



Consultation submission form Insulation requirements in housing and other buildings

Amending Acceptable Solutions H1/AS1 and H1/AS2 and
Verification Methods H1/VM1 and H1/VM2

5 December 2024



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Seeking feedback

How to submit this form

This form is used to give feedback on the proposed changes to insulation and energy efficiency requirements.

When completing this submission form, it helps if you add comments and reasons explaining your choices. Your feedback is valuable as it informs decisions about insulation and energy efficiency proposals for the Building Code.

MBIE needs your feedback on the H1 insulation settings review by 5:00 pm on Friday, 28 February 2025.

- Email: building@mbie.govt.nz, with subject line Building Code consultation H1 insulation settings
- Post:
Building Code consultation H1 insulation settings
Building System Performance
Ministry of Business, Innovation and Employment
PO Box 1473
Wellington 6140

Next steps

Your feedback on this document will be collated and analysed along with all the other responses.

Following consideration of the submissions, MBIE will make decisions on the proposals to amend the acceptable solutions and verification methods for compliance with the Building Code.

Use of information

Release of information on MBIE website

MBIE may publish copies or excerpts of submissions. MBIE will consider you have consented to this when you submitted your feedback unless you clearly specify otherwise in your submission.

If your submission contains any information that is confidential or you otherwise wish us not to publish, please:

- state this at the start of your submission, with any confidential information clearly marked within the feedback text
- provide a separate version, with your confidential information removed, for publication on the MBIE website.

Release of information under the Official Information Act

Once submitted, your feedback becomes official information and can be requested under the Official Information Act 1982 (OIA).

An OIA request asks for information to be made available unless there are sufficient grounds for withholding it. If some or all of your submission falls within the scope of any request for information received by MBIE, they cannot guarantee that your feedback will not be made public. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

[Get help from the ombudsman](#) – Ombudsman New Zealand

If you do not want your submission feedback released as part of an OIA request, please say so in your submission feedback together with the reasons why (for example, privacy or commercial sensitivity).

MBIE will take your reasons into account when responding to OIA requests.

Seeking feedback

Personal information

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Any personal information you supply to MBIE in the course of providing your submission feedback is only:

- used for the purpose of assisting in the development of advice in relation to this consultation, or
- for contacting you about your submission.

MBIE may also use your personal information for other reasons permitted under the Privacy Act 2020 (for example, with your consent, for a directly related purpose, or where the law permits or requires it).

Please state clearly in your submission feedback if you do not want your name, or other personal information, included in any summary of submissions that MBIE may publish.

MBIE will only keep your personal information for as long as it is needed for the purposes for which the information may lawfully be used.

Where any information provided (which may include personal information) constitutes public records, it will be kept to the extent required by the [Public Records Act 2005](#).

MBIE may also be required to disclose information under the Official Information Act 1982, to a Parliamentary Select Committee or Parliament in response to a Parliamentary Question.

You have rights of access to, and correction of, your personal information. For more information, go to the MBIE website www.mbie.govt.nz.

Your information

MBIE would appreciate it if you would provide some information about yourself. This helps MBIE understand the impact their proposals may have on different occupational groups. Any information you provide will be stored securely.

A. About you

Name:

Sam Archer

Email address:

sam.archer@nzgbc.org.nz

B. Can MBIE contact you if they have questions about your submission?

Yes

No

C. Are you making this submission on behalf of a business or organisation?

Yes

No

If yes, please add the name of your company or organisation.

New Zealand Green Building Council

D. Select your role or the best way to describe your organisation:

Architect

Designer (please specify below)

BCA/Building Consent Officer

Engineer (please specify below)

Builder or tradesperson (please specify below)

Residential building owner

Building product manufacturer or supplier
(please specify the type of product below)

Other (please specify below)

Building resident, occupant or user (please
specify below)

Prefer not to say

Commercial building owner

Not-for-profit, for purpose industry organisation with 700 members from the construction and property sector

Your information

E. Personal information

The Privacy Act 2020 applies to feedback provided in all submissions.

- Please tick the box if you do **not** want your name or other personal information included in any information that MBIE may publish.

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- MBIE may upload submissions, parts of submissions, or a summary of submissions received to its website. If you do **not** want part or all of your submission uploaded, please tick the box and say what you do not want uploaded and why below.

