

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

Other (e.g. clubs, local groups, groups of individuals, etc.)

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).

This is a joint consultation response from Common Weal; the Built Environment Asset Management (BEAM) Centre, Glasgow Caledonian University; The Energy Poverty Research initiative; and Atkins Architecture (i.e., public, private and third sector).

The team of authors is composed of researcher-practitioners and practitioner-researchers from the public, private and third sectors specialising in domestic energy consumption, architecture, sustainable building materials, building science, fuel poverty, and energy policy.

Common Weal is a 'think and do' tank campaigning for social and economic equality in Scotland. It launched in 2013 and regularly publishes papers and works exploring an alternate economic and social model for Scotland. The organisation is not affiliated to any political party and is funded by individual, small monthly donations.

The Built Environment Asset Management (BEAM) Centre, Glasgow Caledonian University is one of Scotland's leading built environment research centres, focussed on the themes of sustainable cities and communities, construction project risk and value management, and building resilience and environment.

The Energy Poverty Research initiative is an independent research and campaigning group focussed on fuel poverty and energy policy issues. EPRi was founded in 2017 and is recognised as a spin-out from the BEAM Centre at GCU.

Atkins Architecture was established in 2000 and provides sustainable design services and energy assessment.

The views expressed in this response represent the collective views of the contributing organisations, research centre, and company.

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 Keith Baker FRSA – Research Fellow in Fuel Poverty and Energy Policy, Built Environment Asset Management (BEAM) Centre, Glasgow Caledonian University; Co-founder, The Energy Poverty Research initiative; Board Member and Convenor of the Energy Working Group, Common Weal.

Dr Ron Mould - Co-founder, The Energy Poverty Research initiative; Member of the Energy Working Group, Common Weal.

Dr Richard Atkins, RIBA, FRIAS, FRSA - Chartered Architect.

Scott Restrict - Co-founder, The Energy Poverty Research initiative.

Prof Rohinton Emmanuel – Director, Built Environment Asset Management (BEAM) Centre, Glasgow Caledonian University.

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 Craig Dalzell FRSA – Head of Policy and Research, Common Weal.

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.

We fully support the Bill on the basis that the Scottish Government is still dragging its feet as regards updating the Building Standards in ways which could significantly reduce the energy costs for householders and, in doing so, mitigate fuel poverty at a time when rising energy prices are contributing to a wider cost of living crisis.

Whilst we have some minor reservations (see our later answers) we see nothing in the Bill that couldn't be sufficiently amended, either prior to its tabling, during its passage, or through future amendments to the Building Standards. With that in mind, we would challenge the SNP and Scottish Greens to engage constructively by supporting the Bill and either putting forward their own evidence-based amendments, that do not dilute the purpose of the Bill, or to commit to cross-party working to develop an evidence base from which to further amend the Building Standards in the future. At this stage, doing otherwise will turn the Bill into yet another political football and do a disservice to the people of Scotland.

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 strongly agree that legislation, specifically by amending the Building Standards, is the best way – indeed, the only way – that the proposed Bill's aims could be achieved in full.

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.

Whilst we are fully supportive of the case for adopting such a standard for supporting the alleviation of fuel poverty, we also recognise that new builds contribute to a tiny percentage (typically 0.5-1% per year) of the

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turnover of the housing stock, and retrofitting existing homes is an area where the Scottish Government has also been dragging its feet for almost two decades.

Way back in 2012 Dr Baker and Prof Emmanuel authored a report for the Scottish Government recommending the adoption of a Residential Energy Conservation Ordinance [1]. Such ordinances have since grown in popularity around the world as a method for leveraging energy efficiency improvements for new builds and properties subject to retrofits and extensions. However, these and other recommendations are yet to be implemented were ignored (the report is not even referenced in RPP2). As noted in the consultation document, although this Bill is targeted specifically at standards for new builds, it also provides a rare and valuable opportunity to revisit the options for using (appropriate) standards to leverage significant energy efficiency improvements in existing buildings, and we would be more than happy to work with the authors of the consultation to progress this matter.

Reference

[1] Baker, K.J., Emmanuel, R., & Phillipson, M., 2012. Support for RPP2 - Housing Futures. Report for ClimateXChange Scotland. Available at: <https://drive.google.com/file/d/1GZaihouIMSqz9EMSL0QdrGNvPdV8Ik3J/view?usp=sharing>

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.

