

Response ID ANON-ZJG1-F2PB-6

Submitted to Building Regulations: Determining the principles for a Scottish equivalent to the Passivhaus standard: Stage 1 consultation
Submitted on 2024-10-23 13:36:55

Consultation proposals

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?

No

In the text box below, please provide information on why you agree or disagree or if you consider other actions need to be considered.:

- Point 1: We agree with point 1 - you should not mandate that full Passivhaus is adopted on all new build projects in Scotland. Building Standards need to set ambitious but also achievable performance requirements for all new buildings, not mandate a particular scheme to achieve these levels.
- Point 2: If the outcomes aren't as good as Passivhaus we do not think it is equivalent. If the targets and metrics are not achievable for every building straightaway can a timeline/roadmap to get there be put in place instead?
- Point 3: Again if the standard isn't as prescriptive as Passivhaus we do not think it is equivalent. The level of prescription of Passivhaus is one of the key parts to it's success. Relaxing aspects of some of the Passivhaus metrics could also result in unintended consequences such as mould or air quality issues if say additional air tightness and insulation are provided without appropriate ventilation.

However we appreciate that this standard does not need to be exactly equivalent to Passivhaus to meet the aim of drastically reducing the carbon impact of new buildings across Scotland.

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

In the text box below, please provide information on why you agree or disagree or if you consider other actions need to be considered.:

Point 4 – Although there is bound to be a slight difference in outcome as this is an equivalent standard, not Passivhaus itself, it is important that similar metrics to Passivhaus are used, for example the modelled/estimated energy use calculation should include unregulated energy use as well. This would mean that occupants can compare their actual metered energy data against the design predictions and projects can compare energy use against Passivhaus projects to measure the success of the standard.

By allowing the outcomes to be different we do open up the option for the standard to push boundaries in other ways such as requiring buildings to provide actual in use energy data 1 year after occupation using meter readings. This is likely to deliver far greater impacts on reducing energy use than improved modelling can provide. Requiring actual energy data to meet a set target is not a new thing – it is a requirement of the Scottish Net Zero Public Sector Buildings Standard, LEIP funding for schools, NABERS (an energy rating scheme for commercial properties), the new UK Net Zero Carbon Buildings Standard and in England public buildings are required to produce Display Energy Certificates (DECs) which is an energy rating certificate using actual metered energy use.

Proposed components of the standard: design

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

No

In the text box below, 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. :

CIBSE would like to see a change from the reliance on notional buildings, as this does not set clear and trackable targets, and does not sufficiently drive the most efficient designs.

We think it is important as mentioned in the last question that the energy model and predicted energy consumption value created during design and construction stages include all energy used within the building, including unregulated plug-in loads. This would provide better assessments of regulated loads (since heating and cooling demands are influenced by heat gains from unregulated loads), and it would mean that the end user could compare their meter readings to the predicted energy consumption of the building to see if they are using the building in an energy efficient way. PHPP or Dynamic Simulation Modelling (DSM) using CIBSE TM54 methodology provides this kind of modelling. DECs (Display Energy Certificates) are an established way of reporting energy in use, for non-domestic buildings.

As discussed in Q4, an absolute target would also encourage use of good form factor and more energy efficient design, similarly to the Passivhaus certification scheme.

The performance gap is also a well known issue using current Building Standard compliance methodologies – the predicted energy use is not comparable to actual in use data. This is in stark contrast to Passivhaus which has been demonstrated to have a very low performance gap – the actual measured

energy matching very closely to the designed/predicted energy use. This is in part due to the PHPP modelling tool used by Passivhaus which includes unregulated energy use and sets an absolute energy target, but also due to the rigorous quality assurance checks during the design and construction stages. SBEM typically results in inaccurate assumptions and results e.g. hot water usage is often too large; a substantial review and overhaul is required to improve reliability – see for example the CIBSE-LETI submission to the 2022 call for evidence:

<https://www.cibse.org/policy-insight/consultations/closed-consultations/ncm-call-for-evidence-joint-submission-by-cibse-and-leti>.

If Passivhaus is going to be an approved alternative method to comply with Building standards, then using PHPP becomes a valid alternative method of course. All approved methods need to tie together; this means that the alternative energy models need to give comparable outcomes to PHPP. If PHPP is to be used, it would need to be a Passivhaus certified project, to ensure the scrutiny and checks are also in place- and similar quality assurance processes should be in place if other methods than PHPP are allowed, see Q14.

