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

Third sector (charitable, campaigning, social enterprise, voluntary, non-profit)

Optional: You may wish to explain briefly what the organisation does, its experience and expertise in the subject-matter of the consultation, and how the view expressed in the response was arrived at (e.g. whether it is the view of particular office-holders or has been approved by the membership as a whole).
SEDA IS A MEMBERSHIP ORGANISATION THAT PROMOTES ECOLOGICAL DESIGN ACROSS SCOTLAND
SEDA aims to promote the design of communities, environments, projects, systems, services, materials and products which enhance the quality of life and are not harmful to living species and planetary ecology.

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).

SCOTTISH ECOLOGICAL DESIGN ASSOCIATION

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 supportive

Please explain the reasons for your response.
SEDA is a long-term advocator for ecological design, but also has a wealth of practical experience in actually having delivered many of these buildings for a long time. Yes, we agree with the key principles of all new build housing meeting a Scottish equivalent of the Passivhaus standard, whilst supporting a holistic and healthy approach to building. We have long advocated for the key strategy for building energy efficiency performance to be a fabric first approach. Sadly, the current standards are well behind northern European norms and it is leading to an ever increasing backlog of problems for the future citizens of Scotland. It is also easy to solve and does not add significantly to the average cost per m2 for a new build.

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.

We consider that legislation will need to be implemented to require homes to be built to more energy efficient standards. We need to legislate for higher standards in both design and construction. With the majority of new homes being built for private sale, the motivation for building them is generally linked to maximising profit. Unless there is a requirement to increase thermal performance and reduce energy usage, it is unlikely to be taken up voluntarily by house builders. Developers do not generally act until it is mandated in a clear standard. In relation to social housing, budgets are already stretched with the design of many social housing projects now becoming quite mundane. Unless, required, it is unlikely that Housing Associations and Councils will be able fund additional measures to improve energy efficiency. Assistance from government may also need to come in relation to rising fuel costs. Training and skills upgrading will be essential, and support in relation to this will be necessary from the government although may not take the form of legislation.

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.
In order to help eradicate fuel poverty, it is essential to reduce occupants' energy usage by increasing the efficiency of the building envelope (to reduce energy loss) and minimise the amount of energy required to heat the building and provide hot water, ventilation and lighting.
The only way to achieve this, is to adopt a standard that significantly reduces energy loss (and therefore the need for energy) through increased levels of insulation, reduction of thermal bridging, stringent levels of airtightness, passive building methods in terms of solar heat and natural light management and appropriate ventilation. In parallel, heating and hot water systems should move away from high carbon fossil fuel sources.
In this respect it is entirely appropriate to adopt a standard of this nature. We note however, that issues relating to the selection of healthy materials and appropriate ventilation, particularly in very airtight buildings will be important to support the health of the occupants. And that whilst the costs of running an MVHR for example are not significant, there is still a cost and there may be a tendency for those on the lowest incomes to switch these off which will have a serious impact on the health of both the occupants and the buildings.
The Passivhaus Institute is an independent research institute which has developed a rigorous methodology for designing energy efficient buildings using their PHPP software, based on research, quality control, training and monitoring. In order to certify a building, there is a rigorous process to follow through design and construction. Clarity would be required on how a Scottish equivalent (or adoption of the Passivhaus standard), would take place to ensure the same high level of training (for designers and contractors), verification that products met the necessary standards, and verification and checking that designs are fully implemented during construction to ensure what is designed is actually built.

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.
The reduction of ongoing emissions from a building comes through increased efficiency of the building envelope and low carbon heating and hot water solutions which the above standard would achieve if implemented in a manner that required rigorous design and verification. It is critical that we adopt a standard that produces ultra-efficient homes, if we are to meet our net zero targets.
However, there is a wider picture that should also be considered in terms of the whole life cycle carbon assessment. When designing a building, material efficiency should be considered including the carbon footprint of specific materials (cradle to grave) and reduction of the level of wastage. Healthier building materials often have a lower carbon footprint in terms of the life cycle of the products and emit less chemicals that can be detrimental to health and wellbeing. The re-use and recycling of building materials

