

Scottish Building Regulations: Proposed changes to energy and environmental standards

**Determining the principles for a Scottish
equivalent to the Passivhaus standard**

Consultation Document

July 2024

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Ministerial foreword

In recent years, changes to energy standards within our building regulations have continued to deliver significant improvements to the new buildings we construct in Scotland, helping us to meet both our climate change and fuel poverty targets. Changes to energy standards introduced in 2023 have resulted in a more than 80% reduction in emissions compared to standards in force in 1990. This has been achieved through a focus on reducing energy demand through measures such as improved fabric insulation.

The introduction of the New Build Heat Standard in April 2024 brought about further change meaning that new buildings must no longer use 'direct emission heating systems'.

However, we must continue to consider the need and opportunity to deliver further improvement, which is why I welcome this current review in response to Alex Rowley MSP's 2022 Bill Proposal. It is not often we are challenged to compare our national standards against a best practice voluntary standard, one that has been delivering very low energy buildings for over thirty years. We must continue to learn from such standards to improve the energy efficiency and occupant comfort of our new buildings and to increase assurance on their performance in practice.

This is why we commenced our review of energy standards at the start of 2023 to investigate what a Scottish equivalent to the Passivhaus standard might be. To continue to find improvements in the way we set energy and environmental standards, that lead to buildings that need less energy to run and are healthier for all. Improving targets is not enough. We must introduce a step change in the way we design and construct our new buildings so we can have greater assurance that compliance with our standards is achieved in practice.

I am aware of the current economic climate and that this government has acknowledged we are in a housing emergency. Which is why it is essential we identify practical solutions, both for when we introduce further of change and the level of improvement across the whole of Scotland for every new building constructed. Changes that we introduce must bring with them a clear benefit, be deliverable at scale and be balanced against the broader needs of everyone in Scotland.

I thank those who have engaged in this review so far and I thank you for taking the time to consider this consultation. It provides an exciting opportunity for you to influence the future design of our buildings and I would like to encourage as wide a range of responses as possible. I have the pleasure in inviting you to respond.

Paul McLennan MSP
Minister for Housing

1 Introduction and how to respond to the consultation

1.1 Introduction

1.1.1. Purpose

The purpose of this review is to consider changes to the standards and processes set within [The Building \(Scotland\) Regulations 2004](#) (as amended) and associated regulations (building regulations) to introduce a Scottish equivalent to the Passivhaus standard. The intent is that these changes will further improve the energy and environmental performance of new buildings and provide greater assurance of regulatory compliance, to deliver buildings that perform as intended.

This consultation is the first of two which will consider the technical, commercial and wider policy implications of improvements to energy and environmental standards. This is done in the context of broader action by the Scottish Government on climate change, to further our ambition of becoming a net-zero society by 2045.

This consultation does not set out the details of proposed new standards or performance targets. That will be set out in a further consultation in summer 2025.

Instead, this consultation seeks views on the form and approach that a Scottish equivalent to the Passivhaus standard, implemented through building regulations, should adopt (Sections 2 to 4). It also seeks information on the implementation of the 2023 energy standards (section 5) to assist in the development of our second consultation in 2025. Section 6 of this document sets out the proposed delivery timetable for this review beyond December 2024.

1.1.2. The driver for the current review

In December 2022 the then Minister for Zero Carbon Buildings, Active Travel and Tenants' Rights confirmed that, in response to Alex Rowley MSP's [Proposed Domestic Building Environmental Standards \(Scotland\) Bill](#), the Scottish Government would make subordinate legislation by 14 December 2024 to give effect to Mr Rowley's final proposal "to introduce new minimum environmental design standards for all new build housing to meet a Scottish equivalent to the Passivhaus standard, in order to improve energy efficiency and thermal performance".

A [further review of energy standards](#) within building regulations was commenced at the beginning of 2023 to consider further improvements to the standards set with a focus on two outcomes:

- Improvements to the setting of energy and environmental (ventilation) performance standards for new buildings, leading to lower energy demand (and reduced running costs) and a healthy indoor environment; and
- Improvements to the design and construction process to give greater assurance that compliance, and therefore the performance sought, is delivered in practice.

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Following Ministerial agreement, an industry [Working Group](#) was convened in June 2023 with a role to offer advice and expertise to the Scottish Government to help define how an equivalent to the Passivhaus standard will look in Scotland.

[Themed industry workshops](#) were held through Autumn/Winter 2023 to gather feedback on a number of topics related to very low energy building design and construction. Working Group members and wider industry stakeholders have been actively engaged in the review process to date. However, a position of consensus on what a Scottish equivalent to the Passivhaus standard should look like has so far not been reached.

This review considers both domestic and non-domestic buildings. Any standard that is introduced will apply to every new building constructed in Scotland. It must be deliverable in practice nationally. The form that provisions will take and the level of challenge set by improvements to targets and processes should reflect this scope of application.

Information on the review process to date can be found at:

<https://www.gov.scot/groups/energy-standards-review-scottish-passivhaus-equivalent-working-group/>.

This review is not simply a response to the above final proposal, but an opportunity to determine what further beneficial change can be set out for our new buildings, particularly in relation to improved evidence to demonstrate compliance with standards.

1.1.3. The Scottish building standards system

The building standards system in Scotland is established by [The Building \(Scotland\) Act 2003](#) (The 2003 Act). The purpose of the building standards system is to protect the public interest. The system regulates building work on new and existing buildings, to provide buildings that meet reasonable standards which:

- Secure the health, safety, welfare and convenience of persons in or about buildings and of others who may be affected by buildings or matters connected with buildings,
- Further the conservation of fuel and power, and
- Further the achievement of sustainable development.

The building standards system is pre-emptive and is designed to check that proposals meet building regulations. The main principles of the system are that a building warrant must be obtained from a verifier before work commences on site and a completion certificate is accepted by a verifier if, after undertaking reasonable inquiry, they are satisfied the building work meets the building regulations, prior to the building being occupied. The thirty-two local authorities in Scotland are appointed by Scottish Ministers as verifiers to administer the building standards system in their geographical areas. Responsibility for compliance with the building regulations lies with the “relevant person” as the party instructing building work and, ultimately, with the building owner.

Requirements applicable to building work are set through Building Regulations as a set of mandatory functional standards. These are simple statements on what

outcomes must be achieved when undertaking building work. These standards are supported by a body of guidance set out in Domestic and Non-domestic [Technical Handbooks](#). This published guidance assists by defining the scope of action expected under each standard by providing one or more examples of how compliance with the standard can be achieved. Noting that the standards can also be met through solutions not included in published guidance.

The Building Standards Division (BSD) is part of the Scottish Government Directorate for Local Government and Housing. Our purpose is to provide and maintain a robust legislative framework to ensure that the buildings standards system in Scotland protects the public interest. The BSD prepares and updates building standards legislation and guidance documents, conducting any necessary research and consults on changes as The 2003 Act requires.

We also work in partnership with Local Authority verifiers in the delivery of the system and contribute to wider policy objectives of government on issues such as energy efficiency, climate change and building safety.

1.1.4. Energy and environmental standards within building regulations

Since the introduction of national building regulations to Scotland in 1964, there have been energy standards, in one form or another. Initially these only applied to the external fabric of certain residential buildings and were minimal in nature. Later, they evolved to take account of commercial and industrial non-domestic buildings and to address the energy efficiency of those building services essential to provide comfort to occupiers of buildings.

Prior to 2000, reviews of energy standards were less frequent, with the outcome of such reviews resulting in modest standards that kept pace with change but which could be comfortably achieved by all aspects of industry. An impact assessment carried out on subsequent changes over this era would show a cost-benefit for modest improvements which would pay back quickly through reduction in the occupier's energy bills.

Following the introduction of The 2003 Act and our current system of building standards in May 2005, energy standards within section 6 of the Building Standards Technical Handbooks were reviewed and improved in 2007, 2010, 2015 and most recently in February 2023. For new buildings, 2007 saw the introduction of a single means of demonstrating compliance on the basis of calculated carbon dioxide emission targets, using a Standard Assessment Procedure (SAP) for dwellings and Simplified Building Energy Model (SBEM) (or equivalent) for non-domestic buildings.

Each review introduced further staged improvement to energy standards and related changes on topics such as ventilation. It is assessed that emissions arising from energy use in new buildings constructed to the February 2023 standards are, on aggregate, around 32% lower for new homes and 20% lower for new non-domestic buildings, compared to the previous 2015 standards and more than 80% lower than standards in force in 1990, the baseline reporting year for CO₂ emissions.

Key actions taken forward in the [February 2023 standards](#) include:

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- A focus on actions at a building level that reduce energy demand, including improved fabric insulation in new homes, to reduce space heating demand.
- The introduction of a new energy target for new buildings, measuring 'delivered energy' (that which is supplied to the building).
- In setting targets for new buildings, an amended approach for on-site generation of power, excluding credit for energy exported from the building.
- A simplified process when connecting a new building to a heat network (standardising the building performance needed to comply).
- Changes to ventilation standards to reflect the expectation of improved levels of insulation, resulting in reduced air leakage/infiltration.

A further, specific change was introduced this year by the [New Build Heat Standard](#), which applies to new buildings and certain conversions where a building warrant application was submitted from 1 April 2024. The new standard (6.11) requires, with few exceptions, that new buildings must no longer use 'direct emission heating systems' for space or water heating or cooling.

1.1.5. Scotland's Climate Change Act

The Climate Change (Scotland) Act 2009 (The 2009 Act), which originally received Royal Assent on 4 August 2009, remains the key commitment of the Scottish Government and is the most far-reaching environmental legislation considered by the Scottish Parliament during the first ten years of devolution.

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (The 2019 Act), which amends The 2009 Act, sets targets to reduce Scotland's emissions of all greenhouse gases to net-zero by 2045 at the latest.

Our target on net-zero emissions by 2045, five years ahead of the rest of the UK, is firmly based on what the independent Committee on Climate Change advise is the limit of what can currently be achieved.

With the introduction of the New Build Heat Standard in April 2024 there is a shift in the way we heat our new buildings. New buildings will now contribute 'zero direct emissions' from regulated energy use which positively contributes to achieving our 2045 climate targets. A further step reduction in delivered energy will reduce total upstream emissions associated with the energy use in the operation of these new buildings. The review also offers another opportunity to set out how action through building regulations may best support our broader net zero objectives. Commentary on related topics is provided in section 5 of this document.

1.1.6. Scottish Government Heat in Buildings Strategy

We published the Heat in Buildings Strategy in October 2021, which set out our vision for decarbonising Scotland's buildings by 2045. We remain committed to this vision and continue to lay the foundations which will support the growth of the clean heat and energy efficiency sectors in Scotland. This includes introducing the New Build Heat Standard in April 2024, consulting last year on proposals for a

Heat in Buildings Bill to decarbonise the existing building stock and a new Social Housing Net Zero Heat Standard for the social housing sector.

As set out in the [Heat in Buildings: progress report 2023](#), in line with the requirements of Section 61 of the Climate Change (Scotland) Act 2009, we have reviewed the Heat in Buildings Strategy. In order to bring the Strategy up to date with latest developments, the review has concluded that the strategy should be varied, and we will do so in due course

1.1.7. Scottish Government Fuel Poverty Strategy

Our [fuel poverty strategy](#), published in 2021, sets out a range of actions being taken to tackle this issue. This includes the target that no more than 5% of households will be in fuel poverty by 2040. It is important that we minimise the likelihood of new homes contributing to these figures and recent review of energy standards for new homes, delivered in 2023 and 2024 were cited as part of the strategy. This current review again references the Passivhaus standard as an exemplar, continuing elements discussed in our previous 2021 consultation.

We want our regulations and standards to deliver homes that are warmer and cheaper to heat and which also produce zero emissions from heating. This will help us to ensure that we meet both our climate change and fuel poverty targets. In some instances, households may require access to affordable warmth 24/7, emphasising the importance of achieving high energy efficiency standards for households in fuel poverty and ensuring that those most exposed to the health risks of living in a cold home are prioritised for support, with a reduction in heating demand and in turn lower household energy bills.

In developing detailed proposals for further consultation in 2025, we intend to present an illustration of how further improvement to the energy efficiency of new homes, will contribute to the delivery of our Fuel Poverty strategy and our targets for 2040.

1.2 The Consultation Process

1.2.1. Scope of this consultation

This consultation is the first of two which are planned for the current review. It sets out the proposed form for a Scottish equivalent to the Passivhaus standard and explains the proposed rationale for the components of the standard and the outcomes we seek to deliver. It seeks your views on this proposal and, specifically, the relevance of components of the voluntary Passivhaus standard to application through national regulations.

The outcome sought from this first stage of the review is assurance on the component actions that are to be progressed through further consultation in 2025. This will enable confirmation of any relevant changes needed to the secondary legislation which currently delivers our building standards system. Such enabling changes would be made by amending relevant regulations in December 2024.

The second consultation will be launched in Summer 2025, setting out the detail on the extent of proposed changes, both to improve targets, standards and

guidance and to improve compliance processes. This will be supported by draft versions of updated compliance tools.

1.2.2. Consultation documents

This consultation comprises of the following elements:

- Consultation proposals and questions (this document, published in html and pdf) with a Draft Business and Regulatory Impact Assessment (Stage 1 review). Included as Annex B.
- The online consultation form for your response.
- A Respondee Information Form and list of consultation questions is provided in Word format on the consultation webpage for consultees who are not able to provide a consultation response online.

Any other related draft impact assessments will be listed on the consultation webpage.

References are made within this document and the review webpage to external resources produced as part of the review process to date. Consultees may find these useful in setting out engagement and discussion on the review topic to date.

1.2.3. The Scottish Government consultation process

Consultation is an essential part of the policy-making process. It gives us the opportunity to consider your opinion and expertise on a proposed area of work. You can find all our consultations online at <http://consult.gov.scot/>. Each consultation details the issues under consideration, as well as providing a way for you to give us your views – either online or by post.

Responses will be analysed and used as part of the decision-making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise, the responses received may:

- indicate the need for policy development or review,
- inform the development of a particular policy,
- help decisions to be made between alternative policy proposals, or
- be used to finalise legislation before it is implemented.

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

When responding to questions which offer a choice of responses, please also provide information or evidence to explain your view on the topic wherever possible. This assists us in assessing and understanding the reason for your view and presenting the overall picture when reporting on each topic and on the overall proposal in general.

1.2.4. Responding to this consultation

This consultation runs for 12 weeks from Wednesday 31 July 2024.

We are inviting responses to this consultation **by Wednesday 23 October 2024**.

Please respond to this consultation using the [Scottish Government's consultation hub, Citizen Space](#). You can save and return to your responses while the consultation is still open. Please ensure that consultation responses are submitted by the closing date of Wednesday 23 October 2024. If you use Citizen Space to respond, you will receive a copy of your response via email.

If you are unable to respond via Citizen Space, please complete the Respondent Information Form and the consultation questionnaire available on the consultation webpage and return to:

Consultation: Proposed changes to energy and environmental standards
Scottish Government
Directorate for Local Government and Housing
Building Standards Division
Denholm House
Almondvale Business Park
Livingston
EH54 6GA

1.2.5. Handling your response

If you respond using Citizen Space, you will be directed to the 'About You' page before submitting your response. Please indicate how you wish your response to be handled and, in particular, whether you are content for your response to be published. If you ask for your response not to be published we will regard it as confidential and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under that Act for information relating to responses made to this consultation exercise.

To find out how we handle your personal data, please see our [privacy policy](#).

1.2.6. Next steps in the process

Following the consultation closing date, all responses will be analysed and considered along with any other available evidence provided. After we have checked that they contain no potentially defamatory material, responses will be published (where we have been given permission to do so) on the consultation webpage: <https://consult.gov.scot/local-government-and-communities/building-regulations-passivhaus-equivalent/>.

The Scottish Government will review consultation responses received and the issues raised during engagement with stakeholders to determine the extent of regulatory change needed to support this review and to inform the second stage consultation during 2025. A consultation analysis report and Scottish Government

response will then be published on the consultation webpage. It is the intent that any regulatory changes will be confirmed in December 2024.

1.2.7. Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please send them to:

Consultation: Proposed changes to energy and environmental standards
Scottish Government
Directorate for Local Government and Housing
Building Standards Division
Denholm House
Almondvale Business Park
Livingston
EH54 6GA

Email: bsdenergystandardsreview@gov.scot

2 Consultation proposals

2.1 Defining a Scottish equivalent to the Passivhaus standard

2.1.1. Background

As noted in section 1.1.2, Ministers have committed to give effect to Alex Rowley MSP's [Proposed Domestic Building Environmental Standards \(Scotland\) Bill](#), to “introduce new minimum environmental design standards for all new build housing to meet a Scottish equivalent to the Passivhaus standard, in order to improve energy efficiency and thermal performance”.

