



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

CIEH response to a consultation by MHCLG

February 2020

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Key points:

Whilst we acknowledge the shortage of housing, we believe that new housing should only be built to a high standard, which protects the environment and people's health for years to come.

The Future Homes Standard needs to be ambitious and reflect the large scale of carbon reduction that would be needed to make a difference to climate change and to achieve UK Government's ambition to reach net zero by 2050.

Building fabric standards need to be set high and prioritised for new builds as retrofitting these buildings later on will be more costly than designing them to a higher standard now. Decarbonisation of the electrical grid should not be seen as a substitute for good thermal performance of new buildings. Higher fabric standards would help to minimise energy demand from buildings, improve thermal comfort, and reduce energy costs for occupiers.

Local authorities should continue to have the power to set higher energy efficiency standards in their areas. Limiting local authorities' powers in on setting higher standards for new build would go against the Government's stated ambition with regards to net zero by 2050. Local areas can play an important part in developing supply chains and expertise in new technologies ahead of national standards being brought in.

We support efforts to reduce the gap between design and actual performance of a new building and would like to see post-construction performance of buildings tested and incorporated into the Future Homes Standard.

We welcome a focus on affordability of heating in housing. This should be a key consideration. Electric heating systems should be limited in favour of heat pumps and low carbon heat networks.

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?

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

Cumulatively, homes contribute to 20% of carbon emissions in the UK, and the Committee of Climate Change (CCC) states that “we cannot meet our climate objectives without a major improvement in UK housing”.¹ The Government’s own commitment to achieving net zero carbon emissions by 2050 means that it is imperative to set much stricter energy efficiency standards for new buildings as soon as possible. Tackling energy efficiency in the 29 million of existing homes will be much more costly and much more difficult. As a result, we consider that the aim for the Future Home Standard should be to achieve zero carbon status in newly built homes. This should be done by focussing on higher building fabric standards rather than overreliance on the decarbonisation of the electricity grid, given that it is likely to be some years until the electricity grid is fully decarbonised.

Being more ambitious with the standards for new buildings will also go some way towards helping to meet the objectives of the government’s forthcoming Fuel Poverty Strategy, reducing demand on the electrical grid, reducing energy bills for occupiers and reducing poor health outcomes associated with cold and hard to heat homes.

There is also a need to consider the whole-life carbon impact of new homes, including the carbon footprint of materials used, the building processes, maintenance, refurbishment and end of life impact of a building. The likely lifetime of a new building should also be taken into account. The CCC strongly advocates the consideration of all carbon emissions, not just those generated after the building is completed. However, there is currently no such consideration within the Future Homes Standard.

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?

We agree that heat pumps could be used to deliver the Future Homes Standard. The CCC’s report recommends that by 2025 at the latest, no new homes should be connected to the gas grid.² It is also acknowledged that further work is needed to help establish heat pumps as a mass market solution for low carbon heating. However, the Government needs to provide greater clarity on its plans to deliver investment in supply chains of these types of heating solutions as well as setting ambitious targets to incentivise their development and availability.

With regards to heat networks, the CCC reports that currently, only 7% of heat in heat networks comes from low carbon primary fuel sources. Some standards need to be set to

¹ UK Housing: Fit for the future?, CCC, 2019.

² Ibid.

ensure that heat networks are in fact a low carbon option and this needs to be incorporated into the Future Homes Standard.

The consultation document states that “direct electric heating will play a minor role in our plan for the future of low carbon heat”. We very much agree with this statement. Electric heating should not be allowed to play too big a role, as this heating source does not reduce overall energy use and puts pressure on the national grid, especially during Winter months. Most importantly, electric heating can also be a very expensive form of heating for the occupiers and this contributes to perpetuating fuel poverty and excess cold in the home.³ Reducing energy demand in the first place is the best option for new build homes.

