

Proposed Domestic Building Environmental Standards (Scotland) Bill

Introduction

A proposal for a Bill to introduce new minimum environmental design standards for all new-build housing to meet the Passivhaus standard or a Scottish equivalent in order to improve energy efficiency and thermal performance.

The consultation runs from 4 May 2022 to 27 July 2022

All those wishing to respond to the consultation are strongly encouraged to enter their responses electronically through this survey. This makes collation of responses much simpler and quicker. However, the option also exists of sending in a separate response (in hard copy or by other electronic means such as e-mail), and details of how to do so are included in the member's consultation document.

Questions marked with an asterisk (*) require an answer.

All responses must include a name and contact details. Names will only be published if you give us permission, and contact details are never published – but we may use them to contact you if there is a query about your response. If you do not include a name and/or contact details, we may have to disregard your response.

Please note that you must complete the survey in order for your response to be accepted. If you don't wish to complete the survey in a single session, you can choose "Save and Continue later" at any point. Whilst you have the option to skip particular questions, you must continue to the end of the survey and press "Submit" to have your response fully recorded.

Please ensure you have read the consultation document before responding to any of the questions that follow. In particular, you should read the information contained in the document about how your response will be handled. The consultation document is available here:

[Consultation Document](#)

[Privacy Notice](#)

I confirm that I have read and understood the Privacy Notice which explains how my personal data will be used.

About you

Please choose whether you are responding as an individual or on behalf of an organisation.

Note: If you choose "individual" and consent to have the response published, it will appear under your own name. If you choose "on behalf of an organisation" and consent to have the response published, it will be published under the organisation's name.

an individual

Which of the following best describes you? (If you are a professional or academic, but not in a subject relevant to the consultation, please choose "Member of the public".)

Professional with experience in a relevant subject

Which of the following best describes you? (If you are a professional or academic, but not in a subject relevant to the consultation, please choose "Member of the public".)

Optional: You may wish to explain briefly what expertise or experience you have that is relevant to the subject-matter of the consultation

I am a chartered engineer and certified Passivhaus consultant. I also have a PHD on the subject of the design of climate change regulation.

Please select the category which best describes your organisation

No Response

Please choose one of the following:

I am content for this response to be published and attributed to me or my organisation

Please provide your Full Name or the name of your organisation. (Only give the name of your organisation if you are submitting a response on its behalf).

(Note: the name will not be published if you have asked for the response to be anonymous or "not for publication". Otherwise this is the name that will be published with your response).

Dr Gareth Veal

Please provide details of a way in which we can contact you if there are queries regarding your response. Email is preferred but you can also provide a postal address or phone number.

We will not publish these details.

Aim and approach - Note: All answers to the questions in this section may be published (unless your response is "not for publication").

Q1. Which of the following best expresses your view of the proposed Bill? Please note that this question is compulsory.

Fully supportive

Please explain the reasons for your response.

This sort of leadership and action is what is required to tackle energy poverty and the climate crisis. Simple mandates as proposed help companies take action by providing clarity and a level playing field. The proposal will save householder money, help with the nation's health, save resources and help mitigate climate change. It will lead us towards energy independence.

Q2. Do you think legislation is required, or are there other ways in which the proposed Bill's aims could be achieved more effectively? Please explain the reasons for your response.

Legislation is required and the mandated approach is the best route as it gives companies a clear target, a level playing field and certainty required to take action. This certainty allows companies to invest and plan long term. Many previous incentives have been short term funding that leads to boom / bust cycles and short termism.

Q3. Which of the following best expresses your view on setting the Passivhaus standard or a Scottish equivalent as the most appropriate new build housing standards to contribute to eradicating fuel poverty?

Fully supportive

Please explain the reasons for your response.