We intend to consult initially on a range of principles that would define how we set relevant standards in the future. These principles will reflect the current intent of our standards and discuss the provisions inherent in the approach taken by the Passivhaus standard. Elements of which can potentially be incorporated into the building standards system where deliverable at scale and beneficial in driving improved targets or to processes which assure the outcomes sought.

The outcome of this stage 1 consultation will inform both amendment to regulations later this year and the structure and content of a further consultation, on the detail of proposals, in summer 2025.

2.1.2. Current building standards on energy and environmental performance

The current building standards for energy and relevant environmental topics are set out within sections 3, 6 and 7 of the [Building Standards Technical Handbooks](#). These can be summarised, briefly, as follows:

- Almost all new buildings are subject to an overall energy performance target under standard 6.1. This uses ‘delivered energy’ as its compliance metric and sets targets based upon comparison of the specification and performance of the actual building with that of a ‘notional building’ specification, defining a ‘relative’ performance target, one which varies with the built form proposed.
- The current UK calculation methodologies are used to demonstrate compliance. SAP for new dwellings and SBEM for new non-domestic buildings. Performance is calculated using a range of set parameters and the use of national climate data.
- Minimum elemental performance standards or expected provisions for building fabric and fixed building services are set out under standards 6.2 to 6.6, 6.10 and 6.11. The last of these, introduced in April 2024, moves new buildings away from fossil fuel and other polluting heating systems.
- Requirements for commissioning of installed systems and the provision of written information to building users are set out under standards 6.7 and 6.8
- The production of an energy rating (energy performance certificate) is sought on completion of almost all new buildings under standard 6.9.
- The requirement to provide a means of heating to dwellings is set under standard 3.13.

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- Requirements for ventilation in buildings are set under standard 3.14.
- Provisions to limit peak summer overheating are set for dwellings and similar non-domestic residential buildings under standard 3.28.
- Standard 7.1 requires a statement of sustainability is provided for new buildings, which includes reporting on several energy-related topics.

2.1.3. The Passivhaus standard

The Passivhaus standard is a well-established voluntary standard. The standard is focused on delivering buildings with very low energy demand and high levels of occupant comfort through an informed approach to the optimisation of building form, orientation and design and effective quality assurance (QA) processes. There is increasing recognition and application of the standard, which contributes positively to overall energy and net zero objectives.

The standard sets absolute targets for space heating/cooling demand, total energy consumption ('Primary Energy Renewable') and fabric airtightness. There are also limits on minimum internal surface temperatures and periods of summer overheating.

Targets are commonly achieved by a combination of very high standards of fabric insulation, including high performance glazing and close to thermal bridge free design. Effective ventilation is provided by a mechanical system with efficient heat recovery. The standard can be considered relatively prescriptive in the solutions implemented, solutions which themselves are sensible actions which contribute to the performance and comfort outcomes the standard seeks.

Designers can choose to become formally certified in the principles of the standard and the application of its supporting design and modelling tool, the Passive House Planning Package (PHPP), used to demonstrate performance targets are achieved. The design and construction of Passivhaus buildings is subject to QA via a third-party certification process, overseen by a Passivhaus certifier.

Information on Passivhaus is available on the website of the [Passivhaus Trust](#), the UK Passive House Organisation.

2.1.4. Commentary on application of the Passivhaus standard.

The Passivhaus standard seeks to deliver buildings with very low energy demand and a good internal environment through a combination of good design, optimisation of form and orientation, an informed approach to specification of building elements and outcomes and a robust QA and certification regime. This is supported by a calculation tool which is engineered to present outcomes in a manner that relate closely to likely real world use.

Prescriptive targets are included, including absolute values set for particular metrics such as space heating demand and energy use intensity. The need for the design of buildings to consider form and orientation to optimise performance is strongly emphasised by the use of absolute performance targets, particularly for space heating.

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Several sub-outcomes are delivered by a particular approach to specification of elements including use of high efficiency mechanical ventilation and heat recovery (MVHR), maximum infiltration levels for building envelope and minimum surface temperature of elements to improve thermal comfort. Plus the expectation that those involved in the design and construction process are appropriately trained in the delivery of very low energy buildings and can report progress in a manner that demonstrates effectiveness of process to the registered Passivhaus certifier who provides oversight. This includes a detailed approach to recording of evidence of good practice in design, specification, construction and commissioning.

In summary, Passivhaus seeks very high and assured levels of energy efficiency and a healthy and comfortable indoor environment all year round. It encourages a design-led approach to optimise built form to limit energy demand and meet the standard. It requires:

- Calculation and reporting of outcomes through the use of PHPP.
- Space heating demand of not more than 15 kWh/m²/yr or a heating load of not more than 10 W/m². And a similar limit on cooling demand, where present.
- Envelope airtightness of not more than 0.6 air changes per hour.
- Primary Energy Renewable demand (all energy use, including the storage and distribution losses of the building) of not more than 60 kWh/m²/yr (this includes appliances). The limit value applies for typical residential, educational and office/administrative buildings.

Passivhaus also sets general 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).

There is therefore a significant amount of good practice which can be drawn from the established Passivhaus approach and applied within the Scottish building standards system.

In the context of this first stage consultation, we are seeking to understand the extent to which the components of the Passivhaus approach are desirable and deliverable at a national level within regulations and where such provisions would need to be embedded in legislation rather than in supporting guidance.

2.2 Identifying the components of an equivalent standard

2.2.1. Context – application as national minimum standards.

This statement, to deliver ‘a Scottish equivalent to the Passivhaus standard’ continues to create an expectation around both the anticipated outcome of the review and the approach to development of proposals. This is primarily because Passivhaus is such an established and well-known standard for the delivery of very low energy buildings. And it offers a very clear and specific approach and certain reportable outcomes.

A discussion on what can be considered as ‘equivalent’ needs, first and foremost, to recognise the difference in application of a voluntary standard and mandatory regulation. A standard such as Passivhaus has relative freedom in defining outcomes – targets and the manner in which they are to be achieved. It can be aspirational, stretching or best practice but achievable in practice for those who understand its implications and choose to apply it. Completed projects over many years have demonstrated this is the case for Passivhaus.

However, as a voluntary standard it does not have to demonstrate that it is both necessary and the best way of achieving a given outcome, taking into account economic and broader societal outcomes at a national level. Review of minimum standards set through regulations are subject to such controls. For this reason, ‘equivalent’ must mean that which can be interrogated, learned from and implemented within the context of national minimum standards to deliver similar goals.

Considering the context for this review – delivery of nationally applicable standards – it is useful to set out this statement to clarify what ‘equivalent’ means in the context of national standards. Dialogue on this issue, informed by 2023/4 engagement with key stakeholder organisations, has led to the following initial summary statements, which build on the two points in section 1.1.2 above.

2.2.2. Actions identified and considered by the review.

Ministers have committed “to introduce new minimum environmental design standards for all new build housing to meet a Scottish equivalent to the Passivhaus standard, in order to improve energy efficiency and thermal performance”.

To achieve this, the intent of this review is to deliver:

- Improvements to the setting of energy performance and ventilation standards for new buildings, leading to lower energy demand (and reduced running costs) and assurance of a healthy indoor environment.
- Improvements to the design and construction process to give greater assurance that compliance, and therefore the performance sought, is delivered in practice.
- A level of action, deliverable at a national level, which reflects the needs of building users and strategic policy objectives around climate change, energy policy and the built environment.

In this context, '**equivalent**' should **not necessarily mean** that:

- We adopt and implement Passivhaus for all new development;
- Our standards must consistently achieve built outcomes at least as good as Passivhaus; or
- We set a standard which requires a similar level of prescription on key energy-relevant elements of building specification.

Consultation Question 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?

Yes

No

Please provide information on why you agree or disagree or if you consider other actions need to be considered.

However, 'equivalent' should require the following:

- We remain aware that the standards we set have to be **deliverable for all new buildings at a national level** to an agreed timetable, post-2024.
- We base the capacity for change on an understanding of what solutions are currently being delivered to the February 2023 standards, to define a current baseline.
- We have interrogated the practical application of the Passivhaus standard and **understand the outcomes it delivers and how these are achieved**.
- There is an understanding of **differences in outcome** due to the application of our respective processes, including chosen calculation methodologies.
- We are able to illustrate how the outcomes of our standards currently **compare** with those of Passivhaus certified projects.
- We understand and will consider the application of elements which form the **Passivhaus approach to target setting** where this can be shown to be beneficial and deliverable at scale.
- The manner in which we define and set out targets should **support considered and effective low energy design**, where practicable.
- Action to **increase assurance of outcome** should cover both design and construction phases as a single process with emphasis on competence, effective communication, risk management and reporting on activity throughout that process.
- The compliance model we implement should be shown to apply a robust approach to assurance which is defined within a framework that is **scalable**

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to the extent of works and able to incorporate future enhancements, be these improved targets or additional assurance elements.

- Any confirmed approach **should not result in barriers** to use of specific solutions or to the voluntary application of higher standards than those set under our regulations.
- We should recognise **valid alternative means of compliance** where these are deliverable via our updated regime and where outcomes can be verified simply and effectively by other means.
- The standard we set must **align with broader Ministerial Objectives** for the built environment, including key strategies such as Heat in Buildings and Housing to 2040.

The above list sets out the rationale for the proposed approach to delivering change through the building standards system. Both in the defining and setting of performance targets and the means by which evidence of compliance is provided.

Consultation Question 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?

Yes

No

Please provide information on why you agree or disagree or if you consider other actions need to be considered.

2.2.3. Outcomes sought by this review

Essential

- Identification of deliverable improvement on current energy standards to further reduce the delivered energy needed by new buildings. This includes the manner in which we define such targets.
- Improved assurance that compliance with standards and design intent is achieved in practice. This covers both energy and ventilation/comfort topics.
- A clear statement on what is being delivered and how 'equivalence' with the cited Passivhaus standard is achieved by change in standards and processes.

The last item above is informative and not subject to a requirement for assessment and reporting on the impact of regulatory change.

Initial action for December 2024

- Amendment of regulations to introduce prescription on the manner in which any required outcome is achieved or the manner in which compliance is to be demonstrated. Where such provisions are not included in regulation at present.

2.2.4. Outcomes already achievable under current legislation

In the context of the above and the intent to amend regulations to enable delivery of the proposed standard, it is useful to note that the following provisions are already delivered by the building standards system:

- Requirement for work to be carried out in a technically proper and workmanlike manner, and the materials used must be durable, and fit for their intended purpose.
- Requirement that any service, fitting or piece of equipment provided to serve a purpose under the regulations shall do so in a way that furthers that purpose.
- Setting of standards for overall building energy performance (regulated energy demand, reported as delivered energy, metric is not prescribed in regulation).
- Setting of minimum performance standards for building fabric and services (expected performance not prescribed in regulation).
- Setting of minimum standards for building ventilation and overheating risk (expected performance is not prescribed in regulation).
- Requirements for both commissioning of building systems and the provision of information on the operation and maintenance of installed services to the occupier (specific actions are not prescribed in regulation).
- Demonstration of compliance (overall building energy performance) via a methodology approved by Ministers (standard refers to methodology approved under other legislation, methodology itself is not prescribed in regulation).
- Prescription on information which must be provided in support of a building warrant.
- Prescription on information which must be provided in support of a completion certificate.

2.2.5. Developing proposals for amendment of regulations

The current delivery of energy and related standards is primarily through a combination of mandatory functional standards (statements of the outcome which must be achieved) set out under regulation 9 'building standards applicable to construction' and supporting guidance (to illustrate how that outcome would generally be achieved and the component actions which need considered).

Initial investigation into the extent of regulatory change needed to support a proposed standard and the outcomes noted in paragraph 2.2.2 has concluded that changes to regulations will most likely be needed where a particular outcome or process requires to be reinforced where explicit statements in guidance, which are phrased as 'should' rather than 'must', do not provide sufficient direction on the action needed.

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A provisional summary of candidate changes to regulations, drawn from internal review of current provisions, is set out in Annex A.

It should be borne in mind that prescription on the face of a standard or regulation can significantly limit the range of solutions available to an applicant or developer and may curtail approaches which can achieve the same outcome effectively by another route.

If the outcome sought cannot reasonably be delivered in all cases, this may also lead to applications to Scottish Ministers to formally relax or dispense with the provision. Such issues must be considered when determining where direction is placed on a given issue within regulations, standards and guidance.

Proposals on a range of relevant topics are set out in the next section. For most topics, commentary is provided on whether it may be a candidate for regulatory change, any proposed position on changes and the reason for proposals.

Your view is sought on each topic and any related matters you consider relevant to the outcome of this review. This will inform the necessary amendment of regulations in December 2024 and the development of our second consultation in summer 2025.

3 Proposed components of the standard - Design

3.1 Introduction

3.1.1. Outcome sought

This section sets out and discusses proposed actions to improve the setting of energy performance and ventilation standards for new buildings, leading to lower energy demand (and reduced running costs) and a healthy indoor environment.

It is important for consultees to be aware that this consultation does not set out the detail of proposed new standards applicable to building design. Such matters will be set out in a second consultation scheduled for summer 2025.

This consultation discusses what can be learned from the approach taken by the Passivhaus standard – its principles and processes. And the extent that such provisions might be implemented within the context of national minimum standards set under building regulations to improve how we deliver very low energy buildings with high levels of environmental comfort (thermal and air quality).

3.1.2. Proposals

This section considers the following aspects of the Passivhaus standard, summarised in section 2 and offers commentary on the proposed approach to deliver improvements on current outcomes.

- Application of a robust and representative calculation methodology.
- The setting of challenging overall targets for energy performance and space heating/cooling demand.
- Use of absolute targets to encourage energy-efficient forms.
- Limits on the infiltration of the building envelope.
- Continuity of insulation across the building envelope.
- Assessing risk of peak summer overheating.
- Use of mechanical ventilation with heat recovery to reduce heating demand and maintain indoor air quality.
- Addressing humidity, internal surface temperatures and ventilation noise for occupant comfort.

3.2 Standard 6.1 and approved calculation methodology

3.2.1. Background

Current overall energy targets require to be set and demonstrated for new buildings under standard 6.1 (energy demand). Compliance is demonstrated through the use of the Standard Assessment Procedure (SAP) for new dwellings and the National Calculation Methodology (NCM, Simplified Building Energy Model (SBEM)) for new non-domestic buildings.

The domestic methodology is implemented through approved third party software tools which are tested and validated against the current SAP 10 specification. The non-domestic NCM is implemented through iSBEM, the free government tool or through approved third party FI-SBEM or DSM (Dynamic Simulation Model) tools. Buildings delivered to the Passivhaus standard have their energy performance calculated using the Passive House Planning Package (PHPP), a methodology not currently recognised under building regulations.

The key outcome sought from a calculation methodology should be that it is robust and representative of the performance of the building, presenting an accurate illustration of the effect that any combination of building elements will deliver. This is necessary to support informed decision making from an early design stage. That representation should approximate the outcome expected in the real world.

In this context, it remains the intent that the primary purpose of such tools is to demonstrate compliance with standards rather than as a design tool or a means of reporting on likely operational performance.

Regulatory relevance

Standard 6.1 (energy demand) requires that “the energy performance is calculated in accordance with a methodology of calculation approved under regulation 7(a) of the Energy Performance of Buildings (Scotland) Regulations 2008”.

The cited regulation describes the criteria for such a methodology but does not list current approved methodologies by name. For the purpose of building regulations compliance, the current methodologies are identified in guidance published in support of standard 6.1.

Accordingly, change in cited methodologies may be implemented without the need to amend regulations.

3.2.2. Domestic buildings

A significant review of the UK calculation methodology for determining the energy performance of dwellings is underway. Information on the current development of the Home Energy Model (HEM) as a replacement to the Standard Assessment Procedure (SAP) can be found at [Home Energy Model: replacement for the Standard Assessment Procedure \(SAP\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/home-energy-model-replacement-for-the-standard-assessment-procedure).

An initial consultation on the model, presented in the context of the Future Homes Standard proposals in England, ran from December 2023 to March 2024. Like SAP, it is proposed HEM will underpin a large number of government policies, making it of critical importance to the delivery of a range of policy objectives.