One issue with PHPP is that for larger more complex building types it does not accurately quantify overheating risk, which is extremely important to ensure buildings will meet future climate scenarios. In this case we would recommend PHPP is acceptable for larger more complex buildings, but overheating analysis must be carried out using dynamic modelling in line with CIBSE TM52- comfort modelling.

Another point worth noting is the fact that the compliance energy modelling in Scotland could become completely different from the rest of UK – if this overhaul in modelling is carried out it would be useful if it could be done in collaboration with the rest of the UK in a UK wide change. Otherwise this might result in a big training burden as many of our members work on projects in both England and Scotland.

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

No

In the text box below, please provide information on why you agree or disagree or if you consider other actions need to be considered.:

See our answer to Q3 which is also relevant to this question. CIBSE would like to see a change from the reliance on notional buildings, as this does not set clear and trackable targets, and does not sufficiently drive the most efficient designs.

- An absolute target would encourage use of good form factor and more energy efficient design.
- Absolute targets are the way things are going in terms of best practice guidance in the industry; e.g. the UK Net Zero Carbon Buildings Standard, LETI Climate Emergency Design Guide, Scottish Net Zero Public Sector Buildings Standard, LEIP energy targets etc.
- Absolute targets are already working very well for Scottish schools using LEIP funding – the requirements in LEIP funding for schools to demonstrate 67kWh/m² (in actual measured energy data using meter readings 1 year post occupancy) has been instrumental in driving energy efficient design in Scottish schools and the rise in Passivhaus in Scotland.

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)?

No

In the text box below, please provide information on why you agree or disagree or if you consider other actions need to be considered.:

As mentioned in previous questions, we disagree with this and believe that total delivered energy including on-site renewables and all unregulated energy loads should be included.

This would make it easier for the building occupant to compare the actual energy use from meter readings to the target and with appropriate submetering it should be possible to break this down so that if the actual energy use is greater than the target the occupant can easily see where there is an issue (e.g. is their heat pump not performing correctly or is it a user behaviour issue such as running IT equipment overnight).

It is important to include unregulated energy as it can be a significant portion of a buildings' total energy use. Using an Energy Use Intensity (EUI) metric aligns with industry best practice and provides a clear and understandable target that can be easily compared to actual energy use. This will empower end users, helping to close the performance gap.

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

Yes

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

The Passivhaus standard demonstrates that setting these limits can result in buildings with exceptional energy performance. This could also reduce energy costs, helping to combat fuel poverty for vulnerable members of the population.

Space Heating Demand has been used for a long time in affordable housing as a mandatory standard as Scottish Government Funding requires compliance with Aspect Silver Level 2 (Energy Demand for Space Heating) under Section 7 (Sustainability), so a large proportion of the residential industry is already familiar with this metric.

For non-domestic we would recommend setting space heating and cooling demand limits.

As space heating / cooling demand cannot be easily measured, we would encourage the review of closely linked metrics which cover similar scopes and would result in similar improvements in performance but allow in-use verification e.g. heat transfer coefficient, space heating /cooling delivered to a building.

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

Yes

In the text box below, please provide information on why you agree or disagree or if you consider other actions need to be considered.:

Yes CIBSE supports the move to using regional climate data within the energy modelling, as this will result in more accurate energy predictions.

However CIBSE does not support adjusting the targets for different regions.

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

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

We understand that many of our members do. We could reach out to our members to seek case studies demonstrating this.

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

Yes

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

- This is incredibly important if this standard is to be an equivalent to Passivhaus as this is a crucial element to the success in Passivhaus projects limiting heat loss in projects.
- However it needs to be accompanied by suitable ventilation e.g. use of MVHR or similar – to avoid unintended consequences such as mould or air quality issues.
- More ambitious airtightness levels would also support the aim of improving build quality, encouraging attention to detail from the design stages through to construction stages and completion.

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

Yes

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

MVHR is often the most effective means of ventilation to deliver both energy efficiency and air quality, but CIBSE does not advocate for a single system to be prescribed: there should be flexibility in the design solutions as long as the performance requirements are met.

