

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.

on behalf of an organisation

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".)

No Response

Please select the category which best describes your organisation

Commercial organisation (company, business)

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).

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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.

Partially opposed

Please explain the reasons for your response.

The principle of continuous improvement of the fabric performance of new-build homes in Scotland is agreed, and fully supported. However, the proposal to set a minimum environmental performance level using Passivhaus standards is fully opposed for a number of reasons (note these are not in any particular order of preference or importance):

- Building to Passivhaus standard is not deliverable at scale due to the complexity of construction to achieve the exceptionally low levels of air-tightness.
- Living in a Passivhaus home requires a high-level of education and training for home-owners to achieve benefits, such as keeping doors and windows closed, and regular maintenance of ventilation systems through changing filters and the like.
- The Passivhaus standard doesn't measure embodied carbon and achieving the low-level U-Values and air-tightness requirements often leads to the use of high embodied carbon materials (PIR insulation, tapes and membranes for example), and we have seen examples of this already in Scotland.
- The use of MVHR is heavily reliant on occupier knowledge and maintenance. We have experience of using MVHR which was designed, installed and signed-off, however the system had to be replaced twice in four years as the home-owner left windows and doors open, didn't change filters.
- The use of the Passivhaus Planning Package (PHPP) is a requirement to achieve Passivhaus standard, however is restrictive in terms of standard house type designs, and the resultant efficiencies of scale. There is reference in the consultation to a "Scottish equivalent" to Passivhaus, and this in principle is supported. Industry has to be involved in the definition of this Scottish equivalent standard, based on high volume projects previously completed with excellent thermal performance, not least the Commonwealth

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

Games Village, Fife Demonstrator Project, Highland Innovation Expo and AimC4.
In the AimC4 project, homes were delivered with low U-Values, air-tightness of 3 and without any requirement for MVHR. The homes achieved space heating of 20 to 25kWh/m²/yr, so close to Passivhaus standard, and much lower than current new-build performance of around 50kWh/m²/yr.
The AimC4 homes were also delivered at close to acceptable costs levels, and a full suite of as-built testing and post-occupancy studies to demonstrate they achieved the designed energy performance.

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.

Additional legislation is not required.
Changes in standards should follow the routine of consultation and then mandated through the Building Standards division of Scottish Government.

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?

Partially supportive

Please explain the reasons for your response.

As outlined in the response to Question 1 above, the principle of continuous improvement of the fabric performance of new-build homes in Scotland is agreed, however this should be delivered through a Scottish equivalent defined in collaboration with industry.

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?

Partially supportive

Please explain the reasons for your response.

This is a duplicate of question 3

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)

Partially opposed

Please explain the reasons for your response, including your views on how effective the process would be in removing the 'performance gap' and on how the proposed verification process might work in practice.

Implementing a Passivhaus standard, and in-turn the use of the PHPP would not be deliverable in Scotland for all new-build houses and apartments. There are and will be limited resources available who are accredited verifiers, trained and qualified in the relevant energy efficiency and thermal performance standards to complete this on circa 25,000 homes per year.

It is fully supported that any gap between design energy intent and as-built performance is eradicated wherever possible. The complexity of Passivhaus intent and in particular the very low levels of air-tightness result in much more complicated detailing and building on site, which in turn lead to a significantly more detailed assessment process to demonstrate compliance.

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)

As noted in question 1 above, there is a legacy of very low carbon buildings being completed at scale in Scotland, which have been through as-built testing and post-occupancy studies to demonstrate their performance and used much simpler approaches to achieve the carbon reduction. A critical omission from the Passivhaus standard is the measurement of embodied carbon. To avoid the likely unintended consequences of high embodied carbon materials being used to achieve the U-Values of very low air-tightness requirements of Passivhaus standard, embodied carbon should be included in the Scottish equivalent. To do this, the Scottish Government would need to clearly define zero carbon, how it is measured, and what is included in the calculations. It is supported and agreed that over-heating and solar shading assessments should be included, as we move towards highly insulated buildings. By working with industry to define a Scottish equivalent standard, and avoiding the complexities of Passivhaus, the role of verifier could continue to be carried out by the local authority building control department.

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

The impact of implementing a Passivhaus requirement in Scotland would likely be a significant reduction in the volume of new homes being built, through a lack of skills, knowledge, and inflated build costs. There are no timescales for implementation included in the consultation document, and we would again recommend that industry is included in the development of a Scottish equivalent standard and within this process set-out the timescales for implementation.

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?

a significant increase in costs

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 cost-effectively.

There is no doubt that increasing the environmental performance of new-build homes will increase build-costs. During the latest consultation on Section 6 Energy, the cost modelling completed by the house-building sector demonstrated that achieving a 57% reduction in carbon emissions resulted in excess of a 15% increase in build costs. The requirements of the Passivhaus standard are considerably higher, with the complexities noted in the responses above. As noted in the response to question 1 above, we completed the homes in the AimC4 projects to very good environmental performance standards at close to acceptable costs.

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.

No Response

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?

As noted in the responses to questions 1 and 6 above, we have in Scotland completed a number of large scale, low-energy housing developments, and remain at the forefront of the UK offsite sector in developing tried and tested building systems. Imposing a Passivhaus standard in the industry could lead to a number of off-site providers and house-builders looking to other areas of the UK. A Scottish equivalent needs to be developed in collaboration with industry.

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)?

No Response