One of the aims of the current HEM development programme is to provide a tool that can be better tailored to suit use across a range of reporting outputs, with initial work focussed on use as a building regulations compliance tool. To support this, the project separates the model’s core building physics from any policy-specific assumptions, the latter being implemented via ‘wrappers’ – software designed to implement specific processes and required inputs and report tailored outcomes for a particular purpose. This will enable users to adapt and use the model in various contexts, with different inputs and outputs suited to their needs.

HEM development seeks to align with modern international energy modelling standards and the best available technical evidence. The new model simulates energy performance at half-hour intervals (compared to monthly reporting in SAP), to better represent the impact of smart technologies and systems.

To test its ability, HEM is being validated against other building energy models, laboratory data, and monitoring data from real homes. Validation is an iterative exercise, and outcomes will be updated and presented until the model is finalised for use in a live environment during 2025.

The project also seeks to increase the transparency of the calculation methodology. The HEM codebase is published as open source with the aim to develop it 'in the open' in future.

Proposal

We propose that, subject to validation of the final core model and a suitable Scottish 'wrapper', the new standard will require calculation of energy targets using HEM. SAP will remain in use only for legacy projects being completed under current standards.

The Scottish government continues to be involved in the development of HEM and will deliver a Scottish 'wrapper' to illustrate the proposed changes to standards as part of the stage 2 consultation in summer 2025.

During review discussions, it has been commented several times that the current SAP implementation does not represent the performance of very low energy buildings well. This premise will be tested by research currently underway which will report on comparative outcomes from the current and proposed UK tools and from the PHPP tool.

3.2.3. Non-domestic buildings

More modest change is being introduced to the Simplified Building Energy Model (SBEM). The draft Version 7 specification incorporates updates to underpinning databases, some enhancements to input on building services. These include:

- A response to concerns that the tool currently underestimates space heating demand. Following review at a UK level, changes made to the underlying activity database (which attributes occupancy and usage parameters to different spaces) has been introduced where data allows and is of sufficient quality.
- Provisions are introduced to support the production of heat pump system seasonal efficiencies, which works alongside SBEM and can be used to provide data when this is not readily produced by the system designer.
- Improved facility to input data where multiple lighting systems are in use in one zone.

Proposal

We propose that the new standard will continue to require calculation of energy targets using updated SBEM/DSM tools.

The Scottish Government continues to be involved in the development of the NCM and ongoing proposals for further enhancements. A Scotland-specific tool for implementation of building regulations compliance reporting will be developed to illustrate the proposed changes to standards as part of the stage 2 consultation in summer 2025.

3.2.4. The Passive House Planning Package

The Passivhaus standard is supported by PHPP as a design and calculation tool. Delivery of a certified Passivhaus project requires the use of this tool from project inception. Both PHPP and SAP are based on the same standard, BS EN ISO 13790, with only small variations, so present the same building physics model.

PHPP uses local climate data and includes unregulated energy for an overall assessment of actual energy use. It focusses on design and reporting of outcomes close to actual energy performance.

In reporting, PHPP considers the external dimensions of the building in defining the thermal envelope to enable a more accurate assessment of heat loss and gain. The outputs of the tool, which is subject to continuous review and quality assurance, have been validated against real world outcomes.

Information needed to define the building model is more comprehensive in detail than the current SAP and basic SBEM tools and the outputs of the specification input are presented in detail to assist the user in design analysis.

Feedback from practitioners trained in the application of the tool are uniformly positive, on its effectiveness at supporting very low energy design.

Proposal

We consider the UK methodologies to be fit-for-purpose in demonstrating building regulations compliance under standard 6.1 (energy demand), subject to ongoing development of the proposed HEM tool.

As noted above, research will report on comparative outcomes from the current and proposed UK tools and PHPP. This will enable further consideration of PHPP's use within building standards compliance.

The potential role of Passivhaus Certification using PHPP within the building standards system is also discussed in section 3.7.

Consultation Question 3

On the basis that HEM and SBEM are reviewed and shown to report representative outcomes, do you support the continued use of calculation tools which implement the UK methodologies?

Yes

No

Please provide information on why you agree or disagree or if you consider other actions need to be considered, including your experience of PHPP as a calculation tool.

3.3 Approach to defining overall building energy targets

3.3.1. Background

Current building regulations set an overall energy target under standard 6.1 (energy demand). This target is a delivered energy target. It considers only energy use arising due to components of the building – fabric and fixed building services. Targets are set by applying a ‘notional building’ specification to a building the same size, shape and orientation as the proposed building. In this respect, the target set is a relative target, varying with the type and form of building proposed.

Limits on space heating demand are set only through reference to maximum U-values for planar elements of the building envelope – walls, floors, roofs and openings. Guidance is provided on the benefits of limiting both thermal bridging and infiltration but no prescription is set. The premise being that the performance of such elements must be declared, incorporated in the calculation of the building energy target and will be appropriate for the overall level of thermal performance sought within the design. For new dwellings, the alternative of designing to meet a space heating demand limit is available. This is also a relative target and reflects the form of the proposed building.

Passivhaus sets an absolute target for space heating demand of not more than 15 kWh/m²/yr or a peak heating load of not more than 10 W/m². It also sets an overall Primary Energy Renewable demand (all energy use) of not more than 60 kWh/m²/yr which includes energy use from appliances. Setting absolute performance targets encourages delivery of buildings with an uncomplicated, energy efficient form or requires compensation through improved specification for less optimised designs.

3.3.2. Absolute versus relative targets

The energy performance of a given building is influenced by a large number of factors. For space heating and cooling demand, this includes location, orientation, form factor, fabric specification and proportion and positioning of openings.

The setting of an absolute target, be that for overall energy use or for space heating demand, requires the designer to consider all of these elements and how they contribute to the building energy balance. The solution needed to achieve a given numerical target will vary depending on the aspects of design noted above. The principle behind absolute targets is that each building should be able to achieve the same, consistent level of energy performance. Absolute targets are a strong driver for delivery of energy efficient building form – avoiding complexity in external elements or an unnecessarily great surface area to volume ratio.

The setting of a relative target is based on the principle that the overall level of energy use should be defined by the sum of the building parts, assuming a very good level of specification for all parts. The target set will change to reflect the aspects of design noted above. Relative targets are not a strong driver for delivery of buildings with an energy efficient form, being effectively situation neutral. They do, however, enable a greater degree of standardisation of both built form and specification.

Two approaches:

- Absolute target – every building should reach the same level of performance in terms of a reported energy outcome, specification will vary.
- Relative target – every building should reach the same level of performance in terms of an overall level of specification, reported energy outcome will vary.

It is suggested that both approaches should be supported by a robust set of backstop values for elemental performance. To provide assurance that a balanced approach to the level of specification of energy-relevant elements is achieved.

Regulatory relevance

Targets for new buildings are currently defined through the guidance published in support of Standard 6.1 (energy demand). This guidance currently defines a range of ‘national building’ specifications which are assigned to the proposed building based upon the sources of heat proposed. The specification calculates both targets and the actual building performance within approved software tools.

Should there be support for a move to more prescriptive absolute targets, there is the potential to set these out in the same manner, through guidance. This on the basis that the guidance can reasonably be held to illustrate the level of expectation for action to meet the mandatory standard. In this case, expectation that a defined target value is not exceeded.

A question may be raised over the need to set such a value within a mandatory element of the regulations. As noted in section 2.2.5, prescription on the face of a standard or regulation can significantly limit the range of solutions available to an applicant. If the outcome sought cannot reasonably be delivered in all cases, this may also lead to applications to Scottish Ministers to formally relax or dispense with the provision. Such issues must be considered when determining where direction is placed on a given issue.

Accordingly, change in the approach to target setting may be implemented without the need to amend regulations.

Proposal

We consider that the level of performance that can be achieved through a well defined relative target, such as the notional building approach, delivers an appropriate balance between building performance and flexibility of solution in the delivery of new development.

Retention of a relative target does not offer any further direct emphasis on the benefits of building to achieve an energy efficient form. We do not seek to diminish the importance of this from a design perspective but consider that the role of national standards should be to enable delivery of high quality outcomes with a reasonable degree of flexibility on the route taken. Defining targets in as balanced a manner as is practicable.

There is, however, a need to understand the level of benefit that may accrue through a move to the setting of absolute targets compared to outcomes delivered by a relative target which seeks a similar level of specification. This premise will

be tested by research currently underway which will report on comparative outcomes from the current and proposed UK tool and from the PHPP tool, looking at the typical levels of performance achieved through improvements to the current relative approach against the prescription of the Passivhaus standard.

We welcome your views and any illustration of the positive and negative impacts arising from these two approaches to target setting.

Consultation Question 4

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

Yes

No

Please provide information on why you agree or disagree or if you consider other actions need to be considered.

3.3.3. Main energy compliance metric

The February 2023 energy standards introduced a new compliance metric for new homes – delivered energy. This energy metric was proposed in response to the intent to remove the need to report on building emissions under proposals for the New Build Heat Standard, subsequently implemented from 1 April 2024.

Delivered energy is the energy which needs to be supplied to a building from external sources to meet the building energy demand. It is the most relevant metric for those that occupy or manage buildings and is, in effect, the energy needed for regulated uses (space/water heating, cooling, ventilation, lighting and auxiliary systems).

Passivhaus sets an overall performance target – Primary Energy Renewable – which considers energy demand for all consumption at the property, including cooking and appliances. It applies primary energy factors to the calculated values to derive an overall total consumption value.

Regulatory relevance

As noted in section 3.3.2, targets for new buildings, including the confirmed metric (delivered energy) are currently defined through the guidance published in support of Standard 6.1 (energy demand).

Should there be support for a move to a different metric, there is the potential to define this through guidance. This is on the basis that the guidance can reasonably be held to define the approach taken to demonstrate compliance with the mandatory standard. Specification of a given metric as an output from the calculation leaves no scope for an alternative approach in practice.

Accordingly, change in the definition of the compliance metric may be made without the need to amend regulations, provided said metric remains an energy metric.

Proposal

We do not propose to adopt an energy metric other than delivered energy. Delivered energy is the most direct representation of the overall energy demand of a new building, representing that which must be drawn from external sources to meet the calculated energy demand for the building. We also would not propose to include energy demand from other sources such as cooking and appliances within the compliance calculation.

These elements are not considered to be 'part of the building' for regulatory purposes and are only considered in relation to their indirect contribution to space heating and, where onsite generation of power is specified, as an element that can usefully consume generated power, increasing the net utilisation of any generation source present.

Consultation Question 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)?

Yes

No

Please provide information on why you agree or disagree or if you consider other actions need to be considered.

3.3.4. Secondary energy compliance metrics

The Passivhaus standard includes an absolute target for both space heating demand of not more than 15 kWh/m²/yr or a peak heating load of not more than 10 W/m². This metric drives the delivery of an energy efficient built form and a high level of specification for building fabric. It also relies upon very low fabric infiltration, 0.6 air changes per hour and heat recovery from an efficient MVHR system to contribute to achieving this target. It is reasonable therefore to discuss the potential relevance and benefit of a more formal space heating demand target as part of review of building regulations.

As noted in section 3.3.1, limits on space heating demand are set only through reference to maximum U-values for the planar elements of the building envelope – walls, floors, roofs and openings. Guidance is provided on the benefits of limiting both thermal bridging and fabric infiltration but no prescription is set. The premise being that the performance of such elements must be declared, incorporated in the calculation of the building energy target and will be appropriate for the overall level of thermal performance sought within the design. For new dwellings, the alternative of a space heating demand limit is available. This is also a relative target and reflects the form of the proposed building and the contribution to reducing demand that insulation, infiltration and heat recovery may offer. MVHR systems are discussed separately under section 3.5.

Annual reporting within our [Climate Change Monitoring Report](#) references the proportion of new homes in Scotland delivered with a space heating demand of

not more than 20 kWh/m²/yr (as calculated by the SAP methodology). As of 2023, this stood at 12.3% of the annual build.

Regulatory relevance

Current levels of expectation for building fabric are defined through the guidance published in support of Standard 6.2 (building insulation envelope).

Should there be support for a move to define a more formal space heating demand target, there is the potential to define this through guidance. This on the basis that the guidance can reasonably be held to define the approach taken to demonstrate compliance with the mandatory standard. Again, specification of a given approach to a performance target would leave little scope for an alternative approach which can demonstrate an equivalent outcome.

Accordingly, any change to introduce a new or more prescriptive compliance metric may be made without the need to amend regulations, provided said metric remains a reportable outcome primarily derived from the performance of the building insulation envelope.

Proposal

Basic compliance with standard 6.2 can be demonstrated simply by not exceeding a set of maximum U-values and by reporting on the calculated performance of building junctions and the infiltration rate of the building envelope within the standard 6.1 energy target compliance calculation. The alternative of the space heating demand limit allows for greater flexibility in the specification of main thermal elements against a relative target which applies notional building values for thermal bridging, infiltration and ventilation solution.

Research currently underway will report on comparative outcomes from the current and proposed UK tool and from PHPP. This will assess the potential benefit of setting a space heating demand target and the form such a target might take, together with any risks which arise from such additional prescription.

Consultation Question 6

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

Yes

No

If you answered 'Yes', please provide information on what form of prescription you would support and the potential benefits and/or risks this may create.

3.3.5. Approach to setting targets – climate data

Building regulations in Scotland currently apply national climate data within the domestic and non-domestic calculation methodologies. As a static element within the calculation of both target and building energy performance this has served the purpose of demonstrating compliance via calculation. However, standardising this data does not enable interaction between the building and its immediate environment to be properly considered, particularly in respect of the energy

balance for heating and cooling (where present). This means that the effectiveness of design solutions is not fully considered. Regional climate data is used within the Energy Performance Certificate process, albeit not in the calculation of ratings, but for assessment of the benefit of building improvements.

The proposed Home Energy Model is being developed with the facility to apply regional weather data to all outputs of the calculation process as part of the improvement to data used.

The Passivhaus standard applies approved datasets for regional climate data and location altitude for precisely this reason, to enable representative modelling of the interaction of the building with its surroundings and to enable reporting of an output that is closer to the operation of the building in practice.

Regulatory relevance

Assignment of climate data for new buildings forms part of the calculation methodology. As noted in section 3.2, for the purpose of building regulations compliance, the current methodologies are identified in guidance published in support of standard 6.1.

Accordingly, change in the cited methodologies may be implemented without the need to amend regulations.

Proposal

We intend to adopt the use of regional climate data within compliance calculations to the extent this is practicable and useful. We propose this would be aligned with the current nine regions currently defined for some purposes within the SAP methodology. These same nine regions are identified and used within PHPP. This will provide more representative reporting on the building energy balance and enable more effective decision making by designers.

Use of regional data will result in variance in the reported outcome for a given building in different locations. However, the impact of this is moderated by the application of the same data for both target and building calculation. The impact of regional data is more significant where an absolute target is set, such as is the case for the Passivhaus standard. However, the variance will be investigated and reported upon as part of ongoing research commissioned to support the stage 2 consultation planned for summer 2025.

Consultation Question 7

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

Yes

No

Please provide information on why you agree or disagree or if you consider other actions need to be considered.

3.4 Building fabric standards

3.4.1. Insulation levels

Building regulations set maximum recommended thermal ('backstop') values for elements of the building insulation envelope through guidance to standard 6.2 (building insulation envelope). This defines the general level of expectation in limiting heat loss. That level is set to enable a degree of flexibility in the delivery of cost effective levels of fabric performance that are viable for projects across Scotland.

Due to the use of absolute targets, including for space heating, Passivhaus does not prescribe maximum performance values for building fabric. There is recognition that elements such as triple glazing, with related very low U-values, are expected components and a generally high level of fabric specification and the delivery of close to thermal bridging free design is an expected outcome to both limit space heating demand and deliver thermal comfort.

We will determine the potential for further, deliverable levels of improvement in the specification of building insulation elements as a means of further reducing space heating demand. This issue must be considered alongside the potential to achieve similar effect through other means. The use of targets to promote consideration of energy efficient built form is discussed under section 3.3. The impact of use of heat recovery as part of ventilation is discussed under section 3.5.

A further discussion on how space heating demand is subsequently met, through efficient generation of heat and effective control of heating is also necessary and will be considered in detail within the stage 2 consultation, on guidance to support standards and the defining of updated performance targets, in summer 2025.

Regulatory relevance

Current levels of expectation for building fabric are defined through the guidance published in support of Standard 6.2 (building insulation envelope).

Accordingly, any change to values cited or the introduction of recommended limits may be made without the need to amend regulations.