If you have ticked this box, please tell us what part(s) of your submission you do not want uploaded on MBIE's website and why.

[Please insert comments here]

G. Official information

The Official Information Act 1982 applies to all submissions received by MBIE.

- If you would like your submission (or parts of your submission) kept confidential please tick the box and **state** your reasons and ground(s) under sections 6, 7 and/or 9 of the Official Information Act that you believe apply, for consideration by MBIE.

If you have ticked this box, please tell us what parts of your submission you would like to be kept confidential, your reasons for this, and any grounds under the Official Information Act that you believe apply.

[Please insert comments here]

Insulation in housing and small buildings

This section covers housing and small buildings. The proposals relate to ways to amend the acceptable solutions and verification methods for energy efficiency to

- Optimise insulation to better balance upfront building costs and longer-term benefits
- Improve the consistency and certainty of compliance and consenting

Optimising insulation to better balance upfront building costs and longer-term benefits

Questions for the consultation

Topic	Questions	Response
1	The schedule method may lead to higher upfront costs and less cost-effective construction than the more flexible calculation and modelling methods	
1-1	Do you support amending Acceptable Solution H1/AS1 as proposed to remove the schedule method?	<input type="checkbox"/> Yes, I support it <input checked="" type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
1-2	Please explain your views Phase out the calculation method as well NZGBC supports the removal of the schedule method but would also like to see a phased removal of the calculation method in addition. The modelling method can result in additional cost savings as it is the only option that allows designers to evaluate actual insulation requirements taking into consideration other factors such as orientation and glazing percentage. This analysis is what can result in being able to reduce insulation levels and thereby cost. The NZ Construction Industry Council, BRANZ, the NZ Institute of Architects, Architectural Designers of NZ and NZ Green Building Council propose a 20 month timeframe for the sector to phase out the calculation method. The first stated purpose of the building act is to “ensure people who use buildings can do so safely and without endangering their health”. It seems that instead NZ families are experiencing high temperatures and interrupted sleep in their new homes which can lead to health issues.	

Insulation in housing and small buildings

Topic	Questions	Response
	<p>The calculation method suffers from some of the same flaws as the schedule method:</p> <ol style="list-style-type: none"> 1) It does not adequately account for the impact of orientation, window size, thermal bridging and air-tightness on energy demand 2) It does not account for cooling demand or overheating risk. As temperatures increase, the risk of homes overheating will become an even larger issue. Auckland is expected to have four times as many hot days by end of the century, and homes need to be built to be resilient against these stresses. 3) It does not provide meaningful information for building owners on relative energy demand and/or resultant carbon emissions <p>Of all the above we specifically draw attention to the increasing evidence that new homes are overheating with consequent demand for air-conditioning. At the very least we would like to see mandatory modelling for townhouses and apartments. See also our response to Topic 4.</p> <p>https://d39d3mj7qio96p.cloudfront.net/media/documents/Bulletin656_Overheating_Dec2022_MP.pdf</p> <p>Glazing percentage does not reflect typical values</p> <p>If the calculation method is to be retained (or retained for a period), NZGBC would like to see the glazing percentage in the reference building (and the threshold that triggers the requirement to use the modelling method) reduced.</p> <p>As MBIE’s own analysis showed, only 10% of the sample of consented homes exceeded 30% glazing. This means that most projects using the calculation or modelling methods will have less glazing than is assumed in the reference building. This is partly why BRANZ found these methods to be cheaper to implement than the schedule method.</p> <p>In some ways, the higher percentage of glazing in the reference building incentivizes projects to reduce glazing. While this is to be supported, the very high glazing percentage in the reference building in practice has the effect of rewarding projects for typical (business-as-usual glazing) levels.</p> <p>NZGBC recommends that the reference building glazing percentage is reduced to a level more consistent with typical values seen in New Zealand homes (25% or lower).</p>	