Some of CIBSE's guidance on effective ventilation:

- KS17: Indoor Air Quality & Ventilation
- CIBSE Guide B provides guidance on designing heating, ventilation and air conditioning systems.
- AM10 Natural ventilation in non-domestic buildings – currently under review
- CIBSE TM60 Good Practice in the Design of Homes

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

Yes

If you answered 'Yes', in the text box below, 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.:

CIBSE agree that further guidance and training should be given on the design, installation and maintenance of MVHR systems. This should be aimed at designers through the Technical Handbooks but also training and guidance to building users through enhanced user guide and additional support around handover on how to operate and maintain MVHR systems.

It is also important to consider training needs among Building Control Bodies too, so that Building Control Officers are equipped to check compliance of ventilation systems, whether MVHR or others.

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

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

- Summer overheating risk – CIBSE have provided guidance to reduce this risk. Modelling designs to future climate scenarios in line with CIBSE TM52/TM59 is recommended to reduce the risk of overheating. Design measures such as solar shading, window sizing, appropriate ventilation etc will reduce this risk. This could build on the example of Part O in England; CIBSE would be happy to discuss this, to learn from the lessons of Part O.
- Indoor air quality – it's essential that appropriate ventilation is provided to reduce the risk of mould and damp, a common issue in some new build properties.
- Structural Protection - Protection of the building structure through a well sealed airtightness membrane is key to limiting moisture penetration and structural damage over time.

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

Yes

In the text box below, please provide information on why you agree or disagree and on the extents to which this alternative might be usefully applied in practice.:

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

If you answered 'Yes', in the text box below, please provide your further comments or observations. Additional supporting information may also be provided by uploading a separate document below.:

Quality assurance during the design stage has not been mentioned, but it is an important aspect that needs to be reviewed during the next stage of development of this standard. We strongly recommend that this should be reviewed.

One of the main strengths of Passivhaus is the independent quality assurance, both in terms of design verification and site verification checks and this is a key reason why Passivhaus buildings demonstrate a very small performance gap (i.e. the energy consumption of the finished building matches very closely to the design predictions), unlike most other new buildings not built to a Passivhaus standard. We are concerned that the Scottish Passivhaus Equivalent standard will not contain similar levels of quality assurance, due to uncertainty over who could carry out this quality assurance, shortage in number of verifiers and a lead in time in terms of training. There is already a shortage of Passivhaus certifiers in the industry and so another route will be needed, or a sufficient transition period for industry to upskill, as long as government provide clarity and certainty on timescale and implementation, so that industry has the confidence to invest in those skills. One suggestion made is to train up current Section 6 Certifiers to do this, however, there are only currently 32 Section 6 certifiers and only 2 are qualified for non-domestic buildings.

We recommend consulting on allowing a collection of qualifications to be deemed as suitably qualified to generate a pool of qualified people to undertake the required verification checks. These people may then only require a short top-up training which will hopefully reduce the lead in time and cost associated with training up verifiers. Some qualifications (including some qualifications by CIBSE Certification) we think could be appropriate are:

- Certified Passivhaus certifier, designer or consultant
- CIBSE Level 5 Low Carbon Energy Assessors
- Elmhurst Non Domestic Energy Assessor Level 5
- BRE, CIBSE & RIAS Level 5 Certifier of Design in Scotland
- NABERS Energy Assessors
- Potentially people deemed suitably qualified to verify the Scottish Government Net Zero Public Sector Buildings Standard

We note that embodied carbon is out of the scope of this consultation. CIBSE has supported Part Z since its inception, and we urge government to come forward with proposals as soon as possible. Embodied carbon is an important missing part of addressing whole life carbon in the regulations, so this review of standard provides the opportunity to address it at the same time.

Please upload your file by clicking the 'choose file' button below.:

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Proposed components of the standard: compliance

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

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

Our members are those who apply those processes, but we provide guidance on this.

The requirement in Section 6 to have a commissioning plan should be strengthened. CIBSE Guide M should be directly referred to. The Contractor should be required to show a Commissioning Plan at RIBA Stage 3. This should include a process flow chart and a responsibility matrix produced specifically for the project.

Whether applying in house or third party, the person carrying out compliance management needs to be independent, obviously third party will be independent, if it is in house it needs to be someone independent from the project with the authority and without being influenced by the project team, the third option is having a CSA CM Grade Commissioning Manager appointed this could be in house or third party, their CM grade will demonstrate competency.