Proposal

Much on this is discussed under section 3.3.4 'Secondary energy compliance metrics' and the setting of space heating demand targets or limits.

Through commissioned research, we seek to identify where current 'fabric first' approaches can readily and consistently deliver building envelopes that offer performance better than the levels currently defined in guidance to standard 6.2. We would also wish to understand how the capacity for further improvement may vary, across building elements, construction types and development situations. And how the cost/benefit of further improvement options may also vary.

Consultation Question 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?

Yes

No

If you answered 'Yes', please provide information on the solutions you apply, any challenges experienced and your views on wider application of such solutions.

3.4.2. Thermal bridging

The limiting of thermal bridging at junctions is important to avoid areas of low internal surface temperatures that can contribute to surface condensation and mould growth, as well as assisting in maintaining a comfortable thermal environment.

Building standards require information to be provided on additional heat loss from thermal bridging at junctions, represented by calculated or default psi (ψ) values, as a component of overall building energy performance. An additional allowance, as a proportion of planar heat loss, is included in the notional building specification for new dwellings (5%) and new non-domestic buildings (default 10%).

Representation of thermal bridging is more rudimentary for new non-domestic buildings than for new dwellings, addressing a reduced range of junction situations and permitting the option of an onerous default value for heat lost through thermal bridging whereas a total heat loss value must be calculated from junction lengths and psi values for new homes.

A similar but more detailed approach is taken within the Passivhaus standard, which seeks to deliver construction which is close to thermal bridge free. The Passivhaus standard also uses external dimensions whilst building regulations use internal dimensions, resulting in a different reported outcome.

Both of the above systems seek calculation to BS EN ISO 10211 and emphasise a managed and informed approach to specification and detailing of achievable construction build-ups and continuity of insulation layers.

Regulatory relevance

Assignment of values for thermal bridging forms part of the calculation methodology. As noted in section 3.2, for the purpose of building regulations compliance, the current methodologies are identified in guidance published in support of standard 6.1. Guidance of limiting thermal bridging, sources of information and how values are to be calculated is provided to support standard 6.2.

Accordingly, any action to amend how this element of specification is defined may be implemented without the need to amend regulations.

Proposal

It remains the intent to reference the UK energy calculation methodologies and, as part of this, the current approach to the calculation and presentation of thermal bridging losses. Current research to support proposals will include reporting on the difference of approach to calculation of psi values between current approved calculation methodologies and PHPP.

The stage 2 consultation in summer 2025 will seek views on this topic and what an appropriate level of assignment of target values might be to encourage a best practice approach for this element of envelope design.

3.4.3. Fabric air infiltration

Building regulations discuss fabric infiltration in the context of both the building fabric specification (standard 6.2) and ventilation (standard 3.14). Whilst noting that reduced levels of infiltration are an effective means of reducing fabric heat loss, guidance does not set an upper limit on infiltration. This is on the basis that this aspect of performance is considered by the building energy calculation and designers may therefore declare a level of performance they consider achievable by their proposed construction solution. The value declared is then checked through testing once constructed. Infiltration is defined by the volume of air that passes through each square metre of building envelope at a given pressure differential, 4 or 50 pascals. The notional building assumes a specified infiltration rate of $5 \text{ m}^3 /(\text{h}.\text{m}^2)@50\text{Pa}$ for dwellings and $4 \text{ m}^3 /(\text{h}.\text{m}^2)@50\text{Pa}$ for non-domestic buildings.

The Passivhaus standard defines a maximum limit for building fabric infiltration of 0.6 air changes per hour when measured at 50 pascals pressure difference. Envelope airtightness is a significant element in the Passivhaus approach, to aid in achieving the target space heating demand through both lower energy loss from leakage and more effective operation of an installed MVHR system. A declared air change rate is always verified by test. As this is an air change rate, it cannot be directly converted to an air permeability rate target by 'rule of thumb' but is often described as delivering air permeability at least five times lower than typical new construction to building regulations.

Regulatory relevance

Assignment of a design infiltration rate for new buildings forms part of the calculation methodology. As noted in section 3.2, for the purpose of building regulations compliance, the current methodologies are identified in guidance published in support of standard 6.1. Guidance on considering, defining and testing building infiltration is provided to support standard 6.2. Accordingly, any action to amend how this element of specification is defined may be implemented without the need to amend regulations.

Proposal

As part of the proposal to continue to set a relative energy performance target through the notional building approach, we will continue to specify a value for building infiltration to be used in the calculation of targets. The stage 2 consultation in summer 2025 will seek views on what an appropriate level for this value might

be, both generally, or for various building types. We would seek your views on the benefits of greater prescription on fabric infiltration as part of any revised approach to target setting.

Consultation Question 9

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

Yes

No

If you answered 'Yes', please provide your views and any supporting information on the benefits and risks arising from greater prescription on this topic.

3.5 Ventilation and occupant comfort

3.5.1. Ventilation and indoor air quality

Standard 3.14 of building regulations requires that ventilation is provided so that air quality inside the building is not a threat to the building or the health of the occupants. The focus being on effective removal of contaminants and provision of replacement air.

Guidance in support of the standard identifies recommended minimum rates of air exchange (domestic) or cites relevant industry codes of practice (non-domestic). A further basic compliance guide for new homes covering selection of systems and delivery through to commissioning is included and last updated in February 2023. The approach to ventilation and system type applied is related to the level of fabric infiltration. Whilst there is a presumption that most new buildings will be designed to lower infiltration rates, all potential approaches are recognised.

The Passivhaus standard differs from this, taking a more prescriptive approach to the delivery of thermal comfort and indoor air quality, through specifying very airtight building fabric and the expectation of a managed mechanical supply and extract ventilation system with heat recovery (MVHR). Aside from reducing space heating demand, such a solution provides greater assurance that expected whole building ventilation rates are achieved in practice.

Standard 3.14 accepts any system/solution for ventilation but does recommend a particular strategy based upon the design infiltration level of the building fabric, also recommending mechanical supply and extract systems for buildings with very low fabric infiltration, below $3 \text{ m}^3 / (\text{h} \cdot \text{m}^2) @ 50 \text{ Pa}$.

Fabric infiltration is discussed in section 3.4.3. MVHR as a building solution and ongoing topic of interest is discussed under section 3.5.2.

Regulatory relevance

Standard 3.14 (ventilation), as written, seeks to deliver a general outcome. The standard is reliant upon supporting guidance to define both the level of performance sought and to provide examples of means of achieving that

performance. Guidance again setting out common means of achieving compliance.

Guidance on defining and delivering adequate building ventilation is provided to support standard 3.14. Accordingly, any action to amend how this element of specification is defined may be implemented without the need to amend regulations.

Proposal

Research published last year on [domestic](#) and [non-domestic](#) ventilation highlighted a number of areas where further review of standards and associated provisions may be beneficial.

Work is underway in parallel with this review to investigate what level of assurance around effectiveness in use can reasonably be asserted for various ventilation solutions and how this is affected by the design, installation and commissioning process. This will consider, amongst other topics, the general trend towards lower infiltration in new buildings and how to identify and address the key risks at both design and construction phases for different solutions.

Alongside current research on improvements to energy standards, this will inform proposals put forward for consultation in summer 2025. We would seek your views on the benefits of greater prescription on fabric infiltration as part of any revised approach to target setting.

Consultation Question 10

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

Yes

No

If you answered 'Yes', please provide your views and any supporting information on the benefits and risks identified in the delivery of your projects.

3.5.2. Mechanical Ventilation with Heat Recovery

Guidance in support of the standard 3.14 (ventilation) identifies recommended minimum rates of air exchange (domestic) or cites relevant industry codes of practice (non-domestic). This section focusses primarily on consideration of MVHR as a component of new dwellings.

Current building regulations do not set prescription on the approach to ventilation to be used in new buildings but do refer designers to the need to consider fabric infiltration as a factor when determining an appropriate ventilation system. For example, recommending the use of continuous mechanical supply and extract in new homes with a proposed design infiltration rate below a certain limit. The optional space heating design limit available for new homes under standard 6.2 (building insulation envelope) also considers the benefit that ventilation with heat recovery offers in reducing the space heating demand a heating system is required to meet.

The Passivhaus standard has a strong focus on effective action to reduce heat demand and, whilst not a prescribed solution, it is considered impractical to achieve the defined space heating demand target without the use of efficient MVHR. In effect, the design and installation of effective MVHR is a signature element in Passivhaus buildings.

In the development of the current review, the benefits of MVHR have been clearly identified in many discussions with stakeholders. A well designed and installed system will both reduce space heating demand and provide more assurance on the delivery of good indoor air quality through levels of input air supply which are verifiable as part of system commissioning. Such systems can also operate in bypass mode, to support effective evening or night-time cooling during summer months.

In parallel, some concerns have been raised over challenges associated with the ongoing operation of such systems including increased reliance on mechanical systems, user intervention and the need to maintain the system (specifically replacing filters).

The introduction of efficient heat recovery system to a well-insulated building with low fabric infiltration can offer greater benefit than further enhancements to the building fabric specification and may often offer a more cost effective means of improving overall performance.

Regulatory relevance

Examples of the approach taken in achieving compliance with standard 3.14 are set out in supporting guidance which covers levels of ventilation sought and the characteristics of systems and solutions. Similarly, achieving overall energy targets defined under standard 6.1 (energy demand) currently enables designers to achieve an overall outcome by whichever route they determine as most appropriate for a given development. The outcome (target delivered energy rate) is, however, defined by a notional building specification that sets out an illustration of a balanced approach to the specification and components of a new building. Currently, MVHR is not part of this specification.

Accordingly, change in the cited solutions may be implemented without the need to amend regulations. An exception would only arise if a case was made to mandate a specific single solution to the standard, which is considered very unlikely on such a topic.

Proposal

In the context of the ongoing focus to optimise the energy performance of new buildings, heat recovery is a design option which should be properly considered at an early stage of a project. This makes heat recovery as part of ventilation an element of specification to consider in the same way as other elements of energy-relevant specification which can offer multiple benefits.

Work, separate from this current review, is planned for 2024 to investigate and assess the levels of assurance that can reasonably achieved by a range of ventilation solutions. It is already recognised that use of both mechanical supply

and extract can eliminate much of the variation in ventilation performance associated with a reliance on passive background ventilators.

MVHR has benefits, particularly for more airtight and energy efficient buildings. However, mandating its use is at odds with the approach of building standards that allow designers to meet the regulations in more than one way. We are seeking your views on the role guidance should take for MVHR in new construction. For example:

- Is there a strong case to reference the use of MVHR within any revision of the Technical Handbooks?
- Is such action more useful than simply considering further enhancements to insulation standards?
- Should communication on a 'fabric first' approach move towards a stronger emphasis on the linking of fabric and services strategies, as already well embedded within the Passivhaus standard?

Consultation Question 11

Specifically for new homes should further guidance be given on MVHR, generally, and through the Technical Handbooks?

Yes

No

If you answered 'Yes', please describe what approach to this work you consider would be most appropriate in driving forward informed, good practice on both energy and ventilation performance.

3.5.3. Overheating Risk

Both building regulations and the Passivhaus standard include a requirement to assess the risk of peak summer overheating and take action to limit that to reasonable levels.

Standard 3.28 (Overheating risk) requires that a new dwelling (or similar non-domestic residential buildings) be designed and constructed in such a way that the risk to the health of the occupants from overheating is reduced. Supporting guidance offers two approaches to satisfy the standard - a simple approach which limits heat gain through glazing and seeks adequate purge ventilation and a detailed thermal modelling approach using a recognised methodology, CIBSE TM59. Both approaches are applied on a room-by-room basis.

The Passivhaus standard applies a whole building assessment, undertaken within the PHPP calculation. This approach sits between the two options set out under standard 3.28. Both approaches seek to address the issue via passive cooling where practicable.

No updating of the current provisions under standard 3.28 are proposed as part of this review. Such work will be commissioned separately. It is noted that should Passivhaus certification be recognised as an alternative means of compliance (see section 3.6) then, subject to confirmation of the comparative efficacy of the whole

building approach, reference to the PHPP overheating assessment could be identified in guidance as a third means of satisfying standard 3.28.

3.5.4. Occupant comfort

A range of issues need to be managed in the design and delivery of a building to offer good levels of occupant comfort. This includes solar gain and overheating risk, air quality and movement, temperature levels and differentials and environmental noise.

Both building standards and the Passivhaus standard address a range of such issues in broadly similar ways. For example, a relatively uniform and consistent approach to the building insulation envelope, minimum expected ventilation rates, assessment and mitigation of overheating risk, and guidance on noise from installed systems such as ventilation.

In this respect, the Passivhaus standard sets out a strong, design-led approach to deliver high levels of occupant comfort, carried through to the verification of the design to construction and commissioning. Optimising building form and layout for useful solar gain whilst avoiding overheating risk, a high and consistent specification for building fabric, assurance on air quality through effective use of mechanical systems and assessment of surface temperatures and services noise.

There has not been a significant focus on occupant comfort as a specific topic within review discussions to date. It is recognised that current provisions in building standards and Passivhaus standards do differ and that greater assurance on this topic is likely to be gained from a more informed and evidence led approach to design and construction through building regulations. This is discussed in Section 4, which also highlights some examples of performance issues which can be detrimental to occupant comfort, such as inconsistency in the delivery of the thermal envelope.

Consultation Question 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?

Yes

No

If you answered 'Yes', please provide examples of the issues encountered and, where available, the solutions employed to address the problem.

3.6 Alternative means of compliance

3.6.1. Passivhaus certification

Both building regulation and the Passivhaus standard define and seek to deliver a series of outcomes, including overall energy performance targets and minimum levels of elemental performance. For building design, key elements in both processes are discussed earlier in this section of the consultation.

Since 2007, building regulations have set energy or emission targets for new buildings, demonstrated under the UK calculation methodology SAP or SBEM. From April 2024, with the introduction of the New Build Heat Standard, the only target set is an energy demand target under standard 6.1 (energy demand).

This standard is the closest analogue to the Passivhaus standard space heating demand and energy use intensity limits, with outcomes calculated via PHPP. Passivhaus cites an absolute value, targets set under building regulations are currently relative, based upon a notional building defined in guidance. Building standards do cite such absolute values but only in supporting guidance for the voluntary aspects of standard 7.1 (statement of sustainability), for Aspect 2 (Useful energy for space heating).

The calculated outcomes for a given building form and specification also differ between approved methodologies and PHPP. There have been studies which identify and comment on these differences and research underway, in support of this review, will also consider and present information on where and why these occur. However, it can be established that with only potentially minor exceptions, a new building designed to achieve Passivhaus certification will achieve reported outcomes that improve on those sought by building regulations. This presents a strong case to consider Passivhaus certification as an alternative to current target setting process under standard 6.1, without the need to provide a comparative calculation assessment to demonstrate the extent to which “it is capable of reducing the energy demand of the building”.

Regulatory relevance

Should there be a recommendation to formally recognise Passivhaus certification as a means of demonstrating compliance with one or more relevant standards, regulatory change would depend upon the nature of the standard in question and the extent to which output from the Passivhaus certification process was used for verification purposes.

Where sufficient information to enable verification against current standards is present, then citation may simply not be necessary as compliance may be demonstrated by the current route, as further enhanced by the proposals to improve compliance, set out in principle within Part 4 of this consultation.

An exception would be standard 6.1 (energy demand) where the compatibility of the respective approaches to target setting and the metrics defined would make citation complex.

However, there is the option for citation without the need for a comparison in calculated outputs. As standard 6.1 sets a requirement that energy performance is calculated using an approved methodology of calculation, referencing approval under other (energy performance certificate) legislation, the most direct means of recognising an alternative would be to define a further limitation to the standard. Such a limitation would define the criteria for exemption. For example, confirmation by a Passivhaus certifier that a submitted design meets the design requirements of the Passivhaus standard.

Accordingly, formal recognition of Passivhaus certification as an alternative means of compliance would most likely result in the need to amend regulations.

Proposal

Subject to the conclusion of current research to evaluate the differential in reporting between calculation methodologies, we would propose that confirmation of design-stage compliance with the Passivhaus standard be considered as an alternative compliance solution. In parallel with this consultation, we will determine the procedure that would be applied to enable Passivhaus certification, as an end-to-end process, to be identified as an alternative means of complying with standard 6.1 (energy demand). A comparative calculation using the cited domestic or non-domestic methodology would not be required to be submitted to prove compliance.

Beyond the position set out above, we would welcome your views on the extent to which Passivhaus certification could be recognised as delivering an alternative means of compliance to specific standards.

