. The CO₂ emission improvement for Part L 2020 is, therefore, not as ambitious as the Government is proposing for the typology we have tested, and not as ambitious as our carbon target which is already being met.
- As explained above, we know that apartments, which are the predominant housing typology in London, are comfortably meeting and surpassing our 35% carbon improvement over Part L 2013 and are therefore already achieving higher carbon savings than Part L 2020 is proposing.

We are concerned that the reduction in carbon intensity of grid-supplied electricity enables developers to build less efficient homes but still meet carbon reduction targets if a heat pump is installed. It is vital that homes are first made as efficient as possible to minimise the electricity needed by the heat pump, to reduce occupant bills and also to ensure that new homes do not use more electricity than required, given limits to the availability of renewable and low-carbon power. Putting heat pumps into thermally inefficient homes will also create higher electricity demand per home, placing a greater burden on local electricity distribution networks. This will be costly, particularly in areas where the network is already under strain, and with the anticipated high penetration of electric vehicles also requiring additional capacity for charging infrastructure.

AECOM have undertaken modelling using the iSAP consultation software to assess the impact of the standards proposed in the Part L 2020 consultation document. A 10-storey domestic block (150 units) has been assessed as an example of a London development. The same building has also been assessed using current Part L 2013 (SAP 2012) modelling software to understand the difference in CO₂ emission performance between Part L 2013 and the Part L 2020 consultation options. In order to remove the influence of changes in CO₂ emission factors between the standards, the figure below compares the CO₂ emission performance of the London development example using the same SAP 10.1 emission factors for Part L 2013 and the Part L 2020 options.



Our modelling shows that for a typical London development, when assuming the same SAP 10.1 emission factors across both Part L 2013 and Part L 2020, the resulting carbon

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improvement is lower than both consultation options, but particularly for Option 2, the Government’s preferred option. AECOM modelling shows for this typology that the proposed standard only achieves a 14% improvement vs. 31% quoted in the consultation across the build mix or 22% for apartment buildings. The results, therefore, indicate that the consultation options for Part L 2020 are a lower standard than the London Plan (both existing and new) policy requirement to achieve a minimum 35% improvement in carbon emissions against Part L 2013. To revert to these standards in London would therefore mean that new buildings would use more energy than under current London Plan standards, which is why we intend to continue applying our own carbon targets for development in London.

7. 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.

Other. The consultation does not appear to be making primary energy the principal performance metric, since the improvement in standards between Part L 2020 and Part L 2013 is quoted in CO2 emission terms. The way in which primary energy would operate as the principal metric has not been explained satisfactorily in the consultation, nor how it would interact with the carbon targets and how this may affect decisions by applicants during planning. The consultation response should explain the Government’s intention. It should also use the primary energy metric in a way that will benefit residents, to ensure inefficient systems are not being installed to avoid high energy bills for residents and increased network costs due to high peak loads. Reporting on in-use performance will be critical here to ensure systems are operating as intended.

The impact of the inclusion of the Primary Energy factor has been assessed as part of AECOM’s iSAP modelling analysis of the example London development. Assumptions on energy efficiency, heating systems and renewable technology have been based on standards typically seen in development meeting current and draft London Plan policy. The table below outlines the iSAP results against Part L 2020 (Option 2) of four different heating solutions that could be employed by following the draft London Plan Policy S13 heating hierarchy. To assess the impact of the Distribution Loss Factor (DLF), results are shown for a design DLF based on assumptions of primary and secondary distribution losses. The design DLFs are lower than the DLF of 1.5 used in the chart under our response to question 6.

