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.

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.

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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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- 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).

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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:	Building Officials Institute of New Zealand (BOINZ)
Email address:	Nick.Hill@boinz.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.

[Please add name here]

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

☐ Architect

☐ BCA/Building Consent Officer

☐ Builder or tradesperson (please specify below)

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

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

☐ Commercial building owner

☐ Designer (please specify below)

☐ Engineer (please specify below)

☐ Residential building owner

☐ **Other** (please specify below)

☐ Prefer not to say

For nearly 60 years the Building Officials Institute of New Zealand (BOINZ) has been the peak body for building surveying in New Zealand, with over 1250 members. BOINZ has supported strong and fair regulation of the building industry.

BOINZ vision is to 'Improve the Quality and Performance of the Built Environment', with professional development programmes it aims to improve the competency of building surveyors and unapologetically seeks to improve building outcomes for building owners and occupiers.

Your information

It is our belief that BOINZ is the only organisation within the design and build sector that can truly provide independent oversight and advise on best practice outcomes without sector interference. Our submission is based on member input from their observations and experiences.

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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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

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☐ 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

	Introduction **The proposal to reduce R-values and remove the schedule method is fundamentally flawed.** • **The proposal to reduce construction R-values delivers an ongoing cost imposition to the country** • **The proposal to reduce insulation may reduce construction cost but will not address overheating and will ensure that building owners, users and businesses pay more for heating and cooling over the life of the building** • **The proposals do not follow the supporting evidence in the consultation document** • **The schedule method is widely used due to its simplicity and generally delivers good cost-benefit outcomes over the life of the building. There is no need to remove it, but it could be updated and improved** • **Removing the schedule method will reduce the number of practitioners competent to carry out insulation calculations to those comfortable with computer modelling programmes creating a niche specialist and financial advantages practitioner group while removing the ability for BCAs to easily check for Building Code compliance.** • **Overheating is not properly addressed by this proposal because it does not address orientation, window shading and ventilation** • **Internal moisture is not demonstrated as a problem in this consultation and should not be addressed by reducing insulation values.** **Context** BOINZ acknowledges that this is the third consultation in recent years on the energy efficiency acceptable solutions and verification methods that when followed, building consent authorities must accept as complying with Building Code clause H1 Energy Efficiency. In its first submission BOINZ commented that construction was not ready for the additional insulation proposed and having a building structure to accommodate the extra insulation should be addressed first. As a consequence, reduced roof/ceiling insulation around the perimeter of the house/building was permitted for construction convenience, compromising energy efficiency goals. It appears that this new consultation exercise is more politically driven rather than evidence-based. It seeks to reduce 'industry noise' and a desired need to reduce construction costs, while also focussing on the supposed premise of overheating in the summer. We support a drive to reduce construction costs but not at the expense of long-term operational savings for the consumer.	

	This proposal fails to consider the effect of winter heating and does not provide adequate consideration of the additional compliance costs for design, consenting and construction through the use of the calculation and modelling methods. Most importantly the unrecoverable, additional, inflationary energy costs over the life of the building will be an ongoing cost burden that cannot be undone without additional disproportional subsequent capital cost for remediation. What is the problem the proposals in the consultation paper seek to resolve, apart from noise from some parts of the building sector? The unintended consequence, if these proposals go ahead, will be to redefine and lower the Building Code performance for "adequate thermal resistance". This is not explicitly stated as an objective of the consultation. The reality is that New Zealand lags behind the rest of the world in energy efficiency and conservation. BOINZ believes New Zealand needs to continue to focus on long term benefits rather than being distracted by sector noise on short-term costs. Designers and builders are not the audience we should be focusing on. Rather, it is the reduced energy costs over the life of the building that can be delivered to homeowners, and future homeowners, building owners, occupiers and businesses. The BRANZ analysis, included in the consultation document supports the status quo, yet the proposals ignore this, with contrary views downplayed. If a particular method (i.e. schedule method) is perceived to be lacking, BOINZ prefers that this be amended and designers/builders educated to make it fit-for-purpose rather than removing it altogether. This is especially the case if removal means additional costs for designers, builders and building consent authorities, which in turn will inevitably increase consenting costs. The objective of the consultation proposal is to reduce construction cost. BOINZ strongly disagrees with this targeted construction cost reduction approach because it does not account for long term operational cost savings. **Cost benefit analysis** MBIE commissioned BRANZ to do cost-benefit analysis of the current H1 insulation requirements. Consultation document paragraph 1.2.4 *Cost-benefit analysis indicates that meeting the current insulation requirements can be beneficial overall* states in the first paragraph: *Building Research Association of New Zealand (BRANZ) cost-benefit analysis suggests that meeting the current H1 insulation requirements for housing and small buildings can*	