Note also that compliance benefits achievable through Passivhaus certification are discussed under section 4.

Consultation Question 13

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

Yes

No

Please provide information on why you agree, or disagree and on the extents to which this alternative might be usefully applied in practice.

3.6.2. Alternative verification – Certifiers of Design

Building standards in Scotland offer an alternative means of confirming that the design of building work which is the subject of a building warrant complies with specified mandatory standards. Individuals can be appointed as an Approved Certifier of Design and can certify compliance within the scope of their registration, removing the need for the local authority verifier to undertake a detailed check on such elements prior to granting a Building Warrant. Each Approved Certifier must also be or be supported by an Approved Body, who provides resource and indemnity for their certification activity.

The Certification process is managed through Scheme Providers, organisations approved by Scottish Minister to manage and audit the activity of registered certifiers through their Approved Bodies. Information on this optional process can be found in the published [Certification Handbook](#).

There is currently a Certification of design scheme for section 6 (energy). Current Scheme Providers are part of the review working group. This is assisting in the consideration of potential implications for the current certification regime, from this

review and also in the context of the broader proposed changes to compliance processes (see section 4).

3.7 Summary of proposals

In setting provisions for the design and specification of new buildings, we propose to develop standards on the following basis and seek your views on:

- Continued use of the UK calculation methodologies, as updated, and to implement the proposed updates to both domestic and non-domestic methodologies.
- The benefits of defining absolute targets for aspects of building performance but propose to continue to set relative targets for the overall energy performance of new buildings.
- The case for defining a space heating target for both new dwellings and new non-domestic buildings and the form this might take.
- Supporting effective decision making in design choices and making outputs more representative, by adopting the use of regional climate data within calculations to the extent this is practicable.
- Based upon current good practice, considering what further opportunities arise to set more challenging provisions for fabric insulation.
- The benefits of an informed approach to the definition and delivery of a low infiltration building envelope.
- The means by which the benefits of effective MVHR systems can be more broadly represented within standards.
- The recognition of Passivhaus certification as an alternative means of complying with standard 6.1 (energy demand).

Provisions relating to assurance on compliance are addressed in section 4.

To emphasise – these are proposals and information is provided to set out the reason for the initial approach described. We seek your views and evidence on whether or not these will, collectively, define a robust approach for the development and delivery of revised provisions. The extent and detail of those provisions will then be set out in the Stage 2 consultation next year.

Consultation Question 14

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

Yes

No

If you answered 'Yes', please provide your further comments or observations. Additional supporting information may also be provided by attaching a separate document to your response.

4 Proposed components of the standard - Compliance

4.1 Introduction

4.1.1. Outcome sought

New buildings and new building work require to comply with current building regulations and should function and offer the performance that is set out at design stage when complete.

This section sets out and discusses proposed actions to improve assurance that the design intent for energy performance and ventilation standards for new buildings is achieved in practice. And considers how an evidence-led compliance process can enable reporting on this goal throughout the design and construction stages of a project.

It is important for consultees to be aware that this consultation **does not** set out the detail of proposed new processes to demonstrate compliance with standards at design or construction stages. This will be set out in the stage 2 consultation next year.

This consultation looks to discuss what can be learned from current industry good practice and from the approach taken by the Passivhaus standard and its certification regime – principles and processes - and the extent that such provisions might be implemented within the context of the current verification process for building warrants and prior to acceptance of a completion certificate.

4.1.2. Background

Section 1.1.3 of this document summarises the form and intent of the building standards system in Scotland. A key element of this is the building warrant process. The system is pre-emptive, requiring that designs need to be checked and approved by local authority verifiers before work on site can commence. This is a recognised strength of the system. Building in advance of building warrant approval is an offence under The 2003 Act and increases the risk of non-compliance because the developer does not have the comfort of a design reviewed by the verifier.

The 32 Local Authorities are appointed as verifiers by Scottish Ministers to administer the building standards system for their own geographic area. Their primary function is to protect the public interest by providing an independent check of applications for building warrants to construct or demolish buildings or convert buildings. This includes checking of design proposals before granting a building warrant and checks during the construction phase, commonly supported by a construction compliance notification plan, before accepting a completion certificate on completion of works.

However, checks by the verifier do not provide a system for the control and assurance of work onsite. That is the responsibility of the 'relevant person', with appropriate arrangements put in place with their design team and contractor. The relevant person is usually the owner, tenant or developer who is doing the work for

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themselves, or who may engage a contractor to do the work on their behalf. When a building warrant is obtained, it is the duty of the relevant person to ensure compliance of the works with the building regulations.

On completion of the work the relevant person or their duly authorised agent must sign and submit a completion certificate to the verifier. The completion certificate certifies that the work was carried out in accordance with the building warrant, and the building, as constructed, complies with the building regulations.

Alongside verifiers, Scottish Ministers may also appoint organisations (Scheme Providers) who register individuals or bodies, either public or private, as Approved Certifiers of Design or Construction. There are a number of areas of work which can be covered by this Certification regime. These are listed on the Scottish Government website and Certification Register. The benefit of using an Approved Certifier is that the building work will be certified by building professionals, who have demonstrated competence in their area of expertise, as complying with regulations.

4.1.3. The Building Standards Futures Board

The [Building Standards Future Board](#) was set up in 2019 to provide guidance and direction on the development and implementation of recommendations made by the Review Panels on [Compliance and Enforcement](#) and [Fire Safety](#). The Review Panels were formed by the [Ministerial Working Group on Building and Fire Safety](#) following failings in the construction of Edinburgh School Buildings and the fire at Grenfell Tower, London.

The Board's remit is to strategically advise and direct a board programme of work aimed at improving the performance, expertise, resilience and sustainability of the Scottish building standards framework and services across Scotland.

Work streams are being taken forward by the BSD, involving a range of stakeholders from construction industry organisations and professional and public bodies.

Seven work streams were agreed in 2019:

- verification delivery model
- compliance plan approach
- digital transformation
- certification strategy
- workforce strategy
- technical strategy
- verification standards

Progress and change are happening across all workstreams. From 2024 delivery will focus on four workstreams:

- [compliance plan approach](#)
- [verification delivery model](#) (incorporating verification standards)

- [certification strategy](#)
- [digital transformation](#)

It is anticipated this programme of works will be completed no later than 2026.

4.1.4. The Compliance Plan Approach

The new Compliance Plan Approach will define and implement (through future changes in legislation) an appropriate and robust building warrant compliance assurance regime. Its purpose is to demonstrate that the duty imposed on the relevant person to certify compliance with building regulations (by signing and submitting a completion certificate to the verifier) is being managed robustly at both the design and construction stages, to deliver a compliant building. The Compliance Plan Approach workstream will:

- minimise the risk of completed buildings failing to comply with the building regulations and the building warrant approved plans and details;
- increase compliance with building warrant process legislative requirements (procedural compliance) to support the delivery of safe compliant buildings and the legal use/occupation of buildings;
- support the relevant person (normally the building owner/developer) to build in accordance with the approved building warrant plans and the building regulations to deliver a compliant building and be able to evidence this; and
- to ensure the local authority verification inspection checks and evidence within the approved building warrant compliance plan are fully achieved.

The Compliance Plan Approach will see the creation of the role of Compliance Plan Manager to oversee compliance with building regulations from concept to completion on behalf of the relevant person and be the verifier's point of contact to support the verification process. The Compliance Manager's role would be to support the building owner and assume responsibility for managing the actions of others which are needed to provide assurance that work is completed in accordance with building regulations and all agreed verification compliance requirements are met and documented.

Currently the Construction Compliance and Notification Plan (CCNP) is created and issued by the verifier along with an approved building warrant. The CCNP identifies the inspection stages that the verifier requires to be notified, to provide them the opportunity to inspect and check the project at different stages.

The Compliance Plan Approach changes this process for High Risk Buildings. The Compliance Plan Manager, working with the design team and contractor (if in place), is responsible for developing a Compliance Plan to detail the measures that will be in place to control work on site and collate the necessary evidence to deliver a compliant building.

To support the Compliance Plan work an Early Adopters Scheme was launched in early 2024. The scheme is aimed at relevant persons wishing to participate in early trials of the new Compliance Plan approach and is being hosted by the [Construction Quality Improvement Collaborative \(CQIC\)](#).

4.2 Principles of an evidence-led approach to compliance

4.2.1. Background

The need to demonstrate compliance through evidence of correct process is relevant to all building standards. Through robust management of compliance at both design and construction stages, parallel work on the Compliance Plan Approach will allow the relevant person to demonstrate that these principles have been followed, within its scope of application.

Proposal

To address the assurance element of a Scottish equivalent to the Passivhaus standard, we propose the introduction of a 'Guide to Compliance and Assurance for Very Low Energy Buildings'. This section discusses the elements needed for such a document and to enable its application, including potential changes to regulations.

The Building Standards Division has worked in partnership with the Scottish Futures Trust to develop the initial principles of the proposed guide and identify how it would be applied at various stages in the building standards process. An illustration of work to date is included in section 4.3.

Application of such a guide is intended to offer a means of demonstrating that an informed and robust approach to compliance has been applied to the standards related to the delivery of energy and environmental performance. The guide will follow the principles already under development for the Compliance Plan Approach but will also be applicable as a stand-alone process.

In the development of the proposed guide, an assessment of comparative processes will be undertaken, between current building standards and other identified good practice regimes, including the assurance processes set out within the Passivhaus Building Certification Guide.

4.2.2. Elements of a robust evidence-led approach to compliance

Discussion to date on application of quality assurance principles has identified a series of component actions that would support delivery of a robust, evidence-led approach to compliance for energy-related elements of the building – 'effective planning and implementation to prevent risks which could affect quality of outcome during the delivery of a process'.

What are the components of such an approach in the context of compliance with energy and environmental standards set through building regulations?

- Competence and understanding of assigned roles and responsibilities
- Effective engagement and communication between parties
- Informed decision making
- Risk assessment and mitigation
- A clear shared delivery plan
- Regular reviews of progress

- A recording of key actions taken as works progress
- Continuity in application of agreed processes
- Continuity of responsibility for outcomes
- Verification reporting on progress at key stages

4.2.3. General development of new processes

We will continue to review and understand what can be learned from the processes defined within the Passive House Institute's [Building Certification Guide](#), as a comparative example of good practice and consider other non-certified good practice currently in use. To understand what an effective and robust process looks like and key actions needed to deliver it. And the extent to which such processes can be mapped proportionately to the building standard 'compliance journey'.

- Discussions with practitioners and verifiers will assist in identifying what the key risks are to the effective delivery of a very low energy building and how are they managed.
- Through gap analysis, understand which risks are not adequately addressed within the current scope of building regulations process or standards/guidance.
- Understand how good practice can be applied in a proportionate manner based upon the type, scale and complexity of a project.
- Set out a requirement for recording of information and reporting on specified issues at key points in the building warrant process. This would be through change to relevant regulations.
- Set out expectation in a guide to compliance. This is likely to be a new compliance document issued formally under section 4(2) of The 2003 Act.
- Identify the level of expected action and reporting at each stage of design and construction for each party involved in the building and when the applicant/relevant person is required to engage competent individuals to manage that process. Validation of that process at gateway points by the verifier.

The suggested validation of this process is at three key stages, submission of building warrant, confirmation of response to a CCNP/Compliance Plan when starting work on site and submission of completion certificate with reference to a design and construction stage energy statement/summary. Action at key stages is discussed further below.

Consultation Question 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?

Yes

No

If you answered 'Yes', please provide information summarising your approach and the key benefits you derive from its application in practice.

4.2.4. Preparation and design stage to issue of building warrant

At present, except in the case of pre-application discussions, the verification of compliance with building regulations begins on receipt of a building warrant application.

Advice is [currently published](#) to assist in the preparation of 'right first time' building warrant applications. This includes information on key roles and responsibilities and the principles of the system and options available to applicants.

New design stage guidance should reinforce the principles of good practice – roles and responsibilities, working within competence, effective communication within the design team, informed specification, risk assessment, identifying the elements of the project that contribute to both energy performance and occupant comfort and how these are considered collectively.

The process of making an application for building warrant and the information which must be submitted is set out in The Building (Scotland) (Procedures) Regulations 2004.

Defining expected activity and output from the Applicant from the point at which a design proposal starts to be considered will optimise the content and completeness of a building warrant application.

Regulatory relevance

Regulation 4 and schedules 1 & 2 of the Building (Scotland) Procedure Regulations 2004 set out information which must be provided in support of a building warrant application.

To deliver improved assurance of compliance, there will be a need for more comprehensive evidence of how the submitted design was developed and risks identified and managed. This would include evidence that the applicant has engaged suitably competent persons to undertake work on their behalf, information on design decisions is provided and an overall approach to the delivery of the proposed design and construction elements is set out.

Prior to building warrant application submission, additional prescription on information to be provided under regulation 4 may present the most useful route to drive improved practice. A published guide to compliance and assurance would be referenced as the means by which such a regulatory provision is met and

emphasis would be placed on the importance of management of process from project inception to demonstrate compliance risk has been correctly managed.

Consultation Question 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?

Consultation Question 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?

4.2.5. Post-warrant action and construction phase

At present, the CCNP process is undertaken as a convention, through agreement with verifiers. This forms part of a nationally adopted risk assessment methodology contained in the [Verification During Construction](#) Handbooks, produced by Local Authority Building Standards Scotland (LABSS) and the BSD.

As part of the Compliance Plan Approach, this will be formalised within regulations as a Compliance Plan and will include notification of key actions to support verification of works on site. This would include start of works.

The current system provides a statutory obligation for the ‘Applicant’ to notify the verifier of their intention to commence work on site. Model Form J - Notice Regarding Start of Work’, is sent to the ‘Applicant’ with the approved building warrant. However, this notification does not currently set out a further requirement to put in place a specific monitoring and reporting regime that would provide evidence of compliance with matters within scope of this review. This would benefit from being formalised so that ‘start as you mean to go on’ is again reinforced and actioned.

Setting this expectation will result in information being produced which will support verifiers in their duty to make ‘reasonable inquiry’. It will also reinforce the opportunity for contractors to fully interrogate design proposals and seek any clarification needed to support the effective delivery of proposals on site as well as confirm, to the extent practicable, scheduling of project work, phasing, opportunities for inspection/testing prior to covering up works and the schedule of testing and programme for completion.

If identifying individual contacts responsible for management of work, it can also usefully reinforce the need to continue effective communication across the project team and to ensure that there is continuity of responsibility to deliver a compliant building. For example, effective handover of design information where the responsible party changes during the project.

Regulatory relevance

Development and formalisation of the issue of a CCNP as a Compliance Plan will be introduced by amendment to regulations. We will determine whether the form of changes proposed and the timing of review will also address the need to commence reporting on how compliance processes for construction are recorded. If there is a need for initial amendment to regulations in advance of the Compliance Plan timetable or a further specific requirement to address the scope of action proposed by this review, this will be developed and implemented. Formal initiation of such processes will support effective monitoring of progress and the level of assurance present on completion of works.

Consultation Question 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?

Yes

No

If you answered 'Yes', please provide information summarising your approach and the key benefits you derive from its application in practice.

4.2.6. Completion of project

Collating of relevant documentation by the developer which summarises the construction process applied will improve the robustness of the declaration of compliance made on completion.

Evidence of compliance from the developer, over and above that gathered independently by the verifier during their process of 'reasonable inquiry' will provide more detailed reassurance that compliance with the standards has indeed been achieved. Such information would require to be scheduled in the proposed guide and would require a suitable regulatory trigger for its provision.

The process on completion can be further reinforced by the addition of a compliance summary as part of written information provided to the building occupant under current standard 6.8. There is the potential to explore the inclusion of other key data from this process in other documentation to enable monitoring and reporting on both the delivered building and the process applied. Applying a 'digital first' approach to record keeping where practicable.

Regulatory relevance

Regulation 41 of the Building (Scotland) Procedure Regulations 2004 sets out information which must be provided in support of a completion certificate.

To deliver improved assurance of compliance, there will be a need for more comprehensive evidence of robust process from the developer team. This would include evidence that the construction of the building has followed the intended design and has been correctly managed. At this stage, additional prescription on information to be provided under regulation 41 may present the most useful route

to drive improved practice, recognising that any referenced information would likely rely upon the (up-front) definition of the process of gathering information set at the start of the construction phase.

Consultation Question 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?

Yes

No

If you answered 'Yes', please provide information summarising your approach and the key benefits you derive from its application in practice.