Option	Technology ^{3 & 4}	Part L 2020 (Option 2)		
		Primary Energy (kWh/kWh)		
		TPER ²	DPER	Improv (%)
Communal options - Design DLF	Connection to a DHN ¹ with DLF of 1.33	70.6	94.3	-34%
	Communal Hybrid ASHP with DLF 1.25	70.6	59.2	16%

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	Communal heat pumps (GSHP) with DLF 1.18	70.6	39.8	44%
	Communal boiler (interim measure prior to DH connection) with DLF 1.25	70.6	78.5	-11%
Communal options - DLF 1.5	Connection to a DHN ¹	70.6	105.9	-50%
	Communal Hybrid ASHP	70.6	70.2	1% (see NB at the end of the response to this question)
	Communal heat pumps (GSHP)	70.6	49.5	30%
	Communal boiler (interim measure prior to DH connection)	70.6	93.4	-32%

Notes:

1. DH network in London with gas CHP, gas boiler and biomass boiler technology. The performance of district heat networks is very sensitive to the heat producing technology
2. Technology factor included in the notional building
3. London Plan Energy efficiency specification assumed on all options
4. The same level of PV has been assumed on all options (40% roof area)

The results show that the heating technology options of communal boiler and connection to a DHN would not be able to meet the Part L 2020 consultation Option 2 Target Primary Energy Rate (TPER) for the example London development. In addition, the technology options for the example London development were also not able to meet the TPER for the Part L 2020 Option 1.

Where connection to a district heat network is not immediate (i.e. less than five years), a common strategy in London is to use communal gas boilers as an interim solution prior to connection, to avoid investment in a low-carbon technology which would become redundant upon connection. Therefore, as communal boilers are not able to meet either Option 1 or 2, this poses a risk when developments are using gas boilers as an interim measure before connecting to heat networks or where energy networks are developed as part of large-scale masterplans. All heat pump options are able to meet the Part L 2020 (Option 2) requirements for both Primary Energy and CO₂ regardless of the DLF assumption.

The use of primary energy as a performance metric needs to account for the strategic role of heat networks in decarbonising buildings. As it stands, the introduction of a primary energy metric will discourage heat network connections; conflicting with the Government's aims and those of the London Plan.

To achieve the ambition set out in question 2 - 'We think heat pumps and heat networks should typically be used to deliver the low carbon heating requirement of the Future Homes Standard' - it is important that this consultation recognises that the current proposals do not support heat networks as a viable option for the connection of new build developments, see table above. There needs to be an approach that acknowledges the value that heat networks can bring to decarbonising heating systems, actively supports new build connections to system-level solutions, where these exist, and provides a competitive alternative to building-level solutions.

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In London, we have designated 'Heat Network Priority Areas', identified from the heat mapping and energy master planning we have undertaken to understand where heat networks offer competitive and viable alternatives to building-level heating systems, and where heat networks are seen as the most cost-effective approach for decarbonising these zones or areas. The London Plan policy has been designed to support heat networks in these areas and they will be seen as the primary approach to decarbonising heat. The Government is also looking at 'zoning' for heat networks as part of its wider Heat Network Market Framework. Part L should be used as part of the solution to support heat networks policy, potentially through the performance metrics, to ensure that developments within these heat network 'zones' are expected to connect to an existing or future heat network.

N.B. Following the changes made to the SAP software on 14 November we have re-modelled, and, while the outcomes of our initial modelling still stand, the exception is that the hybrid ASHP option has swung from a 1% pass to a 4% fail against the Target Primary Energy Rate when assuming DLF of 1.5 (CIBSE CP1 option). Hybrid heat pumps still pass if the design DLF is assumed. This is on the basis that the only change between the two versions of the SAP software is that the TER for option 2 is lower.

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

a. Yes

b. No

Please explain your reasoning.

Other. As per our previous answer, it is not clear how the principal performance metric operates and how in practice it will take precedence over the secondary metric.

As part of AECOM's modelling analysis, the following table shows how each of the heating technology options assessed perform against the Part L 2020 Option 2 Target Emission Rate (TER). To assess the impact of the Distribution Loss Factor (DLF), results are shown for a design DLF based on assumptions of primary and secondary distribution losses. The design DLFs are lower than the DLF of 1.5 used in the chart under our response to question 6.

