BUILDING PERFORMANCE

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

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa
New Zealand Government

Contents

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.

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Seeking feedback

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- for contacting you about your submission.

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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:	Rachel MacIntyre
Email address:	rmacintyre@nzia.co.nz

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

x Yes ☐ No

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

x Yes ☐ No

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

Te Kāhui Whaihanga New Zealand Institute of Architects

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)

X Other (please specify below)

☐ Building resident, occupant or user (please specify below)

☐ Prefer not to say

☐ Commercial building owner

Te Kāhui Whaihanga New Zealand Institute of Architects is a 4,500 strong membership-based professional organisation that represents registered architects and promotes architecture and a more sustainable built environment in Aotearoa New Zealand. Our members include Registered Architects, Graduate Architects, Academics and affiliated built environment professionals.

Your information

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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?	☐ Yes, I support it X Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
1-2	**Te Kāhui Whaihanga supports the removal of the schedule method for all but minor buildings and encourages a phased removal of the calculation method for townhouses and apartments as a first step with predictive modelling becoming the default approach.** **We recommend that allowances for smaller standalone dwellings <90m2 are made where the schedule method is maintained for the foreseeable future.** While the schedule method has its limitations, it enables non-architect or non-designer house builders to design and construct their own homes with reasonable effectiveness. An enhanced version of the schedule method could make it easier for most homes, especially those under a certain size to qualify as an AS1 solution. For instance, it may not be practical or cost-effective to engage a professional to model a smaller dwelling, like a granny flat, due to the project's limited scale and feasibility. Predictive modelling methods provide greater cost savings by factoring in elements such as orientation and glazing percentage. This approach helps optimise insulation levels and reduces long-term	

Topic	Questions	Response
	energy costs. Shifting focus to predictive modelling is the right direction for both our housing and commercial building stock. In conjunction with moving to using predictive modelling as a default approach, we also propose transitioning to absolute performance targets (kWh/m2/year) in line with previous Building for Climate Change targets. This approach can be achieved without burdening homeowners with higher energy costs, offering both short-term energy savings and long-term environmental benefits. Addressing housing energy efficiency will also help ease the strain on the national energy grid, potentially reducing the need for costly infrastructure upgrades to meet future demands. By improving building energy efficiency, we can benefit both the environment and the energy system.	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
2-2	Te Kāhui Whaihanga **supports amending Acceptable Solution H1/AS1 to adjust the minimum possible R-values in the calculation** method as proposed. If the calculation method is retained or used as a reference for any reference model, we believe it's crucial to maintain a minimum R-value for slab insulation. This ensures that we avoid loopholes where people could build uninsulated concrete slabs for inhabited spaces. It's also important to address the performance of the slab perimeter, whether it's part of the design or, if not inhabited, must be properly detailed with adequate thermal insulation. Our goal is to prevent any blanket changes from inadvertently allowing uninsulated slabs in inhabited spaces across the country.	

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-values where embedded heating systems are solely used in bathrooms?	☐ Yes, I support it ☐ Yes, with changes X No, I don't support it ☐ Not sure/no preference

Topic	Questions	Response
3-2	Te Kāhui Whaihanga **does not support** the proposal for the following reasons: Concrete slabs are the standard foundation for homes in Aotearoa New Zealand. It is widely understood that the thermal envelope of a building—comprising the full slab, walls, and roof—should be considered as a holistic system. When properly insulated, this approach eliminates thermal bridges and enhances overall energy efficiency. Underfloor heating systems in bathrooms are primarily used for comfort rather than to meet heating demand. These systems often run longer than other home heating systems, resulting in higher energy consumption. Inadequate insulation can cause thermal bridging in ground-floor slabs, leading to heat loss. The proposed removal of minimum R-values for slab floors could exacerbate this issue, particularly in bathrooms without under-slab or edge insulation, allowing more heat to escape. There should not be a free pass to bypass insulation requirements, as this affects overall energy consumption, impacting the country's energy use. If a premium product is being used, it should be installed within the correct system to avoid unnecessary heat loss throughout the slab. The key takeaway is that it makes more sense to implement climate zone-specific slab insulation requirements rather than a one-size-fits-all approach across the country. If a blanket requirement is to be adopted, it should mandate the inclusion of insulation, including slab edge insulation. Additionally, retrofitting an uninsulated slab with insulation is both difficult and costly. While retrofitting above the slab is a potential option, this approach is highly unlikely to be widely implemented.	

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.

Cost Benefits: In 2024 BRANZ was commissioned to carry out a technical analysis of the New Zealand Building Code Energy Efficiency clause H1 settings for residential buildings. According to the report, the outcome of the economics of changing the H1 R-value settings was:

Our analysis suggests that the current H1 5th edition R-value settings do not need changing. The highest ratio of benefits to costs was obtained for constructions that comply with the current H1 5th edition R-value settings.