We fully support the adoption of revisions to the Building Standards requiring all new buildings to achieve the Passivhaus standard or an equivalent. The reason for saying 'or' is that we recognise that there are legislative and political barriers to adopting a compliance target and mechanism developed and controlled outwith Scotland, and that there are also alternative building techniques capable of achieving the same goal which may fall outwith the envelope of approaches covered by Passivhaus (see our answer to Q9).

The quandary here is that we would not want to see such techniques excluded from what is acceptable under the Building Standards, but we have little faith in the Scottish Government's ability to design a suitably holistic Scottish equivalent. Therefore, it would seem to be the most sensible option to adopt the Passivhaus standard as written as an off the peg solution and, alongside this, to consider (within specific limits) which exemptions can reasonably be granted for such alternative techniques. For example, it may be prudent to include additional requirements to increase the recoverability or reusability of building materials in line with upcoming Circular Economy requirements, and these two standards should be developed to harmonise rather than compete with each other.

As ever, the fundamental problem here is that Energy Performance Certificates rely heavily on the use of unverified modelled data, proxies, and assumptions. This means that, in this context, there is evidence that delivery of the Passivhaus Standard can be reasonably be relied upon to deliver modelled performance in practice, whereas the use of such alternative techniques would require validation in practice, and as part of whole house solutions, prior to the granting of any exemptions (which could then be included in future revisions of the Building Standards). Therefore, the least-worst solution here, which has precedents in European Union legislation (e.g., the Restriction of Hazardous Substances Directive), may be to require a developer to submit evidence of how the emissions and energy efficiency standards dictated by the Passivhaus standard will be met by any alternative approaches in advance of consent for construction being granted, and to validate these through post-occupancy monitoring and evaluation.

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

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)

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.

We fully support this revised process on the basis that including the need for post-construction / post-occupancy by a suitably qualified professional is something we have been advocating as being essential for many years.

At present, the current process for checking the validity of Energy Performance Certificates is simply a data entry test for a small sample of properties.

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

As regards verification, we would repeat the points made in our policy paper on energy performance certificates [1], our evidence summary compiled for Minister Kevin Stewart [2], many of our responses to Scottish Government consultations [3], and other publications, that, fundamentally, these problems will never be solved whilst the Scottish Government and its favoured delivery bodies continue to believe in the validity of using modelled data (and in the case of the latter, profit from it). One of our main reasons for supporting this Bill is that, for new builds, it goes some way to negating many of the issues we raise, but it does not address the problems EPCs cause for retrofitting existing build, nor the culture amongst politicians, the civil service, and those delivery bodies, that (even under the proposed 'reforms') continues to promote the use of a methodology that has never been validated and was never designed to be used for the purposes for which it is now deployed.

References

[1] Baker, K.J., & Mould, R., 2018. Energy Performance Certificates - An Alternative Approach. A Common Weal policy paper. Available at: <https://commonweal.scot/policies/energy-performance-certificates-an-alternative-approach/>

[2] Baker, K.J., & Mould, R., 2020. Evidence Summary on Energy Performance Certificates and the delivery of energy efficiency and fuel poverty policies in Scotland. (Redacted version published 04/10/21). Available at: <https://drive.google.com/file/d/1fLQK86epIQuDDzN9ObyZbbDMzZP5bHt/view?usp=sharing>

[3] Available at: <http://energypovertyresearch.blogspot.com/p/consultation-responses.html>

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.

Given that any changes in the Building Standards require developers working to the minimum standards to adapt their practices, it would be reasonable to expect that this Bill will lead to some increase in costs. However, we would expect this to be short-term and, to some extent, offset by energy savings to occupants, and for larger developers to minimise these (if they choose to do so) through economies of scale. Nevertheless, given the nature of the industry and the history of larger developers lobbying against changes to the Building Standards, we would also expect to see those developers producing inflated estimates of cost increases, and would therefore strongly urge politicians and policy makers to subject any such claims to the highest degree of scrutiny.

Given the limited use of passive construction at the moment, it is likely that there will be some increase in construction costs – possibly on the order of 5-10% based on the experience of existing passive

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developments in Scotland. This could be expected to reduce as passive developments become the norm for construction standards and supply chains adjust. Further, the increase in upfront costs are more than compensated for by the reduction in heating and maintenance costs over the lifetime of a building, and these costs can be offset further by reductions in land purchase prices using mechanisms such as Existing Use Value purchases and Land Value Capture. See Common Weal's paper "Good Houses for All" for detailed calculations [1].