Option	Technology ^{3 & 4}	Part L 2020 (Option 2)		
		CO ₂ emissions (kgCO ₂ /m ²)		
		TER ²	DER	Improv (%)
Communal options - Design DLF	Connection to a DHN ¹ with DLF of 1.33	17.2	20.6	-20%
	Communal Hybrid ASHP with DLF 1.25	17.2	8.4	51%
	Communal heat pumps (GSHP) with DLF 1.18	17.2	3.2	81%
	Communal boiler (interim measure prior to DH connection) with DLF 1.25	17.2	13.7	20%

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Communal options - DLF 1.5	Connection to a DHN ¹	17.2	23.2	-35%
	Communal Hybrid ASHP	17.2	10.2	41%
	Communal heat pumps (GSHP)	17.2	4.1	76%
	Communal boiler (interim measure prior to DH connection)	17.2	16.5	4%

Notes:

1. *DH network in London with gas CHP, gas boiler and biomass boiler technology. The performance of district heat networks is very sensitive to the heat producing technology*
2. *Technology factor included in the notional building*
3. *London Plan Energy efficiency specification assumed on all options*
4. *The same level of PV has been assumed on all options (40% roof area)*

When compared with the table in Q7 it can be seen that the technology options assessed perform better under the TER than the TPER (in % terms), for instance the communal gas boilers are able to meet the TER for both Part L 2020 consultation Options 1 & 2.

However, connection to district heating networks continues to perform very poorly under these metrics. The importance and requirements of heat networks need to be better reflected in building regulations to complement and not contradict government policy on heat so that new builds are incentivised to actively consider connections to a heat network in heat network priority zones. It is only by supporting connections to heat networks that those networks can expand, decarbonise by accessing secondary energy sources that are available (such as waste heat) and, ultimately, benefit from the economies of scale that make heat networks the effective solutions they can be in heat network priority zones.

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9. 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.

a. Yes. This is particularly important now that building regulations will be encouraging electric-based solutions for heating, over gas-based solutions, due to the fact that the costs of electricity are currently higher than those of gas. Our analysis has shown that solutions such as heat pumps can offer a cost-competitive form of heating providing there are high standards of energy efficiency and systems are installed, commissioned and operated correctly:

https://www.london.gov.uk/sites/default/files/low_carbon_heat_-_heat_pumps_in_london_.pdf.

To minimise the cost to occupants, the thermal efficiency of buildings in Part L should be set at a high standard with sufficient post-construction monitoring to ensure systems are properly installed and operating efficiently.

The Government should also review the balance of levies and taxes between electricity and gas as, under current policy arrangements, the cost of electricity is likely to rise in the future with increased demand, given the current structuring of legacy costs on bills¹². Part of the difference in cost is due to the higher proportion of environmental and social policy costs being levied on electricity compared with gas.¹³ Going forward, the disproportionate balance of overall costs between electricity and gas could serve to further limit the deployment of lower-carbon heating systems. This is likely to have significant implications for delivering low-carbon heat unless modified, as it will make lower-carbon, electricity-based heating systems more expensive to run than gas-based systems in many buildings. We responded to the recent HMT consultation on the decarbonisation of the UK economy raising these points which are also highly relevant to this consultation.

10. 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 not, please suggest an alternative metric, explain your reasoning and provide evidence to support this.

a. Yes. See our response to question 9.

¹² Dieter Helm (2019), 'Why aren't electricity prices falling'

¹³ Blyth, W (2018), 'Current economic signals for decarbonisation in the UK: rethinking decarbonisation incentives', Energy Systems Catapult: VAT is applied to both gas and electricity bills at 4.8%, in contrast to the standard rate of 20% (Ofgem 2019). The analysis suggests that the carbon policy costs on electricity are largely offset by VAT, resulting in a low effective carbon price of £8/tCO₂, but when factored in for gas, it results in an overall subsidy leading to a negative carbon price (-£33/t CO₂) (pp.43-44).

