

Building Regulations: Determining the principles for a Scottish equivalent to the Passivhaus standard: Stage 1 consultation (Scottish Government)

To: All Chief Executives, Main Contacts and APSE Contacts in Scotland. For information only for England, Northern Ireland and Wales.

1 Executive summary

Scottish Government have released a consultation to gather feedback on the changes being considered to The Building (Scotland) Regulations 2004 and associated regulations to introduce a Scottish equivalent to the Passivhaus standard.

Another consultation will follow in summer 2025 on the details of the proposed new standards and performance targets.

[Click here](#) to complete the consultation – the consultation closes on 23 October 2024. [Click here](#) to read the consultation report.

2 Background

The purpose of the consultation is to consider the changes that will need to be undertaken in order to introduce a Scottish equivalent to the Passivhaus standard. The intent of these changes is to ensure that buildings in the future perform as intended, with improvements to their energy and environmental performance.

A further consultation is planned on the details of the proposed new standards and

performance targets in summer 2025. This consultation will focus on views on the approach the Scottish Government should take to a Scottish equivalent to the Passivhaus standard. Relevant regulations will be made in December 2024.

The Passivhaus standard focuses on delivering buildings with low energy demand and high levels of comfort through the optimisation of building form, orientation, design and quality assurance processes. The standard has been recognised for its positive contributions to energy and net zero objectives with absolute targets for fabric airtightness, space heating and cooling demand, and total energy consumption. This is generally achieved through high standards of fabric insulation, high performance glazing, effective ventilation through the use of a mechanical system. Designers can choose to become formally certified in the principles of the standard, and Passivhaus buildings are subject to quality assurance processes by a Passivhaus certifier.

Passivhaus requires the following minimum criteria:

- Designing out additional heat loss at junctions
- Not more than 10% of year with indoor temperatures above 25 °C.
- Not more than 20% of year with humidity above a specified limit (12 g/kg).
- The whole building ventilation rate shall be at least 20 m³/h/person (maximum design occupancy) and 0.3 air changes per hour. Minimum system heat recovery efficiency must exceed 75%. Winter humidity levels are estimated during design and low humidity avoided through strategies such as demand controlled ventilation.
- Limits on noise from ventilation system - 25/30 dB(A).
- Limits on minimum temperature of internal surfaces (not less than 17 °C).

The good practice already established with the Passivhaus approach can be drawn from in the design of a Scottish equivalent to the system. The subject of the consultation is to decide what exactly is meant by an 'equivalent' system, and what sort of national minimum standards should be implemented. This will not necessarily mean Passivhaus will be adopted for all new developments, that the standards must achieve outcomes at least as good as Passivhaus or that the building specifications will require a similar level of prescription on the key energy elements. The overall intent of the review is to deliver improvements to energy performance

and ventilation standards for new buildings (with lower running costs and a healthy indoor environment), improvements to the design and construction process and delivering buildings that meet the needs of users and the policy objectives around climate change, energy policy and the built environment.

3 Consultation questions

1. Do you broadly agree with the statements on what 'equivalent' should not mean, in delivery of amended building standards to address energy and environmental performance?

2. Do you broadly agree with the statements on what 'equivalent' should require consideration of, in delivery of amended building standards to address energy and environmental performance?

3. On the basis that the Home Energy Model (HEM) and Simplified Building Energy Model (SBEM) are reviewed and shown to report representative outcomes, do you support the continued use of calculation tools which implement the UK methodologies?

4. Do you support retention of the current approach and the setting of relative performance targets for new buildings through an approved calculation methodology?

5. Do you agree with the proposal to retain delivered energy, covering only regulated energy use, as the main compliance metric for targets set under standard 6.1 (energy demand)?

6. Do you support further consideration of the introduction of a prescriptive space heating demand limit for new buildings through building regulations?

7. Do you support the move to application of regional climate data within the approved calculation methodologies and their application within compliance targets?

8. Do you currently deliver new buildings that exceed 'backstop' values for fabric performance

set under standard 6.2 or those used to define the notional building in guidance to standard 6.1?