We would like to understand why this evidence is being questioned.

Health Benefits: Buildings that have problems with overheating, damp, mould and poor ventilation due to their design put the inhabitants at risk of having health issues. These issues can also impact the durability of the building where rot or rust may result in structural issues and a risk to life and health.

Ensuring no surface can get cold enough for condensation and mould to form, i.e. adequate consideration of thermal bridging, and adequate measurable levels of ventilation to reduce the level of moisture inside dwellings, commercial, education and other types of buildings is crucial.

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

Support with Education, Upskilling and Knowledge Building is Key

Te Kāhui Whaihanga understand that upskilling and training in predictive energy modelling will be required if the proposal to phase out the calculation method for townhouses and apartments over a minimum period of 20 months is implemented. The Institute acknowledges that 24 - 36 months is more realistic. This transition will need to be a cross-industry collaborative effort.

We believe that this is a valuable skill for all architectural practices to have. With experience, it is estimated that an energy model can be completed in the space of 3-4 hours for most single-family homes. However, this can vary, and more accurate models can take 1-2 days.

Architects need greater understanding about building performance. This will require a transition plan away from modelling to only demonstrate compliance to modelling that predicts how buildings perform (predictive modelling). Some organisations are already providing this training such as NZGBC, Passive House Academy and Sustainable Engineering.

Challenges with upskilling the industry

An anticipated challenge will be finding enough qualified people to do the modelling and to be able to interpret the modelled results, such as in compliance etc.

Approximately 5% of buildings across the motu are designed by architects. We acknowledge the learning curve required to bring people up to speed on modelling. The challenge largely depends on the complexity of the tool being used, as well as the quality of the results it produces. Sufficient education needs to be provided to ensure inexperienced users avoid generating sub-standard models which could still result in poorly performing buildings

Local authorities will need the resources to invest the additional time to ensure that modelling is done correctly. While it will require time and effort, over time, consenting authorities will gain the experience needed to assess which buildings are performing as expected and whether they comply with the necessary standards.

Communication is key

It will be key to highlight the benefits of predictive energy modelling to the industry, including architects, to ensure industry buy-in.

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.

Townhouses and apartments which share walls should not be required to have the same insulation levels as stand-alone homes, which lose heat through all sides. Predictive energy modelling of townhouses and apartments will allow the benefit of shared walls to be quantified and could potentially result in reduced construction costs.

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?	☐ Yes, I support it X Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
4-2	Te Kāhui Whaihanga **supports amending Verification Method H1/VM1 with changes** to clarify and update requirements for the modelling method for the following reasons: **Propose that the modelling method be amended to be based on ISO 52016**. ISO 52016 is a predictive modelling standard in the context of building energy performance. It provides a methodology for calculating and simulating the energy needs of a building, including heating, cooling, lighting, and ventilation requirements. The standard helps predict how a building will perform in terms of energy consumption based on various factors like building design, climate, internal heat gains, and usage patterns. As mentioned previously, in conjunction with moving to using predictive modelling as a default approach, we also recommend transitioning to absolute performance targets (kWh/m2/year) in line with previous Building for Climate Change targets. We also recommend a transition to a **standardised industrywide**	

Topic	Questions	Response
	predictive modelling tool. Either through establishing a baseline across various tools with key indicators or developing a single standardised software. The key is to ensure that the tools we use are effective for most Aotearoa New Zealand homes and modelling software buildings, and that the right tools are tailored to the specific buildings we are assessing.	

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?	☐ Yes, I support it X Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
5-2	Te Kāhui Whaihanga **supports amending Acceptable Solution H1/AS1 and Verification Method H1/VM1 with changes.** H1 does not account for thermal bridging (e.g., steel or timber passing through insulation), which can lead to significant issues under E3, such as mould and moisture issues, negatively affecting both health and building durability. We recommend substituting NZS 4214 for ISO 6946. Another alternative which could be added to the mix is to eliminate dwangs (horizontal braces in wall framing) as this would be a more efficient and cost-effective solution.Dwangs can add unnecessary costs to framing. Both NZS3604 8.5.4 and BRANZ state that dwangs are not necessary. The removal of dwangs would lead to less timber usage, allow for higher insulation values and more energy-efficient, warmer homes. A known dwang-free solution that works from an economic, energy efficiency and resource perspective is a stud framing system with a 90mm stud dwang free, framed wall with a 45mm insulated service cavity. framing without nogs/dwangs is possible with a rigid sheet lining (e.g. RAB) or with structural cavity battens. In addition, we oppose reducing wall insulation values from an R-value of 2.0 to 1.6, as there is an opportunity to improve insulation for better energy efficiency in homes.	