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11. Do you agree with the minimum fabric standards proposed in table 3.1?

Table 3.1 - Minimum standards for fabric performance

Yes

No – should be more insulating

No – should be less insulating

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 – should be more insulating.

The proposed specification is not considered ambitious enough to drive the necessary change towards zero-carbon homes. Industry experts and building design experience has shown that the principles of a fabric-first approach should be the key priority for all housebuilders, prior to the consideration of any low- and zero-carbon technologies.

Our experience in London shows that the specification outlined by the Government is easily achievable for various types of residential developments and that developers always opt for much more efficient fabric parameters. In London, we typically see the following:

- External walls: 0.18 W/m².K and lower
- Floor: 0.15 W/m².K and lower
- Roof: 0.15 W/m².K and lower
- Windows: 1.5 W/m².K and lower
- Air permeability: 5m³/m².K at 50Pa and lower

Our view is that the proposed minimum fabric standards should be equal to the proposals outlined in the Impact Assessment document (Table 4) for the Part L 2020 Option 1. Regardless of the level of low-carbon heating supply and on-site renewable energy generation, it is crucial that a dwelling's energy demand is minimised as far as possible to ensure reduced peak demand, low bills for residents and minimal energy requirements.

13. 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.

b. No. Fabric performance is considered the starting point of any good building design and is key to ensuring occupant comfort, reduced energy demand and low energy bills. The removal of the fabric energy efficiency standard shifts the importance from a highly performing fabric specification to focusing only on the methods by which the dwelling's energy demands are supplied (i.e. heating system, on-site energy generation etc.). The Government's justification for removing this metric is therefore not clear.

Furthermore, and as outlined under Q11, the minimum fabric standard specification proposed is not considered sufficient to guarantee a thermally tight construction and, consequently, reduced demand.

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In London, to meet our carbon reduction target, planning applicants use the energy hierarchy (i.e. be lean, be clean, be green, be seen) which prioritises energy demand reduction. Through this hierarchy, we require maximisation of on-site fabric and energy efficiency measures (be lean) prior to the incorporation of any low- or zero-carbon technologies (be clean, be green). We are strengthening this approach further in the draft London Plan by introducing a 10% carbon improvement against Part L 2013 which must come from passive design and energy efficiency measures alone.

The fabric energy efficiency target currently in place ensures that developers will design a high performing fabric specification considering a development holistically. The lack of strong minimum elemental fabric standards (as outlined under Q11) and the removal of the fabric energy efficiency standard are likely to lead to designs with poor, inefficient fabric solutions, thereby increasing energy demand.

Our analysis has shown that, due to grid decarbonisation, the proposed targets can be easily met through the incorporation of an air source heat pump system and therefore there is no incentive for planning applicants to attempt to achieve higher fabric standards in order to achieve higher carbon savings. Occupants must be protected from higher bills.

The fabric energy efficiency standard must therefore be kept or replaced with a new minimum fabric efficiency standard.

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

- a. Yes
- b. No – proposed standard goes too far
- c. No – proposed standard does not go far enough

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

a. Yes – in principle we are in agreement with the proposed minimum building services efficiencies standards as they present an improvement against the Part L 2013 standards. We are, however, concerned by the minimum seasonal coefficient of performance (SCOP) of 2.80 proposed. Our analysis has shown that, depending on the system configuration, such a performance may be challenging to achieve, particularly for systems required to supply hot water at higher temperatures to address the domestic hot water (DHW) demand. Appropriate guidance needs to be provided to applicants to enable them to be more accurate in their performance assumptions without overestimating performance at design stage.

18. 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.