	*be cost-effective and beneficial overall**. The long-term energy efficiency benefits outweigh the additional upfront costs.*** However, the second paragraph misleadingly states the opposite to the BRANZ quote: *However, the balance between costs and benefits depends on the compliance method that is used. BRANZ's analysis shows that using the calculation or modelling methods achieves the highest benefit to cost ratio overall. This is because the calculation and modelling methods enable people to adjust the insulation levels of different building elements to optimise a buildings' overall energy performance in the most cost-effective way*. Specific comment on the quoted paragraph above is as follows: a. The sentence "However, the balance between costs and benefits depends on the compliance method that is used" is correct because it includes the schedule method, which BRANZ is quoted as "The long-term energy efficiency benefits outweigh the additional upfront costs." b. The sentence "BRANZ's analysis shows that using the calculation or modelling methods achieves the highest benefit to cost ratio overall" contradicts "The long-term energy efficiency benefits outweigh the additional upfront costs." c. The sentence "This is because the calculation and modelling methods enable people to adjust the insulation levels of different building elements to optimise a buildings' overall energy performance in the most cost-effective way." is misleading because it confuses "optimising construction costs" and "cost-effective" with long-term benefits and costs. Putting it simply, the BRANZ analysis compares the extra annual energy cost of the calculation method and the modelling method to the schedule method, demonstrating long term positive cost benefit analysis. Conversely, it shows that the calculation method and modelling methods have a long-term negative cost benefit ratio. In the section, 2.2 headed "*Optimising insultation to better balance upfront building costs and longer-term benefits*", the construction costs have been identified, however the longer-term costs have <u>not</u> been identified to comply with the Building Act 2004 s4(2)(e) principle to take into account "the costs of a building (including maintenance) over the whole of its life".	

	Overheating Section 1.2.4, third paragraph, is misleading because BRANZ did not say overheating was due to insulation, other than to say insulation would reduce overheating. Paragraph 2.17 of the proposal states *"BRANZ's analysis shows that the H1 insulation requirements from the 2021 changes help to reduce daytime overheating risks compared to the previous H1 settings. Increased insulation in the roof, wall and windows typically reduce the risk of overheating during the daytime by reducing solar gain."* Paragraph 2.17 continues *"Many factors can contribute to overheating in buildings. This includes ventilation, building orientation and shading, window size and glazing. A poorly ventilated building with large windows may overheat where the design does not effectively allow for managing heating loads and cooling demands."* BOINZ recommends that MBIE consider the following to develop a more accurate solution for all three methods for insulating buildings: • Include window size restrictions and shading, particularly on north facing walls • Include building orientation • Include building shading • Include ventilation **Moisture** It should be noted; internal moisture is not a current problem attributable to insulation and will not be affected by changing the insulation levels. We urge MBIE to understand and better articulate internal moisture impacts.	

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~~ ☐ ~~Yes, with changes~~ ☐ **No, I don't support it** ☐ ~~Not sure/no preference~~
1-2	The proposal to remove the schedule method from H1/AS1 does deliver cheaper construction cost but is unfortunately silent on the increase in compliance costs, using the calculation and modelling methods, and ignores the lower longer-term annual energy costs delivered by the schedule method. The longer-term whole of life cost, based on the information contained in BRANZ report, quoted in this consultation paper delivers a longer-term advantage to house and building users and a net energy saving for the country. The Building Code sets performance standards that new building work must achieve and is for the benefit of the building users not, for the convenience of builders. BOINZ seriously questions why there is confusing and contradictory evidence in the consultation document. The implication of which could likely lead to a perverse outcome that directly affects energy efficiency and long-term costs to consumers. BOINZ seriously questions why MBIE is promoting a permanent, long-term, inflationary, energy cost premium for all building owners and businesses.	

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

Topic	Questions	Response
2-2	Vital input information for the calculation method, the equivalent of Table 2.1.2.2B from the existing H1/VM2 is missing in H1/AS1. Table 2.1.1.3 is proposed for heated ceilings, walls or floor but there is no equivalent for non-heated buildings systems. This is further confused because R-values in Table 2-1 in the consultation document do not appear in the Appendix A changes for H1/AS1. BRANZ showed long-term cost advantage based on current R-values and there is no evidence to support the removal of the schedule method or the reduction in R-values. BOINZ does not support a reduction in R-values.	

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~~ ☐ **No, I don't support it** ~~☐ Not sure/no preference~~
3-2	Strongly disagree, because this proposal has no minimum R-value for slab-on-ground floors. For example, for a house built in Central Otago and during the winter the heat from the floor would dissipate into the snow-covered ground. There is no way this can be classified as energy efficient or cost-effective.	

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.