CIBSE publications are well integrated into Scotland's Building Regulations, for example being cited over 30 times in the Domestic Technical Handbook. It is CIBSE's understanding that the development of the Scottish Equivalent to Passivhaus will involve the revision of existing regulations and the underpinning technical guidance that sit below it, rather than the wholesale development of a new regime. To this end, it is worthwhile noting that there are many more CIBSE technical memoranda, guides, codes and certification schemes that are relevant to improving energy performance of new buildings and could be considered for reference in the revised Technical Guide, including but not limited to:

- CIBSE Certification Limited's Approved Certifiers of Design (Section 6 Energy of the Building Regulations (Scotland))
- CIBSE Guide A An Environmental Design
- CIBSE Guide M
- Code for Lighting TM22 Energy assessment and reporting methodology
- TM23 Testing buildings for air leakage
- TM31 Building Log Book Toolkit
- TM39 Building energy metering
- TM44 Inspection of air conditioning systems
- TM52 The limits of thermal comfort: avoiding overheating
- TM54 Evaluating operational energy performance at design stage
- TM59 Design methodology for the assessment of overheating risk in homes
- TM64 Operational performance: Indoor air quality – emissions sources and mitigation measures
- TM68 Monitoring indoor environmental quality
- CIBSE Commissioning Codes (various)

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?

Please provide your response in the text box below.:

- Targets and objectives which are not measurable and do not relate to real performance. This does not drive proper consideration of performance and how the building will operate. The use of targets applying to unregulated loads, and which are set by a notional building, is an example of this. Targets which are clear, measurable and understandable to end users are much more effective drivers of low energy design.
 - Model not including all energy uses & risks of energy loads modelled incorrectly (e.g. hours of use not taking into account things such as cleaners coming in early to turn lights on) – to avoid this, the use of methods such as CIBSE TM54 is recommended
 - Engaging effectively with the building users and FM team – low energy buildings are not just about design but also how the users operate the buildings. This can have a big impact on the energy use (e.g. equipment left on when not in use, equipment not maintained or operated correctly, building used in an inefficient way e.g. often in schools/nurseries doors are left open all day) – A Soft landings process (started from as early as possible e.g. RIBA stage 1/2) can help mitigate these risks.
 - Controls being overcomplicated or unclear - Simplify as much as possible. Question whether all control mechanisms are really needed by users and for energy efficiency. Set out control strategy for each area for agreement with client and end users. Provide clear and concise guidance for users. Get feedback from end users as part of aftercare/POE and fine tune the systems where necessary.
 - Energy model inaccurate – Include all energy use including unregulated loads in line with TM54 modelling guidance. Discuss with users how they will actually use the building. Consider potential use outside core-hours and how this will be managed. Update TM54 model at various stages in design and construction process and complete as-built TM54 model. Monitor energy consumption against expectations.
 - Zoning - Zoning of heating, ventilation and lighting frequently overlooks potential out-of-hours use. This can lead to energy wastage through poor zone control, e.g. if a larger area of the building is heated than is necessary. Consider which spaces may be used out of hours and determine control zones accordingly. Consider simple controls to allow users to activate systems outside core hours.
 - Value Engineering - Ensure operational implications of any proposed VE are considered and recorded. Allow FM representative to review VE proposals before finalising. Contractor to demonstrate alternative solutions don't compromise energy performance
 - Poor commissioning - Keep systems as simple as possible. The appointment of a suitably qualified commissioning manager and M&E Clerk of Works should reduce the risk. Seasonal commissioning and fine tuning.
 - Energy metering issues: Specific risks include:
 - o Meters not set up and commissioned correctly
 - o Data not collected automatically
 - o Meters not connected to a central data collection
 - o Sub-meters do not correlate with main meters
 - o System is not easy to use
 - o Mechanical meters not sized correctly
 - o Different energy sources not separately metered
- The following showing be a requirement to be demonstrated:
- Correct operation of each meter

- Central data collection correlates with data at each meter
- Sub-meters correlate within 5% of main meters
- Data from each meter makes practical sense over a week based on usage profiles.
- Meter data is stored and accessible via the BMS at 15 minute intervals and visible for each day/week.
- Provide a simple metering schematic to show what is metered to include sensible meter labelling
- Not enough training or support for occupants and FM: Involve FM and end users in setting out training requirements to be included in ERs. Ensure aftercare responsibilities clearly defined in the contract and specifications. Allow at least 3 weeks for training in the programme and the building should be complete by this time. Preparation of a detailed, graphical, user friendly building user guide
- 3rd party and independent verifier is very important to improve quality control on site. Also additional air tightness testing, inspection test plans and verification tests.

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?