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d. No – we do believe that heating systems should be designed for lower temperatures, accompanied by improvements in fabric performance, but to optimise the efficiency of the chosen low-carbon heating solutions, either heat pumps or heat networks, the flow and return temperatures should be appropriate for the development and the proposed heating solution. We think that 55°C flow, if this temperature is compliant with existing or new legionella requirements, should be set as an expected upper limit with exceptions only where there is a clear requirement for a slightly higher flow temperature, up to 70°C, for the proposed heating solution.

We also believe that the introduction of maximum return temperatures should be considered as these are important for the efficient operation of heating systems, especially heat networks.

21. 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.

b. Yes. However, we believe that the lack of demand-side response measures in the new SAP significantly underestimates the benefits of flexibility measures. SAP 10.1 does not offer the opportunity to account for measures, such as batteries, which can offer significant reductions to a development's peak load and electricity tariffs. Such measures are anticipated to maximise the opportunities for on-site savings, complementing the transition to decarbonised heating system solutions, and this is considered a major oversight.

24. 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.

b. No. The Government should clarify the approach around thermal bridging calculations for all types of developments.

We understand that Accredited Construction Details (ACDs) are only applicable to traditional terraced and semi-detached houses using brick type construction. If ACDs are still applicable to these types of developments then it is our position that ACDs should be kept; however, their use should be clarified. If they need to be updated to reflect the use of new materials, they should be amended accounting for the latest construction materials.

However, it should be made clear that these types of details cannot be applied to apartment blocks and residential developments constructed using precision manufactured housing (PMH) methods, and that designers will need to carry out detailed thermal bridging calculations.

The current government position on the removal of ACDs is ambiguous as to the approach designers need to take with regards to thermal bridging. A more comprehensive guidance document needs to accompany the Part L document which should also include examples suitable for high-rise buildings.

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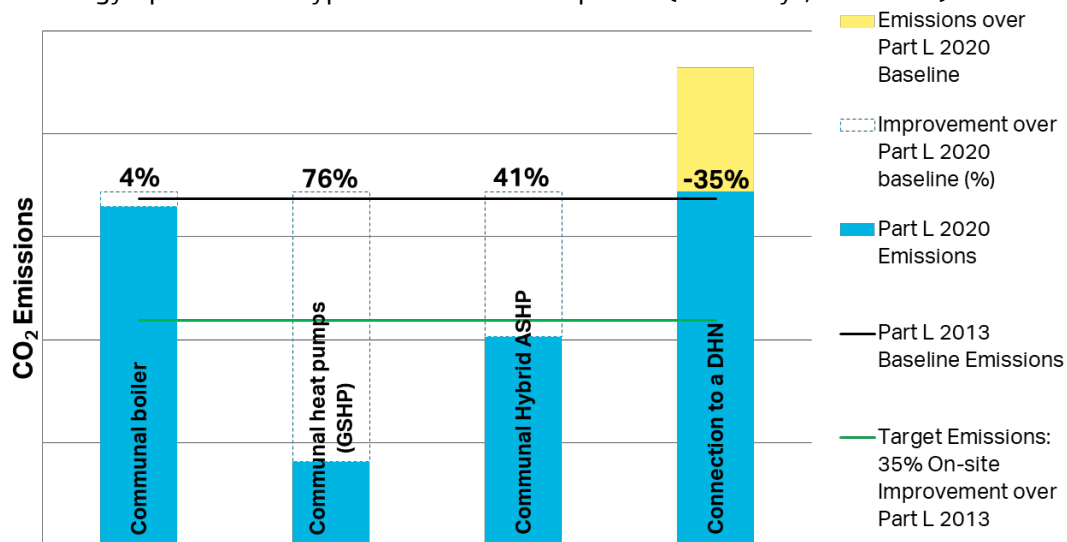
References to existing documents can also be included (e.g. BRE's Conventions for Calculating Linear thermal transmittance and Temperature Factors, BR 497 or a suitable equivalent) to guide designers through the thermal bridging calculation process.