4.2.7. Risk management

At the core of a compliant design is risk management and informed decision making. Identifying core and specific risks. Designing out risk at the start of the project and proofing proposed works within the design team and, later, with the contractor will make delivery of the building a simpler and more effective process.

Example: Avoidance of declaring design values without demonstrating an understanding of how these will be achieved in practice.

Generic performance specifications may be a consideration at an early design stage to help shape the overall solution for a particular building. But specification has to be confirmed to the extent that individual components can be identified, sourced and incorporated with assurance that in combination, the intended outcome will still be achieved. On that basis, any performance specification must be both detailed and drawn from knowledge that the individual components are readily available and compatible with other elements of specification. A clear and detailed specification will also reduce the performance and compatibility risks which can arise from product substitution.

Example: Delivering continuity of insulation layer and effective infiltration control.

Identify the approach that will be taken to achieve both goals. Gain assurance that proposed details and construction build-ups are deliverable on site. Clearly define the components of the building air and vapour control layer (AVCL). Assess and confirm suitability of materials and their application. Show an effective strategy for sealing, well described. Address the risk of unwanted air pathways to the cold side of the AVCL which will reduce the effectiveness of insulation. Take advantage of the opportunity to test continuity of the AVCL once complete, prior to covering up, to offer an early indication of performance against the declared design infiltration rate. Once confirmed and any investigation or remedial action needed is complete, care should be taken in the final fix of finishes prior to any final test.

Consultation Question 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 the compliant solutions are properly considered and delivered as intended?

Yes

No

If you answered 'Yes', please provide information summarising your experience.

4.3 Intent to develop guidance/application in practice

4.3.1. Illustration - elements of a potential guide to compliance and assurance

There is a recognition of the need to provide greater assurance that the energy and environmental requirements sought by building regulations are properly considered at design stage and, on construction, are delivered in practice.

Complimenting the Compliance Plan Approach, the Scottish Government propose the introduction of a "Guide to Compliance and Assurance for Very Low Energy Buildings". This should enhance the actions, processes and mitigate risks in the assurance and compliance of standards related to very low energy buildings. This guide will apply to all new buildings and where work to existing buildings requires a Building Warrant.

To illustrate how development of proposals is progressing to date, the following sections set out an example of a proposed approach to such a guide, developed in partnership with the Scottish Futures Trust.

The proposal identifies processes of compliance and assurance in the context of best practice for very low energy buildings with the intent of change to the format and/or requirements of processes that form the building standard system. At this stage, it is summarised in five sections – discussing the 'Why, When, What, How and Who' of change.

It is the intention to continue development of proposals during and following the consultation period and further information on this work and of any consultation events will be published on the [review webpage](#) and the [consultation webpage](#).

Note: in this section, reference to 'very low energy buildings' is intended to address both energy performance and occupant comfort.

4.3.2. Guidance on compliance - 'Why'

Why is the guide required?

The challenges and complexity of delivering very low energy buildings requires an informed approach to both design and construction to enable risks that can lead to poor performance and longer-term issues affecting both building and occupants to be managed effectively.

Recognition that greater assurance on the effective delivery of projects which can be shown, through robust process and evidence, to meet building regulations will reduce the gap between designed and as-built performance.

Clarity on the base level of expectation from those involved in the delivery of buildings. The purpose of the guide should be to enhance relevant actions and processes to mitigate risks affecting assurance of compliance with the building regulations.

Why a guide over and above best practice?

Not 'over and above'. Any guide should present current good and best practice. Actions taken need to be both achievable and useful in improving the final outcome achieved for the building. It should not, initially, seek to impose actions that are not already recognised as beneficial in supporting a quality approach to construction. Given the nature of the topics addressed, it may go into some detail on certain matters, where the understanding and management of risk is more complex.

'Why' - Recommendations

1. The purpose of the guide is to support an enhanced assurance process for very low energy buildings, it should recognise but is not intended to define the level of challenge of future requirements set by relevant standards.

In that respect, it is reasonable to look at the current implementation of the building standards system and the scope of relevant regulations and functional standards as a template for an improved compliance response. This reinforces the intent to learn from current good and best practice already in use.

2. The guide should consider and identify a wide range of industry best practice, including Passivhaus certification, and execution need not be any more complex than the current engagement on building warrant process.

However, it is to be expected that detail (prescription) on how that process is best served at any given project stage will be integral to an effective outcome. An example would be to clearly define the action expected prior to a building warrant application and information to be provided with that application.

3. Development of a guide should assess and report on similarities and differences to the Passivhaus approach to design and construction through its certification process. This will enable any variant or additional elements used to support assurance to be considered.
4. Similarly any guide should be developed in the context of broader work to deliver the Compliance Plan Approach to offer assurance that its implementation is compatible with that approach and associated legislative changes which are planned.
5. It is essential that development of the guide identifies how its use will align with and enhance the existing building warrant process as planned future review of legislation beyond the Compliance Plan approach. This would include the ongoing improvement programme for delivery verification by both

Local Authority delivery partners and BSD and review of the role of Certification (Certifiers of Design and Construction).

6. The guide should identify industry best practice but should, where practicable, remain agnostic of a defined methodology for compliance and assurance. Offering principles and a framework which can be demonstrated by differing approaches to the same issues.

Consultation Question 21

Do you consider the proposals set out present a reasonable summary of why there is a need for improvement in compliance processes to deliver very low energy buildings?

Yes

No

Please provide information on why you agree or disagree and on any drivers for improvement you consider particularly important.

4.3.3. Guidance on compliance – ‘What’

What sections of the technical standards relate to very low energy buildings and should be applied within the guide?

The Passivhaus Equivalent Working Group has already carried out a series of workshops on the importance and relevance of aspects of the building that will contribute to very low energy buildings. A summary of the workshops can be found [here](#). To deliver very low energy buildings, it is recognised that this will require assurance through a ‘phase-gate’ approach with staged checking across a range of elements including energy systems, building fabric and other building components.

An initial assessment of relevant standards has identified the following candidates:

- Standard 3.13 (Heating)
- Standard 3.14 (Ventilation)
- Standard 3.28 (Overheating risk)
- Standard 6.1 (Energy demand)
- Standard 6.2 (Building insulation envelope)
- Standard 6.3 (Heating system)
- Standard 6.4 (Insulation of pipes, ducts and vessels)
- Standard 6.5 (Artificial and display lighting)
- Standard 6.6 (Mechanical ventilation and air conditioning)
- Standard 6.7 (Commissioning building services)
- Standard 6.8 (Written information)

Further contributory standards may be checked for outcomes, such as standard 3.15 (Condensation) and 3.16 (Natural lighting)

What (additional) information & evidence is needed?

The guide should provide indicative templates that could be used to document the evidence and information requirements per stage (e.g. Design, Construction, Completion). Commonly referred to as an 'information delivery plan', the template would provide users with an indicative list of (minimum) evidence/information deliverables to support the Applicant and the Verifier through the assurance process.

In developing a proposed format, reference should be made to the Compliance Plan Approach and other existing initiatives within the sector including the [Standard Information Management Plan](#).

Also to recognise that the range of risks to be managed will have a common base but will also vary subject to the design approach taken and the elements and level of specification and complexity of solution proposed.

'What' – recommendations

1. Analysis and review of findings from the [workshops](#) held with the working group and development of these and further themes through further engagement with practitioners.
2. The guide should clearly define the relevant buildings standards that contribute to the performance of very low energy buildings and occupant comfort.
3. Assess current industry best practice for areas of validation, certification and verification and consolidate as part of the guide.
4. Develop template information delivery plan for the reporting of the assurance process.
5. Develop an indicative list of evidence/certification, relative to building type and complexity, required at key stages of the design and construction process, linking this to stages of the building warrant and completion process, including pre- and post-warrant activities.
6. Develop an indicative list of testing / certification activities required or recommended to further manage risk, by reporting on intermediate outcomes at key stages of construction.

Consultation Question 22

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

Yes

No

Please provide information on why you agree, or disagree and on what other actions may be useful in driving compliance.

4.3.4. Guidance on compliance – 'When'

At what stages and situations should the guide be adopted and applied?

The intent that this guide should cover the process from design inception to completion and handover. The key gateway points being submission of information with a building warrant application and submission of information with a completion certificate. Each should be informed by the action by the developer and their team up to that point and the construction phase activity should be informed by an agreed Construction Compliance Notification Plan, as this is developed under the Compliance Plan approach.

A guide would be developed with use by the applicant/relevant person in mind, as the party responsible for compliance. A companion document on how this process is supported and interrogated by the verifier would also be developed in partnership with verifiers.

The stages of the building standard process are described in the [Building Standards Customer Journey](#).

This describes the steps:

- Leading up to submission of a building warrant application – stages 1 & 2
- Assessment and issue of building warrant by verifier – stages 3 & 4
- Start of work on site through to completion. Includes any changes to the design which require notified and formally recorded – stages 5 & 6
- Building work complete, completion certificate submitted and accepted or rejected – stages 7 to 9

Within in these, a Construction Compliance Notification Plan would be discussed and agreed at the end of stage 4. Stage 3 & 4 may require to be repeated where an amendment to warrant is needed. Testing of elements of the building occurs during stage 5 & 6, prior to stage 7.

It may be useful to also consider the potential to set out actions against recognised industry workplans – e.g. the RIBA Passivhaus overlay.

‘When’ - Recommendations

1. The guide should confirm that this approach is applicable to all stages of the building warrant process. This is necessary to provide continuity of response across the delivery team as the actions needed to continue to address compliance will change as work progresses.
2. The guide should focus on existing building warrant stages and remain agnostic to industry recognised plans of work / delivery routes. But should, through clear information on action in response to situation, assist those delivering work in understanding how provisions relate to a given project workplan.
3. For consistency, the guide could reasonably adopt the category headings, language and framework promoted as part of the proposed Compliance Plan approach.
4. In developing the guide, we must assess industry recognised plans of work and delivery routes that have adopted and implemented enhanced compliance

for very low energy buildings. This is where deliverable current outcomes will be demonstrated.

5. Scalability of response. Assess and determine the scope for applicable to a wider range of building types and situations (conversion, refurb, extension, etc in addition to new buildings). There may be a need to consider an extension in scope to the types of works requiring a building warrant?
6. The guide would not mandate operational performance monitoring or post project evaluation for the purposes of building standards compliance, but it could promote these activities as best practice. The guide will focus on design and construction and effective action to the point the buildings delivered.

Consultation Question 23

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

Yes

No

Please provide information on points in the process you consider there may be a need for particular emphasis on action to manage the risk of failures in compliance.

4.3.5. Guidance on compliance – ‘How’

The approach to enhanced assurance through the level of enquiry and resources applied to achieve this.

How do you deliver enhanced verification?

Enhanced verification could incorporate provision for:

- More comprehensive and complete information on design proposals.
- How risk is identified and managed in the design process.
- A summary of the process applied to deliver assurance.
- Application of resources that are already part of a risk-based approach to the verification of building warrants to assist the activities above.

How does the level of enquiry change?

Whilst the onus for the collation and presentation of evidence rests with the applicant and their team, verifiers will benefit from revised protocols, training and resource to provide a response to an increased level of relevant information. Review of proposals should ideally become more of an informed conversation between applicant and verifier, reducing the need to interrogate applications due to a lack of information on energy-relevant topics.

This is already noted in the context of ongoing Compliance Plan work:

“The purpose of the Compliance Plan is to demonstrate that the duty imposed on the “relevant person” (usually the building owner or developer) is being managed robustly at the design and construction stages of a project, when

certifying compliance with building regulations and when signing and submitting a completion certificate to deliver a compliant building.”

Enhancements to current verification practice will primarily be a response to the level of expectation defined within the guide on the applicant and their delivery team. It is anticipated that a process which delivers more comprehensive and useful flow of information the verifier will enable a targeted and efficient application of verifier resources.

‘How’ – recommendations

In relation to how enhanced verification will be achieved within a future guide, initial recommendations, to be developed with verifiers, include:-

1. Consider and review the relationship between level of project risk versus verification process applied for very low energy buildings.
2. The guide should promote an enhanced base level of reporting and enquiry, determined as that which is needed to deliver very low energy buildings.
3. The guide should review how current section 6 certification and a reasonable level of enquiry by the Local Authority Verifier can be combined to support improved compliance and assurance.
4. Identify what reasonable level of enquiry is needed over and above the currently accepted process (if any).
5. Consider and review the role of actors who contribute to the verification process for this topic - local authority verifiers, Certifiers of Design or Construction and the role of the new Scottish Building Standards Hub in enhancing verification.

Consultation Question 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?

Yes

No

If you answered ‘Yes’, please provide your views.

4.3.6. Guidance on compliance – ‘Who’

Who are the key people in terms of the compliance and assurance very low energy buildings?

- The applicant/relevant person
- The design team, including any appointed agent
- The contracting team
- The verifier

- Certifiers of design and construction (by function, part of the verification process)

'Who' – recommendations

In relation to the defined roles and competencies within a future guide, initial recommendations include:-

1. The guide should use defined terms of roles currently recognised within the building standards process and reinforce expectation on who does what, and when, to deliver effective compliance and assurance for very low energy buildings.
2. The guide should be Applicant/Building Owner/Relevant Person focussed and emphasise the importance of competence and application of good practice processes for them, the Project Team and the Contractor.
3. The guide should identify any changes (if any) in the responsibility of the Applicant/Building Owner/Relevant Person. This may be affected by ongoing work on the Compliance Plan approach and following [recent consultation](#) and ongoing work on enforcement and sanctions under building regulations.
4. Consider and assess the role of key actors in terms of key relationships, communications and behavioural change needed, including the scope for a coordination function similar to the 'Compliance Plan Manager' proposed as part of the Compliance Plan Approach.
5. Work with current scheme providers to assess the capacity, capability and competency of the existing Section 6 Certifiers in the context of delivering a good practice approach for very low energy buildings.
6. Consider review and any recommendations arising from current work around the capacity, capability and competency of the existing Local Authority Verifier resource in this context.
7. Consider review and any recommendations made on the need for upskilling across all key roles (Applicants, Designers, Main Contractors, Verifiers), for example as part of Continued Professional Development.

Consultation Question 25

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

Yes

No

Please provide information on anything else you consider to be relevant to the actions of such parties.

5 Call for information on current standards

5.1.1. Background

This section of the consultation seeks your views on a small number of more general topics, not specifically associated with the commitment to deliver ‘a Scottish equivalent to the Passivhaus standard’. But which are material to the ongoing development of energy and environmental standards set by building regulations. Including the broader context within which these changes would be developed and proposed.

5.1.2. February 2023 design specifications

Information on the energy standard review to date is published at [Energy Standards Review – Scottish Passivhaus Equivalent: Working Group - gov.scot \(www.gov.scot\)](https://www.gov.scot/standards-review-scottish-passivhaus-equivalent-working-group). This included a call for evidence to gather information on current newbuild specifications being proposed under the February 2023 or April 2024 standards. This information would support development of an informed baseline for the current research into review of domestic and non-domestic energy targets.

Whilst research to determine the current baseline for improvement has now commenced, we would still welcome evidence from designers and developers, particularly on solutions which do not use direct emission heating systems.

“The Building Standards Division are inviting those who are currently designing buildings to the February 2023 standards to play a key part in how a Passivhaus equivalent standard may look in Scotland. If you would like to contribute calculated energy performance data and design specifications for buildings being designed to the February 2023 energy standards then please forward these to buildingstandards@gov.scot with an email title ‘Call for evidence – February 2023 design specification’.

Any information received will be recorded and anonymised to support reporting on the current energy baseline for new buildings. No information identifying individual developers or developments will be stored or published.

Such information can, where possible, be submitted separately and in advance of any consultation response.

Consultation Question 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 would be happy to share with us?

Yes

No

If you answered ‘Yes’, please send calculation output sheets which detail your building specification(s) to buildingstandards@gov.scot with the subject title ‘Call for evidence – February 2023 design specification’.

5.1.3. Topic - the current approach to target setting and overheating risk

The updated provisions in February 2023 introduced a new delivered energy metric and a simpler approach to the assignment of benefit from onsite generation. It also revised the specification of the previous notional buildings and identified targets specific to use of heat pump solutions. We would welcome any feedback you may have from applying the revised standard 6.1 for new homes and non-domestic buildings.

Please do not include comments on standard 6.11 and the April 2024 New Build Heat Standard as a [commitment to review aspects of that standard](#) is already being progressed separately.