Insulation in housing and small buildings

Topic	Questions	Response
	<p>Currently projects with a glazing percentage (window-to-wall ratio) greater than 40% must use the modelling method. We recommend that this threshold is similarly reduced, to say 30%. Homes with high glazing percentages are at greater risk of overheating and greater risk of high summer air-conditioning use.</p> <p>Glazing percentage metric is out-of-date</p> <p>Quantifying the glazing percentage by reference to the wall area is an out-of-date method given the number of townhouses and apartments being built in New Zealand. These residential typologies often have higher percentages of window-to-wall glazing simply because they have a smaller overall thermal envelope relative to the floor area.</p> <p>A better metric would be the ratio of window area to floor area which gives a better indication of the impact of glazing relative to the building's loads and the required area of glazing for good daylight.</p> <p>As an illustration, a simple 150m² house might need 20% glazing (relative to floor area) for good daylight, i.e. 30m² of glazing.</p> <p>A single storey 150m² house with a footprint of 10m x 15m might have 150m² of wall area, giving a window to wall ratio of 20%. By contrast the same house built as a row of five 2-storey units might only have 100m² of wall area on average per unit giving 30% glazing. Apartments yield even higher percentages. Fundamentally, the quantity of glazing should be set relative to the floor area since this is what is required for daylight.</p>	
2	The calculation method contains restrictions to the flexibility of roof, wall and floor R-values that can lead to unnecessarily costly and complex construction in some buildings	
2-1	Do you support amending Acceptable Solution H1/AS1 to adjust the minimum possible R-values in the calculation method as proposed?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
2-2	Please explain your views	
3	Where underfloor heating is only used in bathrooms, the minimum R-values for heated floors may cause unreasonable upfront costs	
3-1	Do you support amending Acceptable Solution H1/AS1 and Verification Method H1/VM1 as proposed to reduce upfront costs and improve the cost-effectiveness of insulation by exempting building elements with embedded heating from higher minimum R-	<input type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input checked="" type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference

Insulation in housing and small buildings

Topic	Questions	Response
	values where embedded heating systems are solely used in bathrooms?	
3-2	Embedded heating systems are often used for comfort, not to meet heating demand. This means they may be in operation for many more hours than a heating system used in the rest of the house, resulting in higher energy use. Therefore, it is especially critical to ensure this heat is not wasted through poorly insulated slabs. This issue would be further compounded by the proposed changes of Topic 2 above, which proposes to have no minimum R value for slab-on-ground floors. A bathroom located at the corner of a house, with no under slab or slab edge insulation, would result in heat from the embedded heating system radiating directly to the outside.	

SQ1. What impacts from the proposals for topics 1 to 3 do you expect? These may be economic/financial, environmental, health and wellbeing, or other areas.

Removing the schedule method option will have a positive impact on the industry. It will improve understanding of energy efficiency within the sector. Ultimately moving towards more energy modelling will improve the reliability, efficiency and health outcomes of buildings.

It may also reduce building costs by avoiding potential structural changes to certain building elements to fit high amounts of insulation.

SQ2. Is there any support that you or your business would need to implement the proposed changes for topics 1 to 3 if introduced?

Our business would not need support. Some of the sector would need support. This could come from existing training programmes that are already established such as training courses provided by the NZ Green Building Council and others.

Insulation in housing and small buildings

SQ3. If there are other issues MBIE should consider to better balance upfront building costs and longer-term benefits of insulation in housing and small buildings, please tell us.

As noted in our response to topic 1, we would like Acceptable Solution AS1 to move towards energy modelling exclusively. The current focus on R-values alone is not serving New Zealand well since there are so many other aspects of a home's design that impact energy and comfort. These include orientation, air-tightness, thermal bridging and heat recovery ventilation. This means that a new home can have the relatively high R-values set in H1 and still be uncomfortable and high energy use.

- Without explicit modelling of homes, and associated targets for overall energy use and carbon emissions, it is not possible for New Zealand to systematically lower emissions from new buildings. Homes being designed now are to face a four fold increase in the number of hot days.
- Not moving to modelling raises the risk of hundreds of thousands of kiwi families experiencing overheating homes the discomfort and costs that come with this.

These two issues should be a priority for MBIE.