PASSIVHAUS: DELIVERING TRANSFORMATIONAL ENERGY PERFORMANCE IN BUILDINGS

by Gareth Veal PhD, MEI, CEng, CEM, Certified Passive House Designer (CEPH)

The UK is targeting a 78% reduction in GHG emissions by 2035, leading towards Net Zero by 2050. Our built environment will play a pivotal role in delivering these targets, as the UK's building stock currently produces 27% of our GHG emissions. Delivering on our GHG reduction and energy efficiency ambitions for the built environment would :

- Make our overall climate mitigation ambitions feasible, given the large proportion of emissions which come from buildings.
- Deliver the most cost-effective route to reducing GHG emissions from buildings, since investments in energy efficiency are typically more attractive than those in renewable capacity.
- Support the transition to a grid powered by renewables by significantly reducing the total demand for electricity, and the peak loads which the grid must be sized to meet.
- Enable the transition to heat pumps as gas boilers are phased out, by delivering efficient buildings which have the low and steady heat demand profiles that best suit heat pumps.
- Create business opportunities and jobs. It is estimated that the energy retrofit sector will create two million new jobs as we deliver our GHG emission reduction targets for buildings.
- Reduce fuel bills, improving competitiveness for industry and addressing the fuel poverty faced by 3.3 million UK households.
- Transform our built environment, delivering fresh air year-round via mechanical ventilation with heat recovery, plus stable temperatures for warmth in the winter and avoiding summertime overheating.
- Radically improve health and wellbeing by tackling the millions of cold, damp and uncomfortable buildings which impact the population's productivity and wellbeing at work and health and comfort at home. For example, treating conditions related to poor quality housing is estimated to cost the NHS £1.4billion each year.

While the technologies exist to deliver new build and retrofit projects to net zero emission levels of performance, there is a need to accelerate and formalise the means of delivering these projects at scale. This is where the Passivhaus standard provides an excellent insight as to what is possible and how it might be delivered.

The first Passivhaus was developed in Germany in 1990 and since then approximately 60,000 buildings have been delivered to this outstanding level of performance. The BRE states that "The core focus of Passivhaus is to dramatically reduce the requirement for space heating and cooling, whilst also creating excellent indoor comfort levels. This is primarily achieved by adopting a fabric first approach to the design which can be applied not only to the residential sector but also to commercial, industrial and public buildings" .

Although Passivhaus is a voluntary standard, it is fast becoming the reference point for those looking to deliver on climate ambitions, to help tenants avoid fuel poverty, and to deliver health and wellbeing via excellent levels of thermal comfort and air quality. The standard has been successfully applied to a wide range of building types, including residential, schools, offices, hospitals, sports halls, industrial buildings, museums, supermarkets, and other commercial settings. The Passivhaus database holds examples of different applications within many sectors and from around the world, also promoting Passivhaus open days for those who wish to take a closer look .

One common concern is that building to the Passivhaus standard is too expensive to be applicable in

Q3. Which of the following best expresses your view on setting the Passivhaus standard or a Scottish equivalent as the most appropriate new build housing standards to contribute to eradicating fuel poverty?

mainstream circumstances. However, this is far from the case, for example as evidenced by the success of 'Exeter City Living' in championing Passivhaus in various forms of social housing ; or the Goldsmith Street development which won the 2019 Stirling Prize awarded by RIBA, plus the Neave Brown Award for the best examples of affordable housing . The cost of delivering Passivhaus projects has rapidly fallen as experience of the 60,000 or so Passivhaus projects delivered to date has supported innovation and learning. In 2015, a cost uplift of 15-20% was to be expected when building to the Passivhaus standard, this was assessed to have fallen to 8% in a study reviewing 2018 data, with a projection that the cost uplift could be reduced to 4% as Passivhaus is adopted at scale . Certainly, project teams are reporting that if Passivhaus is adopted at early stages of a development, so that optimisation of the design can be used to manage costs, then cost need not be a barrier to the adoption of Passivhaus standard.

PASSIVHAUS DELIVERY

The Passivhaus standard is 'agnostic' in terms of construction type and has been successfully applied to a wide range of systems. Passivhaus can be achieved with all standard construction techniques and shouldn't impinge upon design creativity, especially if considered from the project outset. Rather than being prescriptive in how the targets are met, Passivhaus sets some basic performance parameters, leaving how they are achieved to be decided on a project-by-project basis.

Full article here:

<https://eibi.co.uk/cpd/passivhaus/>

Q4. Which of the following best expresses your view on setting the Passivhaus standard or a Scottish equivalent as the most appropriate new build housing standards to contribute to a reduction in emissions?