25. 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 advantage to heat networks
- d. No, I disagree for another reason

Please explain your reasoning.

c. No, they do not give enough advantage to heat networks. The following chart presents the results of the AECOM iSAP analysis, which assessed the impact of the technology factor for four technology options for a typical London development (10 storeys, 150 units).



Notes

1. Based on Part L 2020 TER (Option 2), including technology factors
2. All options assume distribution losses of 1.5 (CIBSE CP1 compliant)
3. London Plan Energy efficiency specification assumed on all options
4. The same level of PV has been assumed on all options
5. Performance lines for Part L 2013 baseline and minimum 35% improvement have been shown for comparison

It can be seen that the inclusion of the technology factor in the notional building increases the Part L 2020 TER (Option 2) above the Part L 2013 baseline (denoted by the horizontal black line).

In terms of the technology performance of each of the options against the Part L 2020 TER, the results show that:

- The CO₂ emissions of the DHN option is significantly above the Part L 2020 TER (Option 2) with the technology factor, even with the draft London Plan energy efficiency specification (10% improvement over Part L 2013) and PV covering 40% of the roof area. Given the high exceedance of the Part L 2020 TER Option 2 (35%), it may not be possible for the London

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development example to meet the requirements without significant changes to the DHN performance, such as changes in heat sources and/or efficiencies, which would be outside the control of the planning applicant.

- The London development example is able to marginally improve on the Part L 2020 TER Option 2 with communal gas boilers.
- The heat pump options show the greatest improvement with savings significantly greater than the Part L 2020 TER (Option 2) and the London Plan minimum 35% over the Part L 2020 Option 2 baseline.

The following table presents the full results for the technology options assessed against the Target Primary Energy Rate (TPER) and Target Emission Rate (TER) for Part L 2020 Option 2. To assess the impact of the Distribution Loss Factor (DLF), results are shown for a design DLF based on assumptions of primary and secondary distribution losses. The design DLFs are lower than the DLF of 1.5 used in the chart under our response to question 6.

Option	Technology ^{3 & 4}	Part L 2020 (Option 2)					
		Primary Energy (kWh/kWh)			CO ₂ emissions (kgCO ₂ /m ²)		
		TPER ²	DPER	Improv (%)	TER ²	DER	Improv (%)
Communal options – Design DLF	Connection to a DHN ¹ with DLF of 1.33	70.6	94.3	-34%	17.2	20.6	-20%
	Communal Hybrid ASHP with DLF 1.25	70.6	59.2	16%	17.2	8.4	51%
	Communal heat pumps (GSHP) with DLF 1.18	70.6	39.8	44%	17.2	3.2	81%
	Communal boiler (interim measure prior to DH connection) with DLF 1.25	70.6	78.5	-11%	17.2	13.7	20%
Communal options - DLF 1.5	Connection to a DHN ¹	70.6	105.9	-50%	17.2	23.2	-35%
	Communal Hybrid ASHP	70.6	70.2	1%	17.2	10.2	41%
	Communal heat pumps (GSHP)	70.6	49.5	30%	17.2	4.1	76%
	Communal boiler (interim measure prior to DH connection)	70.6	93.4	-32%	17.2	16.5	4%

Notes:

1. DH network in London with gas CHP, gas boiler and biomass boiler technology. The performance of district heat networks is very sensitive to the heat producing technology
2. Technology factor included in the notional building
3. London Plan Energy efficiency specification assumed on all options
4. The same level of PV has been assumed on all options (40% roof area)

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When comparing both the TPER and TER with the technology factor it was found that:

- In general, the technology options performed worse (in percentage terms) under the Target Primary Energy Rates for Option 2, which suggests the TPER will be more challenging to meet than the TER for communal heating systems
- It can be seen that, although the gas boiler option is able to meet the Target Emission Rate (TER), it is not able to meet the Target Primary Energy Rate (TPER). The option for connection to DHN is also not meeting the TPER or TER, which suggests that the technology factor may need to be increased to be able to enable developments to connect to existing DHN, particularly those that are primarily gas fuel based.
- The inclusion of design DLF improved the performance but was not sufficient to enable the gas boiler and connection to DHN options to meet the Target Primary Energy Rate. The connection to DHN was also not able to meet the TER
- All heat pump options are able to meet the Part L 2020 Option 2 TER and TPER regardless of the DLF assumption