The standards also introduce the need to assess overheating risk in dwellings and similar non-domestic buildings from the perspective of user comfort for the first time. Whilst not directly relevant to the current review, we would welcome any feedback you may have in demonstrating compliance with standard 3.28 (overheating) and the approach taken, simple or modelled route.

Consultation Question 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?

Yes

No

If you answered 'Yes', please provide information summarising your experience.

5.1.4. Topic - newbuild heat network connections

With the introduction of the New Build Heat Standard in April 2024, new buildings are required to no longer use direct emission heating systems. This will result in a significant increase in application of both electric heating solutions and, where available, heat network connections.

In February 2023, we amended the approach taken in setting building targets under standard 6.1 (energy demand). Connection to a heat network was recognised as a 'zero direct emissions' solution and was no longer required to meet an emissions target. Instead, the requirements for the performance of a new building were standardised, with supplied heat being deemed 100% efficient, and new building required only to demonstrate compliance against a delivered energy target (defined using a less efficient heat source).

This approach sought to enable any new building to connect to any new or existing network without the specification of the building having to respond to, or compensate for, the performance of the connecting network. With the performance of the heat network to be addressed separately through planned heat network regulations.

We are keen to hear of any projects where connection to a [district heat network or a communal heating system](#), new or existing, has or is being considered or is now being implemented. And the extent to which the current approach to energy targets set under standard 6.1 affects consideration of such solutions. This would include any information you have on the assessment of the comparative cost of delivering a heat network building compared to other heating options.

Consultation Question 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?

Yes

No

If you answered 'Yes', please share any information you consider influenced the outcome of those projects, with reference to the type of system (district or communal) and the impact of current energy targets in particular.

If you answered 'No', please confirm the reason for not considering a heat network solution.

5.1.5. Any other issues relevant to this review

Consultation Question 29

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

Yes

No

If you answered 'Yes', please provide information summarising your experience.

6 Proposed delivery programme

The following indicates the proposed updated programme to deliver the current energy standards review and the commitment on a Scottish equivalent to the Passivhaus standard.

6.1 Development

6.1.1. Stage 1 – Define an ‘equivalent’ and laying of regulations

July 2024 - This consultation, setting out principles and supporting processes to allow changes to regulations to be confirmed as enabling actions. Based on current industry engagement, to define and seek views on a series of principles which will describe the basis of a Scottish equivalent to the Passivhaus standard deliverable within building regulations.

Summer/Autumn 2024 - Continue research to identify the scope for further improvement in standards and understand how this is represented in the compliance tools currently available. To enable this to be presented within a more detailed consultation during 2025.

October/November 2024 - Consultation analysis and finalise impact assessments; recommendation to Ministers. Engage on the development timetable for a second 2025 consultation and draft assessment tools.

December 2024 - Submission seeking approval to lay amendments to The Building (Scotland) Regulations 2004 to enable implementation of the proposed standard; supported by a stage 1 Business and Regulatory Impact Assessment (BRIA). Laying amending regulations on 12 December 2024. Commission delivery of compliance tools.

6.1.2. Stage 2 – Develop and deliver guidance documents and tools

Winter/Spring 2025 - Complete research to inform the detailed proposals within a stage-two consultation. Continue work on assessment tools; procure and deliver draft tools for consultation use.

Summer 2025 - Consultation on detailed proposals for the new standard and supporting compliance processes; supported by draft assessment tools.

Autumn 2025 - Consultation analysis and publication of the Scottish Government response.

Early 2026 - Ministerial submission seeking approval to confirm changes to published guidance and within approved calculation tools to enable application of the confirmed new standard; supported by an updated BRIA. Publish updated Technical Handbooks and supporting compliance guides. Make final compliance tools available.

6.2 Implementation

6.2.1. Stage 3 – Revised standards come into force Completion of the review process

To date, the Scottish Government has been clear to stakeholders that the date of implementation for the Passivhaus equivalent standard will be agreed following consultation in Summer 2024. A decision on timing should take place once the summary report from the July consultation is published, to enable confirmation of an in-force date for the December regulations.

Should recognition of Passivhaus certification as an alternative means of compliance be confirmed, as discussed in section 3.6, that element of the review could be implemented to a shorter timetable, subject to verification processes being agreed and published.

It is the intent that all information and tools needed to enable the application of the new standards will be in place for early 2026. Two options for implementation are proposed.

Option 1 - 2026 implementation

Implementation not less than three months after publication of the review output. Based upon the proposed programme and outcomes sought, this would suggest an in-force date of no earlier than 1 May 2026. Revised standards would apply to all applications for building warrant submitted on or after a confirmed date.

Option 2 - 2028 Implementation

Implementation on publication in early 2026, initially as a voluntary standard. Agree the period for operation as a voluntary standard, for example two years. Bring in as a mandatory standard in early 2028. This is currently the preferred option.

This recognises that significant changes to energy standard were made recently in both February 2023 and April 2024. It will enable further development of sector skills and capacity during that a period and would also support further integration of compliance measures with the broader Compliance Plan approach which is likely to be implemented during 2026.

Consultation Question 30

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

- Yes
- No
- Not sure

Please provide information on why you agree or disagree or if you consider other actions need to be considered.

Annex A - Notes on proposed amendment of regulations

A.1 Defining change in statute

Both regulations and standards focus on defining expected outcomes, with published guidance providing the details needed to achieve said outcomes in the case of the latter. Accordingly, regulatory changes to confirm a Scottish equivalent to the Passivhaus standard should only be sought where there is no current appropriate mechanism to deliver a required review outcome or a component of that outcome.

A.2 Defining change in regulations

The setting of requirements through regulations is intended to be precise and prescriptive in the description of a defined outcome. With few exceptions, current regulations applicable to construction work do not set detailed prescription on specific built outcomes. The exception to this is recent amendment to [regulation 8](#), where the specification for the performance of particular building elements (relating to fire safety) are prescribed. The current delivery of energy and environmental standards is achieved with only high-level provisions set out within regulations.

Accordingly, there must be certainty that the level of prescription and lack of flexibility associated with a direct regulatory provision is justifiable and cannot be achieved by other means.

A.3 Defining change within the mandatory standards

It is the nature of the mandatory standards set out in schedule 5 to regulation 9 that they are better able to describe general outcomes than offer overt prescription on solutions to achieve compliance. There are few exceptions to this position and also, again with limited exceptions, the standards, as descriptions of functions or outcomes, seek to avoid use of numeric indicators. Such indicators are generally only used to define the scope of application of the standards.

A.4 Defining change in guidance

The nature of the current implementation of the regulations and the use of the mandatory standards set out in schedule 5 to address specific functions or outcomes of construction work means that much of the detail on what 'is expected' in terms of compliant solutions is set out in supporting guidance within the BSD Technical Handbooks.

This is the most common means of effecting change where a topic is already addressed by a given standard or regulation. Defining expectation through guidance, which will offer the most common means of achieving the outcome the regulatory element seeks, provides a degree of flexibility which is generally beneficial, supporting both innovation and cost effective solutions to requirements.

A.5 Commentary on final proposal to Parliament

Internal review has not identified any regulatory changes which would be essential to the delivery of the potential scope of change currently proposed. The present application of standard and supporting guidance would generally be robust enough to deliver the intended outcomes provided that there were sufficient specific indicators of the key actions expected set out in guidance.

However, the key word in that assessment is 'expected'. Guidance cannot mandate a particular action, particularly where there are viable alternative options which deliver at least as effective an outcome. Guidance is an effective tool in defining 'expectation'. If a particular outcome must be achieved or delivered in a particular way, guidance alone may not suffice. Reference can be made again to the expansion of regulation 8 to address specific risks arising from combustibility of external wall cladding systems.

The need for regulatory change in December is linked to the level of prescription required to deliver the proposed overall 'standard'. The outcomes sought are:

- Improved targets from new construction which further reduce to delivered energy needed at the building; robust environmental standards to address thermal comfort and indoor air quality.
- Improved assurance of process to demonstrate that the standards required are delivered in practice.

The potential areas of prescription that may be needed to deliver the above are:

- Declaration by responsible person on the approach which will be taken and the parties engaged to deliver the required outcome for the building.
- The manner in which outcomes are set or to be demonstrated. This may recognise more than one route.
- Prescription on specific performance outcomes or elements where these are deemed essential to support the broader outcome sought by an improved standard.
- Exceptions to the application of a given standard.
- Requirements on the reporting of information at design stage to demonstrate competence of approach, effective communication and risk management.
- Requirements for reporting of information at construction stage to show that design intent is clear, understood and implemented correctly.
- Evidence of testing and commissioning.
- An expanded or additional attestation of compliance, supported by a summary of process and key documents.

A.6 Interaction with the ongoing Compliance Plan approach and planned broader legislative change.

Information on the current Compliance Plan workstream can be found at: [Compliance plan approach workstream - Building standards - Futures Board Programme: workstream information - gov.scot \(www.gov.scot\)](#). Initial views on the Compliance Plan approach were sought through [consultation](#) in 2021/22.

Whilst the Compliance Plan (CP) approach is focussing initially on high risk buildings and will seek to address life safety issues foremost, it will provide the means of delivering a more robust approach to compliance across the building standards system.

Work will continue to provide assurance that there is compatibility between broader proposals and any confirmed amendments to regulations and processes to deliver this current review. The energy standard review can be seen as a test case for how

broader compliance topics can be developed, tested and implemented within the planned CP regime.

It is recognised that there is the potential that later publication of regulations to implement the CP approach may repeal and replace certain provisions introduced in December, should a given topic then be addressed within the broader scope of the CP regulations.

A.7 Recommendation

It is recommended that detailed proposals be put forward in consultation to seek views on topics such as the level of prescription in target setting or in evidencing a robust approach to compliance – elements needed to support a more effective implementation of standards and achieve the outcomes sought by this review, those again being:

- Improvements to the setting of energy performance and ventilation standards for new buildings, leading to lower energy demand (and reduced running costs) and a healthy indoor environment.
- This should be a level of action, deliverable at a national level, which reflects the needs of building users and strategic policy objectives around climate change, energy policy and the built environment.
- Improvements to the design and construction process to give greater assurance that compliance, and therefore the performance sought, is delivered in practice.

At present there are no changes to regulations identified as essential to deliver ‘a Scottish equivalent to the Passivhaus standard’. There are, however, several candidate topics where amendment of regulations would be conditional on the confirmed scope of change. Or to enabling a more direct and specific approach to a number of topics, primarily relating to implementation of a more detailed reporting to increase assurance of compliance with the regulations.

A.8 Candidate changes

[The Building \(Scotland\) Regulations 2004](#)

- Introduction of new defined terms presented in Regulation 2.
- Introduction of prescription on action to address specific aspects of the delivery of work within Regulation 8 (Durability, workmanship and fitness of materials), if justified and no simpler mechanisms identified.
- Four potential candidates amongst relevant mandatory standards (schedule 5 to regulation 9) on the topics of ventilation (3.14), energy demand (6.1), building insulation envelope (6.2) and commissioning of building services (6.7), including:
 - Review of standard 6.1 to recognise validated Passivhaus certification at design and completion stages as an alternative to a compliance calculation.
 - The potential for prescription on the face of the relevant standard if a specific approach to compliance is justified and de-risked.
 - Potential use of Regulation 11 (Building standards – service, fitting or equipment) to introduce prescription on action during construction to increase

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assurance that design intent is achieved. Again, if justified and no simpler mechanisms identified.

- The option to define a new and specific requirement under a new regulation if a required change is needed and no other appropriate route is identified.

[The Building \(Scotland\) \(Procedures\) Regulations 2004](#)

- Introduction of new defined terms presented in Regulation 2.
- Additional prescription within Regulation 4 (making an application for building warrant) and/or Regulation 41 (submission of completion certificates) on the type of information which must be provided to the verifier at such points in the building standards process to demonstrate competent process on relevant matters.

A.9 Next Steps

Review and update the above assessment following responses to this Stage 1 consultation. Based upon the proposed work programme, changes to regulations should be established in principle as either essential to deliver the review outcomes or the most effective way of signalling any required change in process.

Update and agree a list of relevant regulatory changes to progress the laying of amending regulations in December 2024.

Annex B - Draft Business and Regulatory Impact Assessment (Stage 1 review)

1. Title of proposal

The Building (Scotland) Amendment (No. 2) Regulations 2024 – Determining the principles for a Scottish equivalent to the Passivhaus standard

2. Purpose and intended effect

2.1. Background

The building standards system in Scotland is established by [The Building \(Scotland\) Act 2003](#) (The 2003 Act). The purpose of the building standards system is to protect the public interest. The system regulates building work on new and existing buildings to provide buildings that meet reasonable standards which:

- Ensure the health, safety, welfare and convenience of persons in or about buildings and of other who may be affected by buildings or matters connected with buildings,
- Further the conservation of fuel and power, and
- Further the achievement of sustainable development.

The building standards system is pre-emptive and is designed to check that proposals meet building regulations. The main principles of the system are that a building warrant must be obtained from a verifier before work commences on site and a completion certificate is accepted by a verifier if, after undertaking reasonable inquiry, they are satisfied the building work meets the building regulations, prior to the building being occupied. The thirty-two local authorities in Scotland are appointed by Scottish Ministers as verifiers to administer the building standards system in their geographical areas. Responsibility for compliance with the building regulations lies with the “relevant person” as the party instructing building work and, ultimately, with the building owner.

Following the introduction of the Building (Scotland) Act 2003 and our current system of building standards in May 2005, energy standards within section 6 of the Building Standards Technical Handbooks were reviewed and improved in 2007, 2010, 2015 and most recently in February 2023.

Each review introduced further staged improvement to energy standards and related changes on topics such as ventilation. It is assessed that emissions arising from energy use in new buildings constructed to the February 2023 standards are, on aggregate, around 32% lower for new homes and 20% lower for new non-domestic buildings, compared to the previous 2015 standards and more than 80% lower than standards in force in 1990, the baseline reporting year for CO₂ emissions.

A further, specific change was introduced this year by the [New Build Heat Standard](#), which applies to new buildings and certain conversions where a building warrant application was submitted from 1 April 2024. The new standard

(6.11) requires, with few exceptions, that new buildings must no longer use 'direct emission heating systems' for space or water heating or cooling.

2.2. Objective

The purpose of this review is to consider changes to the requirements and processes set within [The Building \(Scotland\) Regulations 2004](#) (as amended) and associated regulations (Building Regulations). Changes under consideration are to introduce a Scottish equivalent to the Passivhaus standard. The intent is that these changes will deliver two outcomes:

- Improvements to the setting of energy and environmental (ventilation) performance and standards for new buildings, leading to lower energy demand (and reduced running costs) and a healthy indoor environment; and
- Improvements to the design and construction process to give greater assurance that compliance, and therefore the performance sought, is delivered in practice.

This Draft Assessment considers the first of two stages in the review which will consider the technical, commercial and wider policy implications of improvements to energy and environmental standards in the context of broader action by the Scottish Government on climate change, to further our ambition of becoming a net-zero society by 2045.

This initial stage and the related consultation does not set out the details of proposed new standards or performance targets. That will be set out in a further stage and public consultation in summer 2025.

This initial stage seeks views on the form and approach that a Scottish equivalent to the Passivhaus standard, implemented through building regulations, should adopt. It seeks information to enable confirmation of the extent of amendment of regulations, proposed for December 2024.

2.3. Rationale for Government intervention

The Scottish Government is committed to reducing greenhouse gas emissions. [The Climate Change \(Scotland\) Act 2009](#) introduced the most ambitious climate change legislation anywhere in the world. The Scottish Government has committed to stop contributing to climate change within a generation. The Climate Change (Emission Reduction Targets) (Scotland) Act 2019 includes a legally binding target of net zero greenhouse gas emissions by 2045.

Scotland's commitment to reach net-zero greenhouse gas emissions by 2045 means a fundamental transformation of our economy. The document, 'A National Mission for a fairer, greener Scotland' was published on 23 March 2021. The Report provides practical advice to Scottish Government Ministers, through 24 recommendations, on how to deliver on a Just Transition to a net zero future. This includes recognition of the benefits that national regulation can play in driving change.

With the introduction of the New Build Heat Standard (NBHS) in April 2024 there has been a shift in focus in the way we heat our new homes and buildings. Apart

from cooking, new buildings can be seen as contributing ‘zero direct emissions’ which positively contributed to achieving our 2045 targets. A step reduction in delivered energy use will aid the reduction of any associated upstream emissions as a result of production of the energy used in the operation of new buildings.