Please provide your response in the text box below.:

Risk management during both design and construction stages is incredibly important. During the construction stage it is important to manage risk in terms of quality control and testing of systems and also in terms of user engagement and training before and after handover. Ensuring the construction meets the design through careful monitoring of any design substitutions and updating the energy model accordingly to ensure the energy target is still on track. Airtightness testing and also other testing such as thermographic surveys helps to reduce risk of design not being achieved. As well as thorough commissioning around handover it is important to include seasonal commissioning and aftercare to ensure the building is operating as designed. There is also a risk in terms of user behaviour – inadequate training can leave users unequipped to manage their buildings in an energy efficient manner and so detailed user guidance and training before handover and during the 1st year of occupation through aftercare and Post Occupancy Evaluation is important.

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

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

Our members are those who apply those processes, but we provide guidance on this. We could reach out to our members to seek case studies demonstrating this.

However one member already shared experience of meeting the 67kWh/m² LEIP energy target on a project – significant energy submetering was a big additional cost but were used effectively around handover to show that in fact the main utility meter was significantly out of calibration when comparing to all the submeters installed. Alterations to this meant a much more accurate energy consumption was recorded and compared against the 67kWh/m² energy target.

CIBSE Guide H Building control systems needs updating but is relevant. An option could be to partner with Scottish Government about improving some of our CIBSE guides to be used and referenced in this new standard.

Other useful guides available include Scottish Futures Trust Smart Buildings Guide.

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

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

We advocate projects using Soft Landings, aftercare, seasonal commissioning and Post Occupancy Evaluation. A requirement within our CIBSE Building performance awards is to provide evidence that POE has been undertaken and actual meter readings and consumption from the first year of operation has been captured and compared to target energy values set.

CIBSE Guide F and L cover some aspects of this Soft Landings process.

CIBSE TM31 Building Logbook toolkit also provides useful guidance on the contents of building logbooks to be prepared around handover.

Information required at handover for Building Regulations is the documentation required by the BCO, there is significantly more information associated with the Commissioning of a building that should be submitted as part of the Handover Process. A CSA CM Grade Commissioning Manager would consider this with there Commissioning Plan and compile a Handover Commissioning Report along with comprehensive suite of Documentation.

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

Yes

If you answered 'Yes', in the text box below, please provide information summarising your experience.:

As with Q19 we advocate use of aftercare, thorough commissioning (in line with CIBSE Commissioning codes) and seasonal commissioning after the building is built to ensure solutions have been delivered as intended.

CIBSE Guide F and L cover some aspects of this Soft Landings process.

Our members have also discussed completing and updating the energy model at each stage of design to de-risk very low energy buildings. That was if the design changes in any way the model is re-run to demonstrate the building is still performing as intended. The energy model (using CIBSE TM54) should also be completed at the start of Stage 5 and finally an as built energy model. Any deviation identified at each stage should be rectified before proceeding to the next.

We also de-risk and provide assurance that the compliant solutions are properly considered by having our qualified CIBSE Low Carbon Energy Assessors (LCEA) properly trained and their models audited.

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

Yes

In the text box below, please provide information on why you agree or disagree and on any drivers for improvement you consider particularly important.:

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

In the text box below, please provide information on why you agree or disagree and on what other actions you consider may be useful in driving compliance.:

SFT have scheduled out their requirement for projects delivered under the LEIP Programme, consideration could be given to applying similar Quality Standards and requirements.

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

Yes

In the text box below, 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.:

Yes. We also support Seasonal Commissioning, energy and systems monitoring during the first few years after the building is built and Post Occupancy Evaluation to ensure systems are operating as per design intent. Should also define requirements for Seasonal Commissioning, we generally find it's not defined and open to interpretation.

CIBSE strongly supports the increased attention to post-completion testing. We have been advocating for this for a number of years, and are signatories of the cross-industry Building Performance Network Joint Position Statement on Operational Performance:

<https://building-performance.network/advocacy/building-performance-joint-position-statement> .

To really drive improvements, we recommend the introduction of a government commitment and timeline for turning voluntary POE targets into mandatory requirements, so that delivering build quality and in-use performance become the norm.

The types of tests that could be included and would be of value include:

- heat transfer coefficient testing e.g. using methods from the SMETER programme
- other measures of energy use for heating
- on larger schemes, aggregate metered total energy use across the scheme would also be useful, as it would provide an average performance relatively independently from occupant behaviour (i.e. "smoothing" the extreme high & low users).