Developments of larger numbers of units should require the installation of heat pumps and heat networks rather than electrical heating systems. Setting a threshold for number of units where electrical heating systems are allowed might help to provide clarity where heat pumps and heat networks should be installed and ensure that electrical heating is not used as an easy option by developers who are unwilling to install heat pumps or low carbon heat networks. Even with this precaution, Government should monitor the use of electrical heating closely in the first couple of years of the Future Homes Standard to ensure that it is indeed playing a minor role as expected and that developers are not using this as an easy option to meet the standard, where other alternatives are possible.

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.

The fabric package for Option 1 provides a reasonable basis for the fabric performance of the Future Homes Standard. However, there are reports of gaps between the design and the actual performance of new buildings. We therefore consider that it will be necessary to ensure effective mechanisms are in place to ensure that these standards are achieved on-site. We would like to see the creation of a legislative framework to set and test the operational performance of new buildings. It will be difficult, if not impossible, to achieve the government’s net zero target by 2050 if the set standards are not achieved in practice. We believe that national measures are needed, at least for large developments, to ensure that the level of energy efficiency in new homes is what it was designed to be.

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?

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

Many local authorities recognise the importance of climate change, having declared climate emergencies in their areas. These areas and regions may have the political will to go further than national minimum requirements. Restricting the ability of local planning authorities to

³ CIEH Excess Cold Enforcement Guidance, CIEH, 2019.

set higher energy efficiency or zero carbon standards is contradictory to the overall direction of government policy on decarbonisation and localism and will seriously undermine local authorities' ability to deliver on their climate emergency declarations.

Furthermore, each local area will have its own individual set of circumstances around energy use and generation. This includes things like grid constraints or the availability of space for renewable heating systems. Local authorities with ambitions to become carbon neutral, need to have the tools in place to exploit the best opportunities within their areas.

Last but not least, allowing local authorities to set higher standards with regards to new builds in their areas, ahead of national standards, would help the government to stimulate and develop supply chains and expertise in low carbon heating technologies ahead of the Future Homes Standard being introduced.

From information in Table 4 in the Impact Assessment, option 2 (2020) does not seem to represent a meaningful improvement on the 2013 Building Regulations for building fabric. We therefore do not consider that this option is adequate to fulfil this consultation's ambition of introducing a 'step change in building standards'. Building to lower standards for longer will mean that future retrofiting will be required, which will be more costly later on.

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?

c. No – the timings are not ambitious enough.

We consider that consulting on the implementation of the Future Homes Standard in 2024 is too late. The timings in Figure 2.1 should be assessed in the context of achieving net zero by 2050. The millions of existing buildings across the UK will be an enormous challenge to retrofit in order to come close to net zero. The ambition should be raised for new buildings quickly and the new Standard should begin to be implemented as soon as possible.

Furthermore, we would expect there to be a time lag between planning and building regulations approval for new developments. Implementation of the standard in 2025 would mean that buildings meeting the Future Homes Standard would not be built until the late 2020s at the earliest. Whilst there are supply chain issues with regards to technologies such as air source heat pumps, these supply chains will not develop if more new buildings are not incentivised now to begin installing these technologies.

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

d. Other.

We consider that whilst building fabric improvements in option 1 are preferable, the carbon reduction achieved should be higher. We therefore would opt for an approach which combines options 1 and 2.

A fabric energy efficient standard should remain the priority in all new buildings. Introducing higher building fabric standards sooner would mean that fewer buildings would need to be retrofitted in the future in order to reduce their energy demand. It is far cheaper and easier to design in higher specifications for new buildings and much more costly to retrofit older buildings later on. The CCC estimates that “designing in [ultra-high levels of energy efficiency] from the start is around one-fifth of the cost of retrofitting to the same quality and standard”. As a result, a ‘fabric first’ approach will therefore be more cost effective in the long term. New standards promoting the improvement in the fabric energy efficiency of all new buildings will be essential to minimise energy demand, improve thermal comfort and to reduce energy costs for occupiers.