Upfront cost is cited throughout the consultation document as a primary objective. However it is important to consider the value of a one or two hours of additional work over the life (50 – 80 years) of the building. When done well, the investment in good energy modelling will reduce operational costs, optimise building costs and significantly reduce discomfort for kiwi families

Consistency and certainty of compliance and consenting

Questions for the consultation

Topic	Questions	Response
4	The modelling method includes requirements that are unclear or outdated	
4-1	Do you support amending Verification Method H1/VM1 as proposed to clarify and update requirements for the modelling method?	<input type="checkbox"/> Yes, I support it <input checked="" type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
4-2	Please explain your views NZGBC supports the proposed changes to the modelling method but would like to see additional changes. Reduce the assumed percentage of glazing in the reference building <ul style="list-style-type: none"> • The percentage of glazing (30% window to wall ratio) in the reference building is unrealistic. • As MBIE's own analysis showed, only 10% of the sample of consented homes exceeded 30% glazing. The result is that the reference building has much higher glazing (and unshaded glazing) compared with the proposed building and therefore much higher annual cooling demand but often only slightly lower annual space heating demand. 	

Insulation in housing and small buildings

Topic	Questions	Response
	<ul style="list-style-type: none"> • This often makes it very easy to comply with H1 using the modelling method since the proposed building will typically have substantially lower cooling demand than the reference building. • NZGBC recommends that the reference building glazing percentage is reduced to a level more consistent with typical values seen in New Zealand homes (25% or lower). We also recommend that MBIE reviews whether window-to-wall ratio is a sensible metric for defining the window area. Window-to-floor ratio may more accurately high cooling demand risk. See our answer to topic 1. <p>Require homes to separately achieve lower heating <i>and</i> cooling demand</p> <ul style="list-style-type: none"> • Combining heating and cooling demand in the reference building (to give an overall space conditioning demand) allows projects to control one (heating or cooling) at the expense of the other. This means that buildings with very large glazing percentages can often be at very high risk of overheating but easily pass H1 because of the beneficial winter heat gain. We recommend that the two heating and cooling metrics are separated so that buildings must separately have both lower heating <i>and</i> cooling demand when compared with the reference building. This has the benefit of making the building have “an adequate degree of energy efficiency” throughout the year not just one season. It also reduces the likelihood of overheating. <p>Allow projects to include the benefit of reduced thermal bridging, better air-tightness and heat recovery ventilation.</p> <ul style="list-style-type: none"> • The modelling method currently specifies a fixed infiltration rate of 0.5 air changes per hour in both the reference and proposed buildings. We recommend that the modelling method includes a formula to equate air-tightness with a measured infiltration rate from a blower door test. This means that homes could use air-tightness measures as a means of compliance in addition to insulation. • Related to this, there is no explicit way of showing the improved energy efficiency from heat recovery ventilation. Again, there are established formulae for calculating an effective ventilation rate taking into account infiltration, mechanical ventilation and heat recovery efficiency. This should be explicitly allowed and set out in VM1. <p>Clarify how glazing should be distributed in the reference buildings. There is currently no guidance on how to do this. Modellers typically follow one of two approaches:</p> <ol style="list-style-type: none"> a. 30% glazing distributed uniformly over all walls, b. adjust the size of existing glazing. All existing glazing is increased by a fixed percent to the point where it reaches 30% of the walls on average. 	

Insulation in housing and small buildings

Topic	Questions	Response
	<p>Approach 'b' is not always possible, however, since glazing may already be close to 100% of a particular wall and hence, in practice, modellers use an arbitrary mixture of 'a' and 'b'.</p> <p>We suggest that MBIE stipulates use of approach 'a' which is always possible and hence consistent. It also prevents gaming, where modellers put glazing in the reference building where it makes compliance easiest.</p> <p>Include a recommendation in H1/VM1 that modelling reports also report on likely overheating risk to make this transparent to homeowners.</p>	

5	Thermal bridging from framing in walls is not adequately considered	
5-1	Do you support amending Acceptable Solution H1/AS1 and Verification Method H1/VM1 as proposed to better consider thermal bridging in framed walls?	<input type="checkbox"/> Yes, I support it <input checked="" type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
5-2	<p>Please explain your views</p> <p>NZGBC welcomes the move to recognize in the Building Code the substantial thermal losses that occur through regular thermal bridges and the consequent incentivization to improve this. However, this change will reduce requirements in non-timber frame housing (SIPS, strap-and-line concrete, masonry etc) that would have been achieving closer to R2.0 in practice. NZGBC recommends that the reduction to R1.6 only applies to standard timber frame walls and R2.0 is retained for all other wall types.</p>	