In conclusion, this analysis supports the need for heat network connections to be treated separately in order to incentivise connections where there is potential for new development to connect to an existing network, for example in 'heat network zones'. However, the results of the iSAP analysis suggests that the technology factor is not currently doing enough to support connection to existing heat networks that are gas fuel based, particularly under the Primary Energy criterion. Whilst there is potential to shift heat sources of existing heat networks to lower-carbon alternatives, allowance needs to be made, in the short-term, to enable these networks to be built out. Whilst low-carbon heat sources will inevitably be integrated into existing heat networks to displace the use of higher carbon heat sources, this will take time, and is partly driven by the impacts of future regulation, so will not be completed in the short to medium term. In addition, it does not appear necessary to require the technology factor when new communal heating systems with heat pumps are employed in new development as this clearly puts them at a disadvantage against individual ones and limits the opportunity to connect these buildings to area-wide heat networks in the future.

Therefore, it is considered that modifications to the technology factor are required. This could be done through a distinct technology factor for new developments connecting to existing/new heat networks that accounts for the expected decarbonisation of the network over time. For information, we currently require operators of existing and proposed heat networks to provide the following to us so we can ensure London developments are only connecting to networks with a commitment to decarbonise:

- A commitment to investigate all available options for decarbonising the network and timings for doing so e.g. waste heat sources in the area, replacement of gas-engine CHP with other technologies, such as heat pumps.
- Evidence of studies that have been or will be undertaken and timescales for implementing the decarbonisation plans, including investigation of funding for further work from support programmes such as Decentralised Energy Enabling Project (DEEP), Heat Network Investment Programme (HNIP) or Innovate UK.
- Ongoing evidence demonstrating how the above plans are being monitored to ensure they are implemented and a commitment to keep the GLA updated on progress.

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32. 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.

b. No. It is understood that, by self-regulating devices, the Government means devices that allow for the separate regulation of the temperature in different rooms such as thermostatic radiator valves (TRVs) and/or room thermostats. These systems already form part of any new development and therefore this mandate does not go far enough.

The GLA's recommendation is for building automation and control systems to be mandated as part of any new build development. These systems should be in a position to support an energy-efficient, economical and safe operation of the building systems through automatic controls to facilitate their management. They should be able to continuously monitor, log, analyse and allow for the adjustment of a development's energy use. They should also be able to detect losses in efficiency and allow communication with other systems or devices. Such systems include meters, smart meters, Building Energy Management Systems (BEMS), Automatic Meter Readers (AMRs) etc.

The draft London Plan policy SI2 includes a new 'be seen' policy whereby major development projects will be required to report their in-use energy performance. In parallel, there is a requirement for a demand-side response measures policy, which promotes the use of flexibility measures. This approach aims to raise awareness around operational energy use for both developers and occupants, intends to bridge the performance gap between design and real-life operation, and will be a valuable data collection exercise, helping identify operational problems.

It is understood that the Government intends to propose mandatory operational ratings for all commercial buildings as part of the Part L 2A consultation and this should also be considered for residential units (Part L 1A) with a view to moving to in-use operational benchmarks, rather than design estimates. This initiative cannot be carried forward unless there is a mandatory requirement for monitoring and smart meters in all new developments.

As such, the GLA's position is that this proposal is not ambitious enough.

33. 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.

b. No. Based on the stakeholder engagement carried out as part of our 'be seen' policy roll-out, there has been positive feedback on the requirement for much more sophisticated systems that would enable the monitoring of in-use energy performance. Our experience in London has shown that self-regulating devices are the norm for all new build developments already.