9. Do you have any particular views on limiting fabric infiltration through the building standards?

10. Do you have any particular views on the means by which effective ventilation of new buildings is best achieved?

11. Specifically for new homes should further guidance be given on Mechanical Ventilation with Heat Recovery (MVHR), generally, and through the Technical Handbooks?

12. Are there areas of newbuild design and specification you would wish to highlight as potential risks to occupant comfort that should be better addressed through the building standards?

13. Do you consider that Passivhaus Certification offers a feasible alternative means of compliance with standard 6.1 (energy demand)?

14. Are there any other comments or observations you wish to make on the proposed components of the review which relate to building design?

15. Do you currently apply an in-house or third party compliance management process to your projects which specifically addresses energy and environmental project elements?

16. From your experience of delivering very low energy buildings, what are the most common risks identified at an early design stage and how are they managed most effectively?

17. Do you consider there are practical limits to effective risk management at design stage alone and can you give examples of where management of risk is more effective at a later (construction) stage?

18. Do you currently apply a particular approach to the recording of project information during construction that can demonstrate, to a third party, that work complies with energy-related aspects of building regulations?

19. Do you currently compile and report summary information on the completed building as part of a handover record of project information that goes beyond what is currently required by building regulations?

20. Do you have experience of implementing methods to effectively de-risk the very low energy building aspects of design and construction and provide assurance that compliant solutions are properly considered and delivered as intended?

21. Do you consider the proposals set out present a reasonable summary of the drivers for improvement in compliance processes to deliver very low energy buildings?

22. Do you consider the proposed scope of application and recommended actions are appropriate to address the effective delivery of very low energy buildings?

23. Do you support the application of provisions from an early (pre-warrant) design stage through to completion and handover of the building?

24. Do you have any views on the key areas where the verification process should focus, to be effective in responding to an enhanced compliance reporting regime?

25. Do the recommendations presented adequately describe action to affect the key roles and responsibilities of those who contribute to building compliance?

26. Are you currently designing buildings to the February 2023 standards and have confirmed specifications, which are at a stage that have been or will be used in a building warrant application, that you are happy to share with us?

27. With regards to the current approach to target setting and overheating risk, do you have

experience related to either of these two issues you consider useful to inform review of the current published guidance or this review of current energy and environmental standards?

28. Have you undertaken any projects under the post-2023 energy standards which considered connection to a new or existing heat network, both district heat networks and communal heating systems?

29. Do you have experience of issues affecting development which you consider have arisen from application of the current energy and environmental standards set under building regulations?

30. Do you agree with the proposal to mandate the standard in 2028, introducing changes initially as a voluntary standard from 2026?

4 APSE Comment

APSE encourages our members in Scotland to respond to this consultation and to make their views known on the Scottish equivalent to the Passivhaus standard. One of APSE's Welsh member authorities Swansea Council has introduced the "[Swansea Standard](#)". Chris Cutforth, Major Works Group Leader, Building Services, Swansea Council and APSE's Welsh Area Secretary provided a very informative presentation on this topic at the APSE Scotland Building & Housing Seminar in 2023, please [click here](#) for a link to the presentation. This presentation looks at how Swansea Council are rising to the climate challenge and provides information on their journey to the Swansea standard which is "a fabric-first approach, which achieves a 25% improvement on current building regulations. It relates to the thermal performance and air tightness of a building with the emphasis on the fabric of a home". Colleagues may find this presentation and associated information useful when considering the consultation questions on a Scotland equivalent.

We regularly share best practice on building practices in our [APSE Scotland Housing, Construction and Building Maintenance advisory group](#) which is free to attend for APSE members. Past presentations are available at the link above. Our recent [APSE Scotland Building](#)

[and Housing seminar](#) in February focused on all of the excellent work councils in Scotland are doing around moving towards net zero, using alternative fuels to heat homes, whole house retrofitting and more. The presentation slides are available on the APSE website at the link above.

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