There will be no positive long-term impacts that can be achieved by the proposed changes to H1/AS1. Long-term negative impacts with higher energy bills for the life of the building will be the outcome for homeowners and building occupiers. Surely, the impact of subsequent homeowners and renters paying more is not the outcome of this short sighted, cost only focused proposal?

BOINZ strongly requests a long-term perspective and user occupier benefits and impacts be considered, instead of construction costs only.

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

BOINZ will need:

- the decision on whether the schedule method will be kept or not
- if not kept, BOINZ will need a complete solution with all R-values Tables included
- From there BOINZ will be able to deliver ongoing updated information and training.

The building sector will need:

- Clear and accurate acceptable solutions and verification methods
- Education programmes for designers, constructors and LBPs
- Targeted education may be needed for specific sector audiences

For BCAs:

- The simplest solution is proposed to be taken away. The schedule method is easily checked by BCAs.
- How will BCAs know if the calculation method and the modelling method have been property applied? Will they require a peer review or a producer statement?
- With the calculation and modelling methods, specific instructions will be required to show what R-Value insulation is to be installed in what building element (where).

For Government:

- What will the increase in energy demand caused by reduced insulation mean for future generation capacity? There will be a need to assess the increased energy demand caused by less insulation.

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.

The data in the discussion document showed that the schedule method delivered the best longer-term benefit. The unjustified concern about overheating could be simply addressed by improving the schedule method to address suitable ventilation, building orientation and shading, window size and glazing choice.

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~~ ☐ ~~Yes, with changes~~ ☐ **No, I don't support it** ☐ ~~Not sure/no preference~~
4-2	BOINZ is concerned about BCAs ability to check computer generated solutions. How do they ensure all the inputs are correct? How do they ensure they get all the information?	

Topic	Questions	Response
	In H1/VM1 D6.1 Documentation, it needs to be clear that (e) is a requirement of H1/VM1 that the heating loads and the cooling loads are both provided for the reference and the proposed building. Hence, delete "Where possible" from H1/VM1 D6.1(e) [Consultation document page 28]	

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~~ ~~☐ Yes, with changes~~ ☐ **No, I don't support it** ~~☐ Not sure/no preference~~
5-2	The BRANZ research showed that the existing insulation settings deliver a positive long-term cost benefit, so there is no need to reduce the R-values.	

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?	~~☐ Yes, I support it~~ ~~☐ Yes, with changes~~ ☐ **No, I don't support it** ~~☐ Not sure/no preference~~
6-2	BOINZ disagrees with the change because it is both inconsistent and creates confusion with other methodologies used by designers.	

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** ~~☐ Yes, with changes~~ ~~☐ No, I don't support it~~ ~~☐ Not sure/no preference~~
7-2	BOINZ agrees with the inclusion of H1/AS1 para 2.1.3.2	

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

Topic	Questions	Response
8-2		

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?	☐ **Yes, I support it** ~~☐ Yes, with changes~~ ~~☐ No, I don't support it~~ ~~☐ Not sure/no preference~~
9-2		

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?	☐ **Yes, I support it** ~~☐ Yes, with changes~~ ~~☐ No, I don't support it~~ ~~☐ Not sure/no preference~~
10-2		

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?	~~☐ Yes, I support it~~ ☐ **Yes, with changes** ~~☐ No, I don't support it~~ ~~☐ Not sure/no preference~~
11-2	MBIE should be amending insulation requirements as part of an integrated approach to establishing safe, healthy and comfortable indoor environments. It is ironic that "for occupant comfort" is proposed to be deleted from the definition of Conditioned Space when overheating, a comfort condition, is a driver for these proposed changes.	

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.

BOINZ is concerned about the role of BCA when considering building consent applications where they cannot know if these changes have been included in the computer programmes and their subsequent liability.

Refer: H1/VM1 D1.4.1 – Modelling software

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

BOINZ will update BCA training (again for H1) if amended H1 acceptable solutions and verification methods are available.

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.

MBIE should be amending insulation requirements as part of an integrated approach to establishing safe, healthy and comfortable indoor environments.

It is ironic that "for occupant comfort" is proposed to be deleted from the definition of conditioned space when overheating, a comfort condition, is a driver for these changes.

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~~
- **☐ 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.

MBIE's experience with transition periods for previous energy efficiency implementation would indicate a longer transition period is required.

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?

We are bemused at the smoke and mirrors, and obfuscation approach adopted within this consultation document. Surely this is not the outcome New Zealand needs in terms of improving building and occupational quality.

The discussion document, specifically BRANZ research, does not consider these issues a problem.

Requiring heating loads and cooling loads be separately calculated, would be one way to address possible summer overheating.

Also, consideration of orientation, shading and ventilation should be advantageously used if there is a large summer cooling requirement.