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34. 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.

a. Yes. Building automation systems (such as BEMS) are widely used in the majority of large-scale domestic and non-domestic new developments. These should form part of all new build proposals in the UK. We also welcome a proposal that information about the energy performance of the building automation and control system must be provided to the building owner. However, we are of the view that more guidance is needed for building operators.

The work the GLA has undertaken to implement the draft London Plan 'be seen' policy which will require major developments to report energy performance post construction has identified that clear guidance is needed for developers, building owners and occupants. This will ensure that the data collected is of good quality and can be used as an evidence base for the understanding of real life operation, the development of operational benchmarks and better design calculations. We urge the Government to address this in Part L 2020.

Chapter 4 Part F Changes

38. 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.

c. No – the guidance does not sufficiently address the problem. There have been various concerns around the noise impact of mechanical ventilation systems in new build apartments. There should be a requirement for in-situ noise testing to establish the optimal acoustic operation of any ventilation system specified. There is a high risk of these systems being turned off by residents themselves if they lead to a noisy environment. This can lead to inadequate levels of ventilation, particularly in developments with openable windows restrictions due to their location in zones with high external noise levels or poor air quality.

47. 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.

a. Yes. The checklist and commissioning sheet are considered comprehensive enough but do not go beyond what was requested under Part F 2010. This is an installation and commissioning checklist that most of the building owners are unlikely to be able to make sense of. We propose

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that an actual manual on how to operate the ventilation system is required to be provided to building owners and then passed on to residents.

Chapter 5 Airtightness

48. 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.

a. Yes. We agree that the current configuration of rewarding the energy efficiency of a building as the airtightness drops is not suitable for all types of buildings. A very low air permeability can lead to inadequate levels of air flow and thus contribute to internal overheating or poor air quality. As such, the proposed amendment is supported for naturally ventilated homes.

49. Do you agree that the limit should be set at 3m³/m².h?

a. Yes

b. No – it is too low

c. No – it is too high

If no, please explain your reasoning and provide evidence.

a. Yes. It is understood that a unit with an air permeability of less than 3m³/m².h could have increased risk for condensation or mould, if not adequately ventilated. As such, the proposal for 3m³/m².h is supported.

51. 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.

a. Yes.

52. 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.

a. Yes.

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Chapter 6 Compliance, Performance and Providing Information

57. 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.

a. Yes. This is welcomed; however, it is crucial that installation, commissioning and operation are properly monitored and this needs to be a requirement captured within the Building Regulations. It is a key recommendation from the Committee on Climate Change to identify ways to tackle the performance gap between building design and operational performance. In-use energy performance of new development should be made mandatory. The draft London Plan requires this, and we would welcome the opportunity to discuss this further.

59. Do you agree with the introduction of the 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

a. Yes.

60. 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

a. Yes.

61. 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
- If no, please explain your reasoning

a. Yes.

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

- a. Yes
- b. No

Please explain your reasoning.

a. Yes. Such an approach will help raise awareness around energy performance, both for developers and occupants. This is likely to help ensure developments meet their specified performance and improve design methods. In-use energy disclosure is key to the transition to zero carbon and should form part of Part L 2020 requirements.

63. 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.

a. Yes.

64. 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.

If no, please explain your reasoning

a. Yes. This is supported; the building user guide should include, as a minimum, guidance around the effective operation of all building services within the dwelling, including the heating, hot water, ventilation and cooling system (if applicable). It should also provide guidance around the best methods to minimise internal overheating (i.e. hours that windows should be opened, night purge/cooling, blind and shading device operation etc.). Finally, it should provide general guidance on how to minimise energy bills including information on utility provider specialist tariffs and suitable energy plans, metering arrangements and the resulting benefits e.g. turning down thermostats leading to lower energy bills etc. Residents should be made aware of all measures that could have a positive impact on their home's internal environment and on their energy bills.

Chapter 7 Transitional Arrangements

65. 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

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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.

a Yes.