

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 Architect, with 25+ years in delivering sustainable buildings. I am Scotlands first Certifier of Design (Section 6 - Energy) Domestic and I have a PhD in The Assessment of Environmental, Social and Financial Assessment in the Existing Built Environment from Glasgow Caledonian University

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 Richard Atkins, Chartered Architect, RIBA, FRIAS, FRSA

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.

The built environment is responsible for a significant percentage of Scotland's CO2(e) emissions. The emissions associated with new buildings is a tiny proportion of that from the existing built stock. However, most new buildings, particularly new dwellings, are extra, not replacements. Therefore, their emissions sit above the Plimsol Line.

Every new building which does not achieve net zero direct emissions, at point of use (ideally, they should be regenerative) is adding to the key cause of climate change. One small part of the solution is to radically improve the performance of the built fabric, but not at the expense of increasing embodied emissions,

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which have a direct impact at the point of construction – there is no time left tomorrow to payback today's emissions.

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.

The existing standards and warrant regime provide Scottish Ministers with a mechanism, if strengthened, to deliver energy performance in buildings, equivalent to the Passivhaus Standard, without the need to change existing or introduce further legislation.

The Passivhaus Standard consists of 4 corner stones:

1. The standard is primarily evidenced by the Passivhaus Planning Package (PHPP) calculation methodology, which conforms to ISO EN 13790. This is the same international standard which applies to all European National Calculation Methodologies (NCMs). In the UK these are the Standard Assessment Procedure (SAP) and the Simplified Building Energy Model (SBEM).

SAP and SBEM are currently used to demonstrate compliance with Section 6 for new domestic and non-domestic buildings in Scotland and are used to produce Energy performance Certificates (EPCs) on completion.

All ISO EN 13790 calculation methodologies are by their nature limited in the information they provide, however they can and are regularly reviewed and improved. The most recent review of SAP was announced by the UK Government on 8 November 2021.

Unlike SAP and SBEM, over which the SG has some control, the PHPP methodology is entirely in the control of the Passivhaus Institute and cannot deliver EPCs which can be uploaded to the Scottish EPC Register.

The introduction of PHPP as a compliance methodology would duplicate the need to complete energy performance calculations at both compliance and completion stages of a building warrant.

This could only be obviated in part by amending the Energy Performance of Buildings (Scotland) Regulations to mandate the requirement for PHPP to be used to create EPCs and then by persuading the Passivhaus Institute to introduce the software changes necessary to allow these to be uploaded to the Scottish EPC Register. These new forms of EPCs would not however then correlate with the historic data so far collected in Scotland nor with EPCs in the rest of the UK.

2. The Passivhaus Standard is based on a series of target values, each of which has (or could have) an equivalent output in SAP and SBEM for the purposes of demonstrating compliance. The RIAS advocate a limit on heat demand (Box 99 of a SAP DER calculation) for example.

3. The Passivhaus Institute promotes their Standard alongside the provision of their software, training and certification services, all of which lie out with the control of the SG.

It has previously been reported to the RIAS by the SG, that European legislation prevents the mandating of a single out-sourced form of certification.

The RIAS has long advocated that the requirement for Certification of Design (Section 6 – Energy), for which there are two Scheme Providers, the BRE and RIAS, should be mandated as these Schemes are licenced by and overseen by the BSD.

4. The Passivhaus Institute maintains a rigid approach to design, which relies on mechanical vent heat recover (MVHR) to help minimise heating demand.

While such an approach can deliver energy efficient homes, The Building (Scotland) Regulations 2004, as amended, set performance criteria not a specific design approach, thus giving designers the scope to consider other implications of their design, such as the ability of occupants to be able to afford and physically replace filters in ventilation systems.

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.

Unlike building services, which generally require renewal every 15 – 30 years, built fabric should last at least 60 years and in the case of much of Scotland's built stock will be required to last many hundreds of years.

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?

House demolition in Scotland over the last 10 years has averaged 0.07% of the current stock, with a falling trend. Simple arithmetic shows that the average Scottish home must now last around 2 millennia, before it will be renewed. Source: <https://www.gov.scot/publications/housing-statistics-conversions-and-demolitions/>

It is therefore imperative we build the best performing fabric possible in order to reduce energy consumption and therefore energy costs over the long term.

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

Please explain the reasons for your response.

Net zero can only be achieved by a switch to renewable electricity as the primary energy source in Scotland. However, there are limits on just how much electricity can be generated and distributed and it is therefore both necessary and desirable to minimise demand. A Scottish equivalent to the Passivhaus Standard, will make a small contribution to achieving that.

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 supportive

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.

Scottish Ministers already support the widespread adoption of Certification of Design, including that for (Section 6 – Energy) this should be mandated for all new projects. Until the advent of Design & Build and PFI/PPP contracts, it was normal for there to be a significant level of independent oversight and inspection of building contracts. The Scottish Government should work with industry bodies to return to these traditional values and augment these by embedding Post Occupation Evaluation (PoE) into the warrant completion process.

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

In the short term it seems likely that the house building industry will complain that these proposals will increase capital costs. The elephant in the room is of course the control that the house building industry has over land supply and its value. Leaving aside land values, long term the overall occupancy cost of a well-insulated and well-built building will be lower, particularly if viewed in the light of the answer to Q3 above. Assuming, that the buildings created are not reliant on services installations that require regular maintenance and consumables, such as filter changes etc, which should be viewed as just an alternative spend compared to energy costs.

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?

some 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.

Improvements in built fabric will add cost, however this can be offset, by avoiding the need to install expensive services. Answer 2 – bullet point 4, highlights why this may not be achieved by adopting the Passivhaus Standard, but it can be achieved within the performance setting approach of the current legislation.

Adoption of the Passivhaus Standard would also add the cost of the Passivhaus Institute's certification process, which is largely if not completely out of the Scottish Governments control. Whereas the cost Certification of Design (Section 6 – Energy) largely falls within the existing envelope of design and building warrant application fees.

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.

I am not aware that these proposals raise any issues.

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?

While important, CO₂(e) emissions are a subset of wider environmental aspects, which in themselves are a subset of environmental, social and financial sustainability issues.

There is nothing in either the current regulatory structure nor these proposals which addresses the issues of product supply, which is both low in embodied energy, emissions, and toxins and locally sourced and supportive of Scottish jobs.

If adopted the probability is that the industry will respond by incorporating far more insulation, primarily mineral wool and polymer based. While these deliver the benefits required, they are far from benign.

Scotland is well placed to make better use of its timber. There are, for example, already initiatives

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exploring cross laminate timber (CLT) and wood fibre insulation (both sequester carbon) and it is imperative that these are encouraged to develop rapidly into a major indigenous supplier to the construction industry in Scotland.

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