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~~ ~~☐ Yes, with changes~~ ☐ **No, I don't support it** ~~☐ Not sure/no preference~~
12-2	There is no evidence in the consultation document to support the removal of the schedule method for large buildings. The only analysis, included by BRANZ was for small buildings.	

Topic	Questions	Response
	Using the methodology analysis applied to small buildings, for large buildings, the construction cost of insulation will be offset by the reduction in energy use and hence energy cost over the life of the building. Increased energy costs over the life of the building are a needless inflationary cost on building occupiers, businesses, and energy generators.	

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?	☐ ~~Yes, I support it~~ ☐ ~~Yes, with changes~~ ☐ **No, I don't support it** ☐ ~~Not sure/no preference~~
13-2	There is no evidence in the consultation document to support the removal of the schedule method for large buildings. The only analysis, included by BRANZ was for small buildings. Using the methodology analysis applied to small buildings, for large buildings, the construction cost of insulation will be offset by the reduction in energy use and hence energy cost over the life of the building. Increased energy costs over the life of the building are a needless inflationary cost on building occupiers, businesses, and energy generators.	

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~~ ☐ **No, I don't support it** ☐ ~~Not sure/no preference~~
14-2	There is no evidence in the consultation document to support the removal of the schedule method for large buildings. The only analysis, included by BRANZ was for small buildings. Using the methodology analysis applied to small buildings, for large buildings, the construction cost of insulation will be offset by the	

Topic	Questions	Response
	reduction in energy use and hence energy cost over the life of the building. Increased energy costs over the life of the building are a needless inflationary cost on building occupiers, businesses, and energy generators.	

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.

Larger buildings are developed, designed and constructed by organisations that can make informed decisions because they work in construction to generate assets and buildings.

However, there are competing forces at play between lower construction cost and long-term maintenance and running costs of a building. Lowering the construction cost by installing less insulation, while reducing the capital cost for the developer, will increase the ongoing energy and running costs, which are disproportionally paid by the purchaser, occupiers and businesses over the life of the building.

Increased energy costs over the life of the building are a needless inflationary cost on building occupiers and businesses.

There is a need to keep unnecessary costs from New Zealand businesses and also to reduce New Zealand's long-term energy demand.

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

Calculation and modelling methods will need a toolset for BCAs to easily check energy calculations to ensure Building Code compliance

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.

The increased long term energy costs are paid by the occupiers and business owners over the life of the building. This is never ending inflationary cost to business, which will be passed on to New Zealanders forever.

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~~ ☐ ~~Yes, with changes~~ ☐ **No, I don't support it** ☐ ~~Not sure/no preference~~
15-2	This proposal is inconsistent with the proposal to remove the schedule method. Why is the schedule method not improved in a similar manner?	

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)?	☐ ~~Yes, I support it~~ ☐ **Yes, with changes** ☐ ~~No, I don't support it~~ ☐ ~~Not sure/no preference~~
16-2	This proposal is inconsistent with the proposal to remove the schedule method. Why is the schedule method not improved in a similar manner?	

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** ☐ ~~Yes, with changes~~ ☐ ~~No, I don't support it~~ ☐ ~~Not sure/no preference~~
17-2	This proposal is inconsistent with the proposal to remove the schedule method. Why is the schedule method not improved in a similar manner?	

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~~ ☐ **No, I don't support it**

Topic	Questions	Response
		☐ ~~Not sure/no preference~~
18-2	Dimensions should be measured in the same way as other calculation tools on the market.	

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?	☐ **Yes, I support it** ☐ ~~Yes, with changes~~ ☐ ~~No, I don't support it~~ ☐ ~~Not sure/no preference~~
19-2		

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?	☐ **Yes, I support it** ☐ ~~Yes, with changes~~ ☐ ~~No, I don't support it~~ ☐ ~~Not sure/no preference~~
20-2		

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?	☐ **Yes, I support it** ☐ ~~Yes, with changes~~ ☐ ~~No, I don't support it~~ ☐ ~~Not sure/no preference~~
21-2	Changes are more likely to apply to smaller buildings.	

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?	☐ **Yes, I support it** ☐ ~~Yes, with changes~~ ☐ ~~No, I don't support it~~ ☐ ~~Not sure/no preference~~
22-2	Another way to support this concept is to update the schedule method.	

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.

BOINZs' principal concern is the long term additional inflationary cost being imposed on New Zealand.

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

BOINZ will update BCA training (again for H1) if amended H1 acceptable solutions and verification methods are available.

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.

MBIE should be amending insulation requirements as part of an integrated approach to establishing safe healthy and comfortable indoor environments.

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.

MBIE's experience with transition periods for previous energy efficiency implementation would indicate a longer transition period is required.

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.