6	How the areas of roofs, walls and floors should be measured is unclear	
6-1	Do you support amending Acceptable Solution H1/AS1 and Verification Method H1/VM1 as proposed to improve certainty and consistency of compliance by requiring the areas of roofs, walls, and floors to be measured using overall internal dimensions?	<input type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input checked="" type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
6-2	<p>Please explain your views</p> <p>As noted in section 2.9.4 of the consultation other building certification schemes such as Passive House and Homestar require the use of</p>	

Insulation in housing and small buildings

Topic	Questions	Response
	<p>external dimensions. This is to more accurately account for the energy losses and gains from thermal bridges and give credit to projects that reduce these. Changes and clarifications to H1/VM1 made now should reflect this and encourage the industry to move towards best practice and avoid future confusion.</p> <p>If projects certifying under Passivhaus or Homestar are required to use internal dimensions this will substantially increase compliance costs for these projects since they will have to re-measure and re-enter all of the dimensions for building code compliance.</p> <p>Given that the calculation and modelling methods use a comparative approach, both the reference and proposed buildings are subject to the same measured dimensions, and therefore we think MBIE needs to provide more substantive evidence that the inconsistencies of outcomes would be so great that this needs clarification. Our preferred approach would be to allow either internal or external measurements to be used but to require consistency across a project.</p> <p>Note that the main potential area of inconsistency would be in the calculation of glazing area for the reference building. This problem would be solved if MBIE moved to reference a ratio of (internal) floor area for the reference building glazing area, i.e. the reference building should have (say) a window area equal to 20% of the internal gross internal floor area equally distributed across all walls.</p>	

7	NZS 4214 includes ambiguous instructions for determining the R-values of roofs, walls and some floors	
7-1	Do you support amending Acceptable Solution H1/AS1 and Verification Method H1/VM1 as proposed to improve certainty and consistency of compliance by providing clearer requirements for defining the boundaries of the bridged portion of a building element when calculating its R-value using NZS 4214?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
7-2	Please explain your views	

8	For some mixed-use buildings it is unclear whether H1/AS1 and H1/VM1 can be used, or H1/AS2 and H1/VM2	
8-1	Do you support amending Acceptable Solution H1/AS1 and Verification Method H1/VM1 as proposed to improve certainty and consistency of compliance by providing clearer requirements for determining which compliance pathways can be used for a mixed-use building?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
8-2	Please explain your views	

Insulation in housing and small buildings

Topic	Questions	Response
9	The look-up tables with R-values for slab-on-ground floors do not cater for some common situations	
9-1	Do you support amending Acceptable Solution H1/AS1 as proposed to make it easier for designers and Building Consent Authorities to establish whether a building complies with the H1 energy efficiency insulation provisions by enabling the use of the look-up tables for slab-on-ground floor R-values for more situations?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
9-2	Please explain your views	

10	The look-up table with R-values for vertical windows and doors in housing misses some common glazing types	
10-1	Do you support amending Acceptable Solution H1/AS1 as proposed to make it easier for designers and Building Consent Authorities to establish whether a building complies with the H1 energy efficiency insulation provisions by enabling the use of the look-up table for vertical windows and doors in housing for more common types of glazing?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
10-2	Please explain your views	

11	Acceptable Solution H1/AS1 and Verification Method H1/VM1 include obsolete provisions and definitions, and outdated references to documents and tools	
11-1	Do you support amending Acceptable Solution H1/AS1 and Verification Method H1/VM1 as proposed to make these documents more user-friendly and reduce the risk of misinterpretations that can create uncertainty and inconsistency of compliance?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
11-2	Please explain your views	

SQ4. What impacts from the proposals for topics 4 to 11 do you expect? These may be economic/financial, environmental, health and wellbeing, or other areas.

[Please type here]

SQ5. Is there any support that you or your business would need to implement the proposed changes for topics 4 to 11 if introduced?

No response.

SQ6. If there are other issues MBIE should consider to better support consistency and certainty of compliance and consenting for insulation in housing and small buildings, please tell us.

No response.

Transition period for residential and small buildings H1/AS1 & H1/VM1

SQ7. Do you agree with the proposed transition time of 12 months for the proposed changes to take effect?

Insulation in housing and small buildings

- Yes, it is about right
- No, it should be longer (24 months or more)
- No, it should be shorter (6 months or less)
- Not sure/no preference

Please explain your views.