It would be really valuable for this data to be captured centrally, in an appropriate way that allows feedback loops.

CIBSE would be very happy to work with Scottish Government on this, including the metrics that could be used and testing methodologies.

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?

If you answered 'Yes', please provide your views in the text box below.:

Yes

Independent 3rd party verifiers who attend site and inspect the site to carry out quality assurance checks and review and check the energy model during design stage.

Airtightness and thermographic testing. Detailed commissioning in line with CIBSE Commissioning codes.

Seasonal commissioning during 1st year of operation. A requirements to carry out aftercare and post occupancy evaluation, comparing actual energy use to predicted would be pushing the boundaries. Verifying the actual energy use actually meets the targeted value in reality would be very powerful. This has been used very effectively for some other schemes such as LEIP funding and has been a real driver in the uptake of Passivhaus in Scottish schools.

Defined with CIBSE Guide M Commissioning Management calls for Examination , witnessing ,verification and Compliance, applying strict adherence to this Guide would lead towards enhanced compliance.

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

Yes

In text box below, please provide any additional information on anything else you consider to be relevant to the actions of such parties.:

Call for information on current standards

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

Yes

If you answered 'Yes', please email calculation output sheets which detail your building specification(s) to buildingstandards@gov.scot with the subject title 'Call for evidence – February 2023 design specification'. Alternatively, please upload any relevant data below.:

We could reach out to our members to seek case studies demonstrating this.

Please upload your file by clicking the 'choose file' button below.:

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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

If you answered 'Yes', in the text box below, please summarise your experience(s).:

We could reach out to our members to seek case studies demonstrating this.

We have published the following guidance relating to energy target setting and overheating risk:

- CIBSE TM54: Evaluating operational energy use at the design stage
- CIBSE TM52: The limits of thermal comfort: avoiding overheating
- CIBSE TM59: Design methodology for the assessment of overheating risk in homes

CIBSE have also been heavily involved in the UKNZC Building Standard and the energy targets within this standard should be referred to for a pathway to net zero carbon buildings.

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

If you answered 'Yes', in the text box below, please provide 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.:

We could reach out to our members to seek case studies demonstrating this.

If you answered 'No', in the text box below, please confirm the reason for not considering a heat network solution.:

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

Yes

If you answered 'Yes', in the text box below, please provide information summarising your experience.:

- % reduction reported by Section 6 is not understandable by consumers

There is no feedback loop between existing standards and resident experience of paying bills and energy consumption. It has therefore not been possible to spot quality issues or failures, and therefore no continual improvement of development delivery. Metric should align with what consumer pays for, i.e. kWh delivered energy (EUI), but also with metric to ensure energy efficiency, such as space heating demand or heat load.

• Performance Gaps

Broader performance issues, such as missing insulation, inadequate sealing, and ill-specified ventilation systems, highlight limitations in current standards, leading to performance deficiencies and occupant discomfort.

Proposed delivery programme

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

Yes

In the text box below, please provide information on why you agree or disagree or if you consider other options need to be considered.:

Yes agree with this to give industry time to upskill and be prepared for this change to ensure the standard is a success

About you

31 What is your name?

Name:
Ingrid Berkeley

32 Are you responding as an individual or an organisation?

Organisation

33 What is your organisation?

Organisation:
Chartered Institute of Building Services Engineers (CIBSE)

34 Further information about your organisation's response

Please add any additional context:

35 The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

Publish response with name

36 Do you consent to Scottish Government contacting you again in relation to this consultation exercise?

Yes

37 What is your email address?

Email:
scotland@cibse.org

38 I confirm that I have read the privacy policy and consent to the data I provide being used as set out in the policy.

I consent

Evaluation

39 Please help us improve our consultations by answering the questions below. (Responses to the evaluation will not be published.)

Matrix 1 - How satisfied were you with this consultation?:

Slightly dissatisfied

Please enter comments here.:

It was quite a long and wordy document to go through. It was difficult to understand/read in some parts. We did reach out to our members for responses but did not get a lot of feedback I was wondering if they were put off by going through the document as it is a very important piece of policy to respond to so I was surprised we did not receive more responses.

Matrix 1 - How would you rate your satisfaction with using this platform (Citizen Space) to respond to this consultation?:

Slightly satisfied

Please enter comments here.:

very easy to use. I did fill out the word form though in the first place and so it would have been easier if there had been an option to just upload that.