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	☐ Yes, I support it ☐ Yes, with changes

Topic	Questions	Response
	compliance by requiring the areas of roofs, walls, and floors to be measured using overall internal dimensions?	X No, I don't support it ☐ Not sure/no preference
6-2	Te Kāhui Whaihanga **does not support** this change. **We strongly recommend transitioning to measuring exterior dimensions**, as this aligns with industry best practice and provides a more accurate reflection of thermal bridging and heat transfer effects at junctions. It supports future energy demand requirements as outlined in the Building for Climate Change Programme's operational efficiency framework. As Aotearoa New Zealand moves toward predictive modelling for Code compliance, adopting exterior dimensions now will reduce the need for calculation of many thermal bridges when predictive thermal models become a regulatory requirement. Using external dimensions simplifies the calculation of thermal bridges, especially when, as per our suggestion, predictive modelling is required for compliance. In contrast, relying on internal dimensions results in nearly every junction in timber-frame buildings representing a potential energy loss that must be accounted for, leading to unnecessary complexity. Internal dimensions may also create unintended consequences for multi-storey buildings as thermal bridges at slab edge, mid-floors, and roof edges do not get accounted for. By adopting external dimensions now, we can proactively streamline compliance and better account for energy loss across all building types. If internal dimensions are mandated, projects certified under Passivhaus or Homestar will face higher compliance costs due to the need to re-measure and re-enter dimensions. In addition, Advice Notes should be provided to address any glazing area concerns.	

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?	☐ Yes, I support it X Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
7-2	Te Kāhui Whaihanga **supports** this change **with changes**. **We recommend changing out NZS 4214 for ISO 6946** as this is the internationally recognised standard and considered more accurate. This aligns with adopting other international standards for parts of the	

Topic	Questions	Response
	building code and for allowing materials and products tested to international standards to be used for compliance in NZ.	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
8-2	Te Kāhui Whaihanga **supports** this change.	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
9-2	Te Kāhui Whaihanga **supports** this change.	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
10-2	Te Kāhui Whaihanga **supports** this change.	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference

Topic	Questions	Response
11-2	Te Kāhui Whaihanga **supports** this change.	

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.

No further comments.

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

Refer to our response for SQ2.

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 further comments.

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?

☐ Yes, it is about right

X 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.

We would support the following transition period for residential and small buildings:

- A 6-month phase-out period for the Schedule Method for all typologies except minor dwellings <90m2 where the schedule method is maintained for the foreseeable future.
- Phase out the Calculation Method for townhouses and apartments and phase in the requirement for predictive modelling for townhouses and apartments over a minimum 20-month period (more realistically 24-36 months).
- Introducing mandatory modelling for larger stand-alone houses and commercial projects as a second step, phasing in over a longer period.

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?

Addressing Overheating

The Schedule Method and Calculation Method do not address overheating.

The update to H1 presents a timely opportunity to introduce overheating controls into the Building Code. These could include setting a maximum internal temperature and establishing a maximum cooling load over a specified period. Currently, there are no requirements in place to address overheating, even though research has shown that increased insulation does not contribute to overheating.

As an initial step, mandating predictive modelling for specific residential types, such as apartments and townhouses, would be highly beneficial. These typologies are more likely to experience overheating due to factors like orientation and limited ventilation options. In addition, these types of buildings typically involve more professional design teams and are more susceptible to overheating issues.

Aotearoa New Zealand can leverage established international practices in energy efficiency, thermal performance, and ventilation to improve health and comfort. Aligning with these standards would also support high-quality engineering practices already in use.

Different solutions are needed for varying building sites and regions. Some may require mechanical ventilation and airtightness testing, while others benefit from passive design strategies like site orientation and window shading. MBIE should clarify that insulation, overheating, and moisture control must be considered together, not in isolation, to ensure optimal building performance.

Proposed first steps would be to:

- Phase out the Schedule Method for townhouses and apartments over a 6-month period.
- Phase out the Calculation Method for townhouses and apartments and phase in the requirement for predictive modelling for townhouses and apartments over a minimum 20-month period (more realistically 24-36 months).
- Introduce overheating parameters in the Building Code ensuring temperatures are kept below Threshold A (e.g., no more than 5% of the year exceeding 25°C). If it falls between Threshold A and Threshold B (5% - 10%), cooling systems can be used to mitigate the issue. Exceeding Threshold B should not be permitted. A longer phase-in period will allow the industry adequate time for preparation and ensure sufficient training in the required modelling software.

MBIE should play a key role in setting standards for healthy indoor environments by establishing minimum requirements and supporting industry education. To address overheating, H1 should be amended, or a new H2 clause introduced. With the potential removal of the Schedule Method, the Calculation and Modelling Methods should incorporate overheating assessments and compliance parameters.

Addressing Internal Moisture Risks

MBIE should update the Building Code to address internal moisture, with a focus on the long-term benefits of creating warmer, healthier homes.