As noted in our responses, our preference would be to phase out the calculation method in addition to the schedule method. We are supportive of a shorter phase out of the schedule method: this could be achieved in 6 months in our opinion since the calculation method is already well understood and the schedule method can effectively be implemented in the calculation method anyway by setting all of the proposed building R-values to be at or above the schedule levels.

By contrast, we think that the calculation method should be phased out over a longer period. This should be a minimum of 20 months, though we think 24 months is probably required to train the remainder of the industry (those not already doing modelling) in the use of appropriate modelling software.

Managing overheating and internal moisture in homes

SQ8. If you think MBIE should support building designers with designing homes that safeguard building occupants from high indoor temperatures in summer (overheating) and other potential internal moisture risks, what approach should MBIE take?

As noted in our response to Topic 1, NZGBC believes that both the schedule and the calculation methods should be phased out. This is because neither includes any control on overheating.

This H1 update offers a vital opportunity to bring overheating controls into the building code. A simple first step would be to, within 20 months, stipulate use of the modelling method only and, in addition, require the proposed building to have a lower cooling demand than the reference building.

A long phase-in period would give ample opportunity for the industry to prepare for the change and provide the required level of training in use of modelling software.

If mandatory modelling for all homes is not palatable, then a compromise would be to require modelling for certain residential building types, i.e. apartments and townhouses. These already have a larger and more professional design team on board and would therefore be easier to mandate.

Insulation in large buildings

This section covers large buildings (other than housing). These are covered by the Acceptable Solution H1/AS2 and Verification Method H1/VM2. The proposals relate to ways to amend the acceptable solutions and verification methods for energy efficiency to

- Optimise insulation to better balance upfront building costs and longer-term benefits.
- Improve the consistency and certainty of compliance and consenting of buildings regarding insulation requirements and energy efficiency.

Optimising insulation to better balance upfront building costs and longer-term benefits

Questions for the consultation

Topic	Questions	Response
12	The schedule method may lead to less cost-effective construction than the more flexible calculation and modelling methods	
12-1	Do you support amending Acceptable Solution H1/AS2 as proposed to remove the schedule method?	<input type="checkbox"/> Yes, I support it <input checked="" type="checkbox"/> ✓ Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
12-2	Please explain your views As with topic 1, NZGBC would like also to see the calculation method phased out (over a longer timeframe) so that the benefits of full energy modelling can be realized.	

13	The calculation method for large buildings does not provide flexibility for roof, skylight and floor R-values, limiting opportunities for optimising insulation	
13-1	Do you support amending Acceptable Solution H1/AS2 to allow flexibility for the R-values of all building elements in the calculation method as proposed?	<input checked="" type="checkbox"/> ✓ Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
13-2	Please explain your views	

14	Where underfloor heating is only used in bathrooms, the minimum R-values for heated floors may cause unreasonable upfront costs	
14-1	Do you support amending Acceptable Solution H1/AS2 and Verification Method H1/VM2 as proposed to reduce upfront costs and improve the	<input checked="" type="checkbox"/> ✓ Yes, I support it <input type="checkbox"/> Yes, with changes

Insulation in large buildings

Topic	Questions	Response
	cost-effectiveness of insulation by exempting building elements with embedded heating from higher minimum R-values where embedded heating systems are solely used in bathrooms?	<input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
14-2	Please explain your views	

SQ9. What impacts from the proposals for topics 12 to 14 do you expect? These may be economical/financial, environmental, health and wellbeing, or other areas.

No response.

SQ10. Is there any support that you or your business would need to implement the proposed changes for topics 12 to 14 if introduced?

No response.

SQ11. If there are other issues MBIE should consider to better balance upfront building costs and longer-term benefits of insulation in large buildings other than housing, please tell us.

No response.