Fully supportive

Q5. Which of the following best expresses your view of the process set out to ensure that the new standards are met in all new build housing? (see pages 14 to 16 in the consultation document)

Fully supportive

Q6. What could be the market effects of the introduction of this proposal?

The mandated approach proposed is the best route as it gives companies a clear target, a level playing field and certainty required to take action. This certainty allows companies to invest and plan long term. Many previous incentives have been short term funding that leads to boom / bust cycles and short termism.

The proposed approach will create jobs and markets for new products in the built environment. It will underpin innovation.

Financial Implications

Q7. Any new law can have a financial impact which would affect individuals, businesses, the public sector, or others. What financial impact do you think this proposal could have if it became law?

Please explain the reasons for your answer, including whom you would expect to feel the financial impact of the proposal, and if there are any ways you think the proposal could be delivered more

Q7. Any new law can have a financial impact which would affect individuals, businesses, the public sector, or others. What financial impact do you think this proposal could have if it became law?

cost-effectively.

One common concern is that building to the Passivhaus standard is too expensive to be applicable in mainstream circumstances.

However, this is far from the case, for example as evidenced by the success of 'Exeter City Living' in championing Passivhaus in various forms of social housing ; or the Goldsmith Street development which won the 2019 Stirling Prize awarded by RIBA, plus the Neave Brown Award for the best examples of affordable housing .

The cost of delivering Passivhaus projects has rapidly fallen as experience of the 60,000 or so Passivhaus projects delivered to date has supported innovation and learning.

In 2015, a cost uplift of 15-20% was to be expected when building to the Passivhaus standard, this was assessed to have fallen to 8% in a study reviewing 2018 data, with a projection that the cost uplift could be reduced to 4% as Passivhaus is adopted at scale. Some of these extra costs are things like quality control that would be required of high quality buildings, even if the Passivhaus standard weren't adopted.

Certainly, project teams are reporting that if Passivhaus is adopted at early stages of a development, so that optimisation of the design can be used to manage costs, then cost need not be a barrier to the adoption of Passivhaus standard.

More details can be found here: https://www.passivhaustrust.org.uk/guidance_detail.php?gld=41

Equalities

Q8. Any new law can have an impact on different individuals in society, for example as a result of their age, disability, gender re-assignment, marriage and civil partnership status, pregnancy and maternity, race, religion or belief, sex or sexual orientation.

What impact could this proposal have on particular people if it became law? If you do not have a view skip to next question.

Please explain the reasons for your answer and if there are any ways you think the proposal could avoid negative impacts on particular people.

It should help some of the most vulnerable, by helping to alleviate fuel poverty and to avoid illnesses related to poor quality housing.

E.g. see this link: "A King's Fund and National Housing Federation Report out now on housing and health says the cost of poor housing to the NHS is £1.4 billion per year. Cold housing can lead to chronic diseases like lung and heart diseases and poor mental health as well as heart attacks, strokes and falls.

The report says that reducing excess cold in homes to an acceptable level would save the NHS around £848 million a year and reducing all falls in the home could save it £435 million."

<https://www.england.nhs.uk/2018/03/nhs-teams-up-with-councils-to-improve-housing-health-with-home-mots-stair-lifts-falls-helplines-and-quick-grants/#:~:text=A%20King's%20Fund%20and%20National,heart%20attacks%2C%20strokes%20and%20falls.>

Sustainability

Q9. Any new law can impact on work to protect and enhance the environment, achieve a sustainable economy, and create a strong, healthy, and just society for future generations.

Do you think the proposal could impact in any of these areas? If you do not have a view then skip to next question

Please explain the reasons for your answer, including what you think the impact of the proposal could be, and if there are any ways you think the proposal could avoid negative impacts?

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General

Q10. Do you have any other additional comments or suggestions on the proposed Bill (which have not already been covered in any of your responses to earlier questions)?

Please contact me if I can help provide further comment or support. I believe it is an excellent example of leadership and what is required to make the progress required on fuel poverty, energy security and climate mitigation.