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and components should be factored in.
In relation to the specifics of the site, it should first be established whether new construction is required or whether existing buildings and infrastructure can be repurposed or retrofitted to meet the need. In many instances, this will have a lower environmental impact than new construction.
As PHPP is also more site specific, the energy numbers being generated by the software will be a lot more accurate that software like SAP which is currently used to produce EPCS.
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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.
Given the stringent requirements to meet Passivhaus standards, it is likely the design would have to be run through the PHPP software (or equivalent) at an early design stage (ie prior to submitting a planning application).
One of the reasons the Passivhaus process works is because qualified designers are usually appointed early in the process as part of the design team. Another reason it is successful, is because the work of the designer(s) and the contractor(s) is checked by the verifier throughout the process to ensure that what is designed on paper is built and that the finally construction meets all the rigorous requirements. It has been evidenced that independent verification of passive house schemes lead to the high quality of the design and construction.
The consultation document states that 'Once the housing receives planning permission and has been built, an accredited verifier, trained and qualified in the relevant energy efficiency and thermal performance standards would inspect the building and, if satisfied, grant the required certification.' It is noted that the designers and verifier must be a part of the whole process, to first establish a design that meets the standard and to then ensure it is built correctly.
It is clear with the current process (and the lack of checking and verification), that it is unlikely that most new build housing are being built to the standards drawn on paper or expected by the current standards due to poor workmanship, substitution of materials and little mechanical and electrical design (products sized to suit the property). Key to the success of any improved measures, will be the involvement of design and verification through the whole process. Given the level of work verification takes, it is our opinion that the verifiers should be independent of the BCD.

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

The Passivhaus standard whilst being around since the 1990s, is not a standard that your average builder and designer will be conversant with. As noted in the consultation document, this level of building

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can be achieved with familiar construction with sound detailing and care and attention during construction. It requires a change in mind set that some will embrace and find exciting, and others will be resistant to. Training will be required to move the industry forward so the short-term effects, may be some companies are keen to adopt it and for others it will be too much.
This level of construction does currently cost more so for both private buyers and social landlords, construction costs will go up. However, the low energy usage and running costs, should a lure of buyers particularly with the current increases in energy costs.
In relation to products, there will be an implication on both the products required (i.e. triple glazed windows rather than double glazed being acceptable) and whether products need to be tested and approved to meet the stringent requirements. Initially there may be a shortage of products available depending on how the process is introduced.

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.
We have noted above that passive level construction does currently cost more than standard construction. The Passivhaus institute has a lot of research on the actual uplift of this construction, and it is generally not as significant as might be expected. There are some components and materials that cost more and some components that are additional to current requirements. There are also offsets, in that the heating systems are much smaller. Passivhaus buildings also usually have building forms that are efficient to build. Part of the current added costs of this level of construction, is also likely down to lack of familiarity and fear of the level risk of the challenge.
The difference in cost will also reduce (and has reduced) as this standard has become more popular and access to appropriate products has increased. Product choice will also increase as new companies expand into the growing markets.
This upfront investment in the construction cost is also balanced by the reduction in the energy costs to run the building. Smaller heating systems and better components may also lower ongoing maintenance costs.
In the wider picture, as occupants will be living with thermal comfort and good air quality, the buildings will support wellbeing and health and limit costs on the health service.
In terms of private construction, contractors will still work out how much the buildings will cost to build and how much profit they want to make. They will then pass the costs onto the buyers or offer less for the land in the first place.

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?

To protect society going forward, it is imperative we make bold steps to meet our net zero targets. Housing and the built environment are a large contributor to our carbon emissions and practical steps need to be taken in relation to construction. Yes, this law would contribute to reducing emissions in relation to the running of the properties. In additions it will create homes that are more comfortable and affordable for people to live in. We support the proposal with regard to reducing the demand for heat. However, in order to achieve the highest quality; the design, air quality, materials, density, light and ventilation amongst other aspects, are also critical.

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)?

1. Designing to Passivhaus standards may have an impact on the freedom of aesthetic design and may be particularly challenging for smaller properties to achieve.
2. Living in a Passivhaus is likely to be different from current housing and all occupant and maintenance personnel should be fully trained on how to operate the systems and the concepts of the house. This should be mandated.
3. Consideration should be given to how this standard correlates with the current Standard Assessment Procedure (SAP) currently used to assess energy useage and to produce EPCs. It is noted that this software is also currently used in England and Wales and EPCs are a format used across the UK.
4. Air quality is affected by the building products we use to construct our building, the type of furniture and finishes in the property and the chemical products used within the building (such as some cleaning and beauty products). A holistic view of the specification of the whole building should be taken with regard to air quality, toxicity, materials and finishes to ensure delivery of healthy living environments. Please see SEDA design guide – design and detailing for Toxic Chemical Reduction in Buildings.
5. We strongly recommend an extension to the Scottish Government Scheme "certifier of Design" that works well for Section 6 energy assessors to be extended to have a "certifier of Design- Low carbon designer". This could be overseen by an engineering institution (CIBSE) and/ or with the RIAS or CIPHE. The domestic heating installer industry is dominated by sole traders and small firms. This did not matter too much when heating was a gas unit, but the heavy design responsibility will not sit well with most fitters. We think an accelerated certifier scheme is needed- in this way a manufacturer may be able to be

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a certifier of design or a chartered engineer/ architect/ heating engineer. Any one of these will not likely scrimp on a design calculation as their long-standing reputation is on the certificate.
6. A monitoring outcome would be beneficial, looking at lessons learned from Post Occupancy Evaluation (POE), for example. This information will contribute to and help educate consumers and industry.
7. Consideration of natural ventilation options should be included.
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