Furthermore, homes with an inefficient building fabric would be unsuited to heat pumps, which provide low temperature heat rather than bursts of higher heat required in cold, inefficient homes. We therefore question why this was presented as a viable option. Whilst we agree that option 2 would help stimulate investment in renewable technologies such as heat pumps, which is needed given the importance of low carbon heat supply and the penalties associated with inaction. However, an industry focus on raising fabric standards in the first instance, followed by technological solutions (such as solar panels, heat recovery etc.) provides a suitable base that can be more easily improved postconstruction.

Monitoring reports compiled by the Greater London Authority suggest that residential developments in London have already achieved a reduction in carbon emissions of 39%, which is higher than both of the options proposed.⁴

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

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

We are generally supportive of using primary energy as the principal performance metric. Primary energy calculations seem to distinguish between taking energy from the national grid and the generating energy at the site of the dwelling, such as through solar panels and air source heat pumps. This is an important distinction if the objective is to move towards the reduction of demand on the national grid and the increase of site-specific energy generation.

However, it is not clear how district wide heating systems might be treated under this calculation. District wide heating will have a role to play in the decarbonisation of heating systems, as adaptations can be made more easily at scale rather than having to retrofit each individual home.

We are also concerned that the example in the briefing note suggests that a dwelling with a 90% efficiency gas boiler will be equivalent, in terms of the primary energy calculation, to a dwelling with an electrical heating system and solar panels. The first dwelling will definitely generate carbon emissions, whilst the second might not do so, especially in the future, if the

⁴ <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/2018-energy-monitoring-report>

electrical grid is de-carbonised. This appears to contradict the overarching objective is to reach carbon net zero by 2050.

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

a. Yes.

Carbon emissions must remain a key measure to assess the standards of new build homes.

9. Do you agree with the proposal to set a minimum target to ensure that homes are affordable to run?

a. Yes

Affordability should remain a key consideration when it comes to housing and heating design. This would be consistent with the Government's obligation to reduce fuel poverty via its Fuel Poverty Strategy for England.⁵ Poorly insulated homes with electric heating systems are expensive to run and are likely to contribute to fuel poverty and excess cold. As a result, minimum standards set for affordability should take this into account. Electrical heating systems could be a popular choice for developers to show that they have 'de-carbonised' the heating source, whilst providing inadequate insulation. Designing buildings with high fabric standards at the outset will reduce the chances of these buildings becoming unaffordable to heat, as the energy demand should be much lower.

10. Should the minimum target used to ensure that homes are affordable to run be a minimum Energy Efficiency Rating?

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

A minimum Energy Performance Certificate (EPC) rating or a SAP threshold would help to ensure a minimum level of the affordability of energy bills in new homes, in a similar way to which EPCs are used within the private rented sector to set minimum energy efficiency standards. EPCs are also due to be used in the new Fuel Poverty Strategy for England, to ensure greater affordability of homes.

It should be noted that EPCs are not completely accurate and the estimated costs of heating a home will vary. However, if the minimum standard is set high then it is likely that the new home will be affordable to heat. EPCs are also linked to the price of fuel and are therefore an affordability rating at a single point in time, without consideration for fluctuations in the future.

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

⁵ Consultation on the fuel poverty strategy for England, BEIS, July 2019.

This gives new dwellings the best chance of having heating systems operating at the most efficient level. There is, however, a need to improve public awareness of the benefits of using a lower flow temperature. There will also be some groups of people, where higher home temperatures are required because of certain medical conditions. System design will need to ensure that achieving higher than normal indoor temperatures are achievable at a 55°C flow temperature.

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

a. By setting a minimum standard

Option b would allow developers to avoid installing heating systems, which can operate at 55°C, as they could use other mitigating measures instead. Developer may choose not to install heating systems with a low flow temperature due to cost implications. However, if low temperature heating is good for the efficiency of current boilers as well as future systems, minimum standards would work best to ensure that this measure gets installed in more buildings more quickly, thus future proofing newly built homes.