H1 must account for thermal bridging (e.g., steel or timber elements passing through insulation), as this can lead to significant issues under E3, such as mould and interstitial moisture. These problems can negatively impact both occupant health and the durability of the building.

MBIE should further investigate these risks and provide clear guidance. This could involve amending existing clauses and Acceptable Solutions or introducing a new clause specifically for interstitial moisture management. Additionally, incorporating specific requirements within H1 would help align with the objectives of Clause E3.2 of the Aotearoa New Zealand Building Code, promoting better moisture control in buildings.

As homes and buildings become more airtight due to improved building systems, the risk of water vapor entrapment increases. This is particularly problematic in housing and multi-residential buildings, where moisture levels are often left unmanaged. Introducing predictive modelling could help prevent internal moisture issues, ensuring healthier living environments for occupants.

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?	☐ Yes, I support it X Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
12-2	Te Kahui Whaihanga **supports this with changes**. **We support the removal of the schedule method for all but minor buildings and encourage a phased removal of the calculation method for townhouses and apartments as a first step with predictive modelling becoming the default approach. We would like to see the calculation method phased out over an extended timeframe for larger buildings also so that the benefits of predictive energy modelling can be realised.** Refer to our response in T1.2	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
13-2	Te Kāhui Whaihanga **supports** this change.	

Topic	Questions	Response
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 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?	☐ Yes, I support it ☐ Yes, with changes X No, I don't support it ☐ Not sure/no preference
14-2	Te Kāhui Whaihanga **does not support** the proposal. Refer to our response in 3.2	

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 further comments.

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

Please refer to our response in SQ2.

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.

Adopt construction methods that minimize thermal bridging in construction and implement verification procedures. H1 must address thermal bridging—such as steel or timber elements passing through insulation—since it can cause significant issues under E3, including mould growth. As stated previously, these issues can negatively impact both occupant health and the long-term durability of the building.

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?	☐ Yes, I support it X Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
15-2	Te Kāhui Whaihanga **supports amending Verification Method H1/VM2 with changes** to clarify and update requirements for the modelling method. **Please refer to our response under Topic 4.2**	

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)?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
16-2	Te Kāhui Whaihanga **supports** this change.	

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?	☐ Yes, I support it X Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
17-2	Te Kāhui Whaihanga **supports** this, **with changes.**	

Topic	Questions	Response
	H1 does not account for thermal bridging (e.g., steel or timber passing through insulation), which can lead to significant issues under E3, such as mould, and negatively affect both health and building durability. We recommend substituting NZS 4214 for ISO 6946.	

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?	☐ Yes, I support it ☐ Yes, with changes X No, I don't support it ☐ Not sure/no preference
18-2	Te Kāhui Whaihanga **does not support** this change. **We strongly recommend transitioning to measuring exterior dimensions**, as this aligns with industry best practice and provides a more accurate reflection of thermal bridging and heat transfer effects at junctions. **Refer to our response to Topic 6.2**	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
19-2	Te Kāhui Whaihanga **supports** this change.	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
20-2	Te Kāhui Whaihanga **supports** this change.	

Topic	Questions	Response
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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
21-2	Te Kāhui Whaihanga **supports** this change.	

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?	X Yes, I support it ☐ Yes, with changes ☐ No, I don't support it ☐ Not sure/no preference
22-2	Te Kāhui Whaihanga **supports** this change.	

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 further comments

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

No further comments

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.

To ensure consistency and certainty in compliance, MBIE should:

- Incorporate construction methods that minimise thermal bridging in constructions and establish verification procedures.
- Review the Calculation Method to prevent unintended increases in energy use.
- Phase in predictive energy modelling for larger buildings.
- Educate architects, designers and the industry - including BCA's - on predictive modelling tools suitable for larger buildings to support compliance with calculation (short-term) and predictive modelling requirements (long-term).

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

X 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.

Please refer to our response for SQ7

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.

Thank you for the opportunity to make a submission on the H1 section of the New Zealand Building Code Consultation – Insulation requirements in housing and other buildings.

We would like to reiterate the importance of addressing overheating and internal moisture issues in buildings. MBIE should update the Building Code to address these critical issues with a focus on the long-term benefits of creating warmer, healthier homes. The priority should be on the broader societal and environmental impacts rather than short-term financial gains. Focusing solely on immediate profits could negatively affect climate change, increase illnesses and strain hospital resources and impact the national grid network.

Urgent action is required to prevent overheating, support grid stability and reduce New Zealand's carbon emissions, benefiting both people and the planet. Additionally, transitioning to ISO standards for energy modelling and thermal performance of materials, as proposed by the Building for Climate Change Programme, would align with the Government's approach to adopting international standards, simplifying the use of global products, and reducing duplication.

There is strong support from our membership and industry for these changes. We urge you to take this opportunity to make meaningful change and use it to the benefit of all New Zealanders.