In December 2022 the Minister for Zero Carbon Buildings, Active Travel and Tenants’ Rights confirmed that, in response to Alex Rowley MSP’s [Proposed Domestic Building Environmental Standards \(Scotland\) Bill](#), the Scottish Government would make subordinate legislation by 14 December 2024 to give effect to Mr Rowley’s final proposal “to introduce new minimum environmental design standards for all new build housing to meet a Scottish equivalent to the Passivhaus standard, in order to improve energy efficiency and thermal performance”.

2.4. The risks to be addressed

The actions proposed within this review are the reduction in delivered energy demand and improvement in the indoor environment whilst introducing a robust compliance regime.

The reduction in energy use for new development will contribute positively to the development of the Scottish Government’s Climate Change, Energy Strategy and Fuel Poverty Programmes.

In delivering further improvement, there are subsidiary risks that must also be considered. Minimum standards applicable to new buildings should still:

- be achievable across the whole of Scotland
- be proposed with an understanding of the potential cost of improvement to the delivery and operation of buildings;
- remain technically feasible;
- offer flexibility in the ways which standards can be achieved, to allow best value;
- ensure proposals do not conflict with or duplicate other regulatory requirements; and
- be implemented with consideration of wider societal issues related to the occupation and use of buildings.

3. Consultation

3.1. Development phase

Before making or amending building regulations, Scottish Ministers are required, under Section 1(2) of [The Building \(Scotland\) Act 2003](#), to consult “such persons as appear to them to be representative of the interests concerned”.

Prior to public consultation on the proposed changes to regulations, this duty is discharged through the development of proposals by a [Departmental Working Group](#), comprising of officials and representatives of industry, together with communication with other parts of Government and bodies representing

organisations of the construction industry. This is intended to provide assurance that proposals are proofed against the considerations previously identified above.

In 2023, Scottish Ministers approved a Departmental Working Group to consider amendments to building regulations in respect of taking on the effect of Mr Rowley's final Bill proposal. Along with government officials, the Working Group included members of local authority verifiers, designers, building services engineers, energy modellers, academia and private sector organisations representing the commercial and domestic sector.

Over four meetings between June 2023 and July 2024 alongside seven technical industry workshops, this group helped shape the development of proposals for consultation.

[Themed industry workshops](#) were held through Autumn/Winter 2023 to gather feedback on a number of topics related to very low energy building design and construction. Working Group members and wider industry stakeholders have been actively engaged in the review process to date. However, a position of consensus on what a Scottish equivalent to the Passivhaus standard should look like has so far not been reached.

Information on the review process to date, including membership of the Working Group is published at: [Energy Standards Review – Scottish Passivhaus Equivalent: Working Group - gov.scot \(www.gov.scot\)](#).

3.2. Within Government

Building Standards Division has a network of stakeholder organisations with an interest in building regulations. Government organisations and departments with a policy interest in proposals are contacted in respect of these proposals and consultation documents are made available to these bodies.

This includes direct contact and discussion with the following during the development phase. This ensures that the implications of options on other policy areas is clearly understood and that proposals are developed with an awareness of similar or related work elsewhere within the UK.

- Scottish Government Directorate General Communities
- Scottish Government Directorate General Net Zero
- Building Regulations, Wales
- Building Regulations, Northern Ireland
- Building Regulations, England (Health and Safety Executive)
- Building Regulations, England (Department for Energy Security and Net Zero)
- Building Regulations, England (Ministry of Housing, Communities and Local Government)

3.3. Business consultation

While changes to building regulations affect any party who chooses to build a new building or carry out new building work to an existing building, such changes have the most significant impact on parties involved in the delivery of such building work for example; designers, developers, contactors; and manufacturers of building products.

Businesses have been represented on the Departmental Working Group through the development phase of this consultation and have also been represented on a range of themed industry workshops through Autumn/Winter 2023

Further engagement with businesses will be organised once the consultation has been launched to enable a full discussion on the technical and financial implications of the proposed changes on Scottish firms. This will be initially on the principles for regulation proposed within the 2024 consultation. Engagement with businesses will continue through 2025 as the second consultation on detailed proposals is launched.

3.4. Public consultation

This Partial Impact Assessment forms part of a package issued for public consultation. This consultation seeks general comment on principles and processes to allow changes to regulations to be made in December 2024 as enabling actions.

Notification of the consultation is issued to a list of individuals and organisations previously identified as having an interest in building standards.

The full consultation package will be published on the Scottish Government website for a period to twelve weeks from July to October 2024.

4. Options

4.1. Sectors and groups affected

These proposals affect all persons who develop and deliver new buildings or new construction work and, ultimately, those who will own or occupy such buildings.

Sectors and groups directly affected can be categorised as:

- Persons procuring or occupying new buildings or building work, who may need to bear any additional costs associated with delivering buildings which have improved energy performance. Whilst this relates to a specific activity, the group who may be affected at one time or another can be considered to be the majority of the population.
- Developers who, in addition to the above, would have to review existing building specification, construction detailing and, potentially, methods of working. This might include, where relevant, seeking amended Scottish type approvals for standard constructions, possibly sooner than otherwise intended.

- Building materials and component manufacturers, who may need to review and introduce changes to products and literature to address revised performance standards.
- Those involved with the energy aspects of building design and construction, who would have to familiarise themselves with any revised standards and methodologies.
- Building services contractors, who may need to invest to increase the capacity for commissioning and testing of buildings and engineering services.
- Local authority verifiers, who may need to arrange training of staff on changes to energy standards and guidance, to ensure these can be verified at design submission and during construction where necessary.

4.2. Option Development

At this stage, we are seeking consultation responses to enable confirmation of any changes to current building regulations needed to enable the actions that would define the improved targets and processes of a revised standard. There are therefore limits to the available evidence at present.

The purpose is to identify where changes required to be made to current building regulations to enable actions that are identified as necessary to achieve the outcomes described in section 2.2

The nature of the regulatory changes can be confirmed. However, a full understanding of the costs and benefits of final changes will only be derived once the detail of changes to standards and performance targets and processes are set out next year. A full assessment of the cost and benefit arising from options will be presented in support of the second stage consultation in summer 2025.

Indicative costs of achieving an elemental standard approaching that associated with Passivhaus were included in the final assessment of options for the 2021 consultation on energy standards. This indicated a potential further uplift of capital cost to development, over and above the implemented options of 2-3% for new homes (resulting in a net increase in overall cost for a ten year policy period of approximately £ 300M) and up to 2% for new non-domestic buildings (resulting in a net increase in overall cost for a ten year policy period of approximately £ 80M).

This now requires to be re-evaluated in the context of current costs and the New Build Heat Standards and the omission of mains gas heating. This work is currently being undertaken and will enable an updated assessment of approximate impact to be provided post-consultation in November 2024.

An initial assessment of likely costs will be presented on conclusion of this 2024 consultation and will be based upon an update of components of the previous 2021 consultation and the outcome of new commissioned research currently underway. This will illustrate the likely impact of change and will be presented to

enable an informed decision to be made on the extent of amendment to current regulations for December 2024.

It is again stressed that the full detail of proposed changes will determine the overall impact of the delivery of the new standard and its component parts – improvement to standards and targets and improvement towards a stronger, evidence-led approach to demonstrating compliance with energy and environmental standards.

5. Regulatory and EU Alignment Impacts

5.1. Intra-UK Trade and International Trade

An assessment has begun on the impact of these proposals to international trade and also in respect of trade within the UK. The measures proposed relate to the function or performance of construction work. They do not prescribe measures which:

- have the potential to affect imports or exports of a specific good or service, or groups of goods or services;
- affect trade flows with one or more countries; or
- include different requirements for domestic and foreign businesses.

At present, the proposals do not define technical regulations or conformity assessment procedures for which a relevant standard does not exist.

Accordingly, proposals do not require a submission of a Technical Barrier to Trade notification to the World Trade Organisation.

5.2. EU Alignment

The subject of this review has material relevance to impact on the Scottish government's policy to maintain alignment with the EU.

Energy standards set through building regulations formed part of the transposition of Directive 2010/31/EU on the energy performance of buildings, with changes as recent as June 2023 continuing cognisance of issues relevant to the transposition of that Directive.

Recent amendment of this Directive as (EU)2024/1275, such as the phasing out of fossil fuels from new buildings, have already been put in place in support of our domestic heat decarbonisation agenda, through the April 2024 New Build Heat Standard.

Work is ongoing to assess the continued opportunities for alignment as we review relevant standards. The topic of this review supports the more effective delivery of very low energy buildings and proposals in development for the second stage of this review will reference such opportunities and options in more detail.

6. Scottish firms impact test

The Scottish firms' impact test regards all firms with fewer than 50 full-time employees as being small businesses. The majority of small firms have fewer

than 10 employees and guidelines state that a concerted effort should be made to consult them over policy proposals.

Businesses have been represented on the Departmental Working Group through the development phase of this consultation and have also been represented on a range of themed industry workshops through Autumn/Winter 2023. Further engagement with businesses will be organised once the consultation has been launched to enable a full discussion on the technical and financial implications of the proposed changes on Scottish firms. A summary of engagement on the principles proposed will be provided within the final version of this document for November 2024.

Due to the staged format of the review and the presentation of detail on the nature of proposed technical and procedural change, it is intended that the most significant engagement with business will occur in the period leading up to and during the second stage consultation in summer 2025.

7. Competition assessment

Having reviewed the five competition filter questions provided with the Competition and Markets Authority Fair Trading document “Competition assessment guidelines, Part 2: guidelines”, it is considered that proposals set out in this consultation will not result in a significant impact on competition within the market place.

In support of the above, it is noted that:

- The manner in which standards for new buildings are set allows for flexibility in the solutions adopted which reduces the emphasis on performance of individual products or solutions;
- New regulations and improved standards are a recognised driver to product improvement and to innovation and as such, an element of challenge to all parties involved in delivering products and services is expected.

No significant areas where issues of competition, restriction or imbalance will arise have been identified as part of this first stage of the review.

8. Consumer assessment

The Scottish Government definition of a consumer is “anyone who buys good or digital content or uses goods or services either in the private or public sector, now or in the future.”

While changes to building regulations affect any party who chooses to build a new building or carry out new building work to an existing building, we must recognise that consumers will eventually use or live in these buildings.

New regulations and improved standards are a recognised driver to product improvement and to innovation and as such there is likely to be an associated cost uplift due to the changes that are brought about by the improvement in building standards. Any potential cost uplifts will be reported in an updated BRIA as part of the second consultation in Summer 2025.

At this stage, the proposed changes do not create any adverse impact on consumers beyond what may reasonably be expected by a regulatory regime of this type (application of minimum standards to a process).

9. Test run of business forms

There are no new business forms proposed within any of the proposals identified. The need for such forms will be reassessed during the second stage of the review.

10. Digital impact test

The proposals put forward relate to the provision of physical systems within newly created buildings. These requirements are set through national regulation and implemented as part of construction work. As such, there are no direct implications or unintended consequences identified in relation to the impacts of digital technology and technological services.

Of indirect relevance, it can be noted that digital technology is implemented widely within the construction and housing sectors in the management of information and to improve productivity and outcomes. Correspondingly, the Scottish Government has an improvement agenda that include the increased use of digital solutions in the management of the building standards process.

For the building standards system, this includes an online portal for the submission of applications and approval of building warrants required for the construction of new dwellings. Ongoing development of this digital strategy is a workstream being continued under the [Building Standards Futures Board](#).

11. Legal aid impact test

Proposals within this consultation that would be the subject of regulation follow established process and premise. It is not anticipated that there will be any greater demands placed on the legal system by the proposal. Accordingly, it is not considered that there will be any effect on individuals' right of access to justice through availability of legal aid or on possible expenditure from the legal aid fund.

This will be reviewed further during the consultation and this aspect of proposals will be verified in discussions with officials from the Scottish Government Access to Justice Team prior to the production of a final impact assessment

12. Enforcement, sanctions and monitoring

12.1. Background

The proposed changes in this consultation will identify where amendment is needed to the Building (Scotland) Regulations 2004 and the Building (Scotland) (Procedures) Regulations 2004. Following a second consultation in Summer 2025, review will extend to the modification of the supporting guidance to the regulations and standards (issued by the Building Standards Division of the Scottish Government) that support the Regulations. This would include the Technical Handbooks list the mandatory functional standards set out under

Regulation 9 of the Regulations and give guidance on ways of complying with these mandatory functional standards.

All matters relating to enforcement, sanctions and monitoring will be carried out under the existing processes, which form the building standards system in Scotland, as set out under the Building (Scotland) Act 2003. Parties responsible for operation of this system are currently the 32 Scottish local authorities, appointed as verifiers under the Act, and the Building Standards Division, on behalf of Scottish Ministers.

12.2. Enforcement and sanctions

Work subject to the Building (Scotland) Regulations 2004 generally requires that a building warrant must be obtained before work commences and to have a completion certificate accepted once works are finished. Whether or not such work requires a building warrant is set out under Regulation 5 of the Regulations, the person responsible for the building or work, the 'relevant person' as defined in Section 17 of the Building (Scotland) Act 2003, is required to ensure compliance with building regulations.

Where a building warrant is required, proposals are subject to the scrutiny of verifiers prior to approval of building warrant or acceptance of a completion certificate. Local authorities have enforcement powers under the act to ensure compliance with approvals and the Regulations. Cases of non-compliance can be referred to the Procurator Fiscal and persons found guilty of offences in terms of the Act are liable on summary conviction to a fine not exceeding level 5 on the standard scale. Separate work is underway to review the sanctions which can be applied to non-compliance with building regulations.

12.3. Monitoring

The objective of this exercise is to deliver a reduction in delivered energy and a healthy indoor environment alongside the introduction of a robust compliance regime in new buildings through changes to building regulations. Building regulations are applied within a legislative framework summarised above. In line with Scottish Government policy, any implemented changes which address this issue should be subject to a review within a 10-year period. Any such review shall be accompanied by a further Impact Assessment.

12.4. Implementation and delivery plan

On completion of the current consultation the results will be analysed and feed into the process of laying enabling regulations in December 2024. This will satisfy the requirement to give effect to Mr Rowley's final 2022 Bill proposal by the laying of regulations.

A second consultation will be launched in Summer 2025 on the detailed proposals for technical and procedural changes enabled by the amended regulations. An updated suite of Impact Assessment will support this consultation.

An implementation date for changes will be confirmed on the laying of enabling regulations in December 2024. Dates of 2028 and 2026 are currently identified

as options. A suitable period will be set between publication of the full suite of changes and their implementation under building regulations.

12.5. Dissemination

This Partial Impact Assessment forms part of a package issued for public consultation. This consultation seeks general comment on principles and processes to enable changes to regulations to be made in December 2024 as enabling actions.

Notification of the consultation is issued to a list of individuals and organisations previously identified as having an interest in building standards..

The full consultation package will be published on the Scottish Government website for a period to twelve weeks from July to October 2024. The outcome will be disseminated to respondents and published on the Scottish Government website. It will also inform the second stage consultation within which the details of proposed changes to standards, targets and processes will be set out.

13. Post-implementation review

Review will be carried out by the Building Standards Division considering the implementation of the change made to building standards legislation and supporting Technical Handbook guidance. This review will monitor the effectiveness of the changes and ensure that subsequent reviews can be made on an informed basis. This will be done through engagement from early 2026 initially with bodies representing trades, designers, verifiers and the industry in general. Engagement will increase once the revisions are applied in full, with a potential implementation date of early 2028.

14. Recommendation

This current review of building regulations is being undertaken in two stages.

A full understanding of the costs and benefits of change will only be evident once the detail of changes to standards and performance targets and processes are set out next year. A full assessment of the cost and benefit arising from options will be presented in support of the second stage consultation in summer 2025.

At this stage, we are seeking consultation responses to enable confirmation of any changes to current building regulations needed to enable the actions that would define the improved targets and processes of a revised standard. There are therefore limits to the available evidence at present.

An initial assessment of likely costs will be presented on conclusion of this 2024 consultation and will be based upon an update of components of the previous 2021 consultation and the outcome of new commissioned research currently underway. This will illustrate the likely impact of change and will be presented to enable an informed decision to be made on the extent of amendment to current regulations for December 2024.

We recommend that review progress to public consultation on this basis to enable information needed to support amendment of regulations to be gathered

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and an initial assessment of cost and benefit prepared for inclusion in the final
business and regulatory impact assessment.

15. Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Signed by the accountable Minister:

.....
Paul McLennan MSP, Minister for Housing

Date: DD MMMM YYYY

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Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-83601-591-8 (web only)

Published by The Scottish Government, July 2024

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1486438 (07/24)

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