Consistency and certainty of compliance and consenting

Questions for the consultation

Topic	Questions	Response
15	The modelling method includes requirements that are unclear or outdated	
15-1	Do you support amending Verification Method H1/VM2 as proposed to clarify and simplify requirements for the modelling method?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
15-2	Please explain your views	

16	The schedule method does not adequately limit heat losses and gains from skylights in large buildings	
16-1	Do you support amending Acceptable Solution H1/AS2 to introduce a limit on the skylight area in the schedule method in H1/AS2 (in case MBIE does not proceed with the proposed removal of the schedule method from H1/AS2)?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
16-2	Please explain your views	

17	Thermal bridging from framing in walls is not adequately considered	
17-1	Do you support amending Acceptable Solution H1/AS2 and Verification Method H1/VM2 as proposed to better consider thermal bridging in framed walls?	<input type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input checked="" type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
17-2	<p>Please explain your views</p> <p>As noted in our response to topic 5, we caution that lowering the reference R-values to compensate for a higher assumed timber fraction will have the result that the R-value requirement for non-timber walls will, in practice, be lowered.</p> <p>Commercial buildings are frequently built using non-timber frame building systems. In addition, the revised R-values would still be difficult to meet in standard 90mm framing (if assuming 38% timber fraction) meaning that non-conventional approaches will need to be adopted.</p> <p>We therefore recommend that the R-values are retained as status quo but the proposal to assume 38% timber fraction for the proposed building be implemented. This will make the requirements slightly harder for timber frame constructions but not unreasonably</p>	

Insulation in large buildings

Topic	Questions	Response
	so given that the calculation method allows projects to compensate elsewhere and the target R-values are already higher than can be achieved with standard 90mm timber framing.	

18	How the areas of roofs, walls and floors should be measured is unclear	
18-1	Do you support amending Acceptable Solution H1/AS2 and Verification Method H1/VM2 as proposed to improve certainty and consistency of compliance by requiring the areas of roofs, walls, and floors to be measured using overall internal dimensions?	<input type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input checked="" type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
18-2	Please explain your views See our response to topic 6.	

19	NZS 4214 includes ambiguous instructions for determining the R-values of roofs, walls, and some floors	
19-1	Do you support amending Acceptable Solution H1/AS2 and Verification Method H1/VM2 as proposed to improve certainty and consistency of compliance by providing clearer requirements for defining the boundaries of the bridged portion of a building element when calculating its R-value using NZS 4214?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
19-2	Please explain your views	

20	For some mixed-use buildings it is unclear whether H1/AS1 and H1/VM1 can be used, or H1/AS2 and H1/VM2	
20-1	Do you support amending Acceptable Solution H1/AS2 and Verification Method H1/VM2 as proposed to improve certainty and consistency of compliance by providing clearer requirements for determining which compliance pathways can be used for a mixed-use building?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
20-2	Please explain your views	

21	The look-up tables with R-values for slab-on-ground floors do not cater for some common situations	
21-1	Do you support amending Acceptable Solution H1/AS2 as proposed to make it easier for designers and Building Consent Authorities to establish whether a building complies with the H1 energy efficiency insulation provisions by enabling the use of the look-up tables for slab-on-ground floor R-values for more situations?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference

Insulation in large buildings

Topic	Questions	Response
21-2	Please explain your views	

22	Acceptable Solution H1/AS2 and Verification Method H1/VM2 include obsolete provisions and definitions, and outdated references to documents and tools	
22-1	Do you support amending Acceptable Solution H1/AS2 and Verification Method H1/VM2 as proposed to make these documents more user-friendly and reduce the risk of misinterpretations that can create uncertainty and inconsistency of compliance?	<input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> Yes, with changes <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference
22-2	Please explain your views	

SQ12. What impacts from the proposals for topics 15 to 22 do you expect? These may be economical/financial, environmental, health and wellbeing, or other areas.

No response.

SQ13. Is there any support that you or your business would need to implement the proposed change if introduced?

No response.

SQ14. If there are other issues MBIE should consider to better support consistency and certainty of compliance for insulation in large buildings other than housing, please tell us.

No response.

Transition period for large buildings H1/AS2 & H1/VM2

SQ15. Do you agree with the proposed transition time of 12 months for the proposed changes to take effect?

- Yes, it is about right
- No, it should be longer (24 months or more)
- No, it should be shorter (6 months or less)
- Not sure/no preference

Please explain your views.

See our response to SQ7

Thank you

Thank you

Thank you for your feedback. MBIE really appreciates your insight because it helps us identify the needs of New Zealanders and your thoughts on energy efficiency and insulation in buildings.

If you have anything else you would like to tell MBIE about energy efficiency in the Building Code, please leave your feedback below.