Finally, and particularly in the current economic climate, we remain unconvinced that many buyers will be persuaded of the benefits of paying a small premium for a highly energy efficient property. Therefore, if this Bill is passed, the Scottish Government should commit to conducting a public awareness and education campaign covering not just the energy efficiency benefits, but all the other benefits that will accrue from the change – as, commendably, detailed in this consultation document.

Reference

[1] Dalzell, C., 2020. Good Houses for All. A Common Weal policy paper. Available at: <https://commonweal.scot/policies/good-houses-for-all/>

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.

We are not aware of any circumstances under with the adoption of Passivhaus standards or an equivalent would negatively affect any particular people or group of people. Indeed, the adoption of such standards would have a positive impact on the equality and equity of all those occupying such properties.

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?

Our only concerns here are as follows:

1. Alternative approaches to delivering highly energy efficient zero emissions buildings exist which may not or do not fall entirely within the Passivhaus standard. Specifically, these are those which incorporate significant amounts of thermal mass for modulating heating and cooling, and / or those which use naturally passive methods (e.g., designing for maximum solar gain, incorporating inlets and stack vents for controlling airflow and ventilation) to negate the need for mechanical ventilation and heat recovery. However, we also note that Passivhaus buildings have been constructed with high thermal mass and

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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?

using natural building materials (e.g., hempcrete) and therefore, as per our answer to Q4, we do not consider this to be an insurmountable problem.

2. The Passivhaus Standard is, by design, focussed on maximising building performance, and so the proposed Bill omits the opportunity to also mandate, where appropriate, the installation of building-mounted renewable energy technologies – particularly solar thermal and photovoltaic panels. We raise this here both as supporters of 100% Renewable UK's green buildings campaign (see: <https://100percentrenewableuk.org/background-information-for-the-solar-roofs-campaign>) and because of our significant concerns that the Scottish Government's wider efforts to decarbonise Scotland do not go anywhere near as far as they need to, meaning that we may well regret missing any opportunities to maximise our generation of renewable energy.

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)?

The fundamental challenge for legislators in adopting Passivhaus is twofold. Firstly, the Scottish Government has no control over the calculation methodology (PHPP), nor the target, nor the certification process, as they are all off-shore. Secondly, the basis of the primary legislation is to set a performance requirement not a design solution. That said, the Technical Standards are only guidance, so you can already use Passivhaus voluntarily to achieve compliance – Dr Atkins certified the design (Section 6-Energy) of the Drymen scheme in the consultation and it was not unsurprisingly easily compliant with the Technical Standards.

The UK has two National Calculation Methodologies (NCMs) SAP and SBEM, which like PHPP complies with BS ISO EN 13790, and the Scottish Government has some influence over them. Readers may have seen this announcement <https://bregroup.com/press-releases/bre-announces-new-project-with-beis-to-modernise-home-energy-rating-scheme-in-time-for-future-homes-standard/> - so SAP (and SBEM) could, and hopefully will, be improved. The Scottish Government's Building Standards Division did commission the University of Strathclyde, many years ago, to come up with an alternative methodology, but, as we understand it, the issue in the end was that the same methodology is required to produce EPCs and SAP and SBEM are so embedded with that process across the UK, that it is unlikely that an alternative methodology is going to be introduced for compliance compared to EPCs.

The Scottish Government has complete control over the Technical Standards, and could introduce (as has been argued) both a more challenging emissions / energy target and include a space heat demand target (box 99 of a SAP DER calculation and equivalent SBEM output) which could be calibrated to the equivalent Passivhaus target – this would deliver the Scottish equivalent. Plus, the requirement to Certify the Design of Section 6 – Energy, could be made mandatory by the Scottish Government: <https://rias-regis.co.uk/> and <https://tools.bregroup.com/acd/page.jsp?id=1159>

The essential building blocks pre-exist and the Scottish Government could implement them very easily, and should have done with the most recent round of changes to the Technical Standards.

Finally, we would like to use this opportunity to commend Alex, Neil, and the others behind this consultation, for both the thinking and consultation with experts that has gone into it, and for the content of the document. As regular respondents to Scottish Government consultations we see it as a very rare example of a consultation which is suitably detailed and well-written, and which does not give the impression that a foregone conclusion has already been arrived at. Whilst we may not agree with every word, this gives us a high degree of confidence that our views will be listened to. We look forward to engaging positively with the team behind it as the Bill progresses, and would be very keen to be involved

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)?

in the development of future Bills - for example, as regards how we can use similar legislation to leverage the retrofitting of existing buildings.