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](mailto: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](https://www.ombudsman.parliament.nz/get-help-public) – 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.

### Personal information

[The Privacy Act 2020](https://www.legislation.govt.nz/act/public/2020/0031/latest/LMS23223.html) contains principles on how various agencies, including MBIE, collect, use and disclose information provided by individuals.

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](https://www.legislation.govt.nz/act/public/2005/0040/latest/DLM345529.html).

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](https://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.

1. About you

|  |  |
| --- | --- |
| Name: | Malcolm Fleming |

|  |  |
| --- | --- |
| Email address: | malcolm@nzcb.nz |

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

Yes

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

Yes

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

|  |
| --- |
| New Zealand Certified Builders Association |

1. 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 |  |
| Membership organisation for trade qualified residential builders. | | |

1. Personal information

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

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

1. Publishing information

|  |  |
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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.

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1. Official information

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

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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.

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# Insulation in housing and small buildings

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| 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 |
| 1-2 | As we explained in a number of media interviews and in research we collaborated on with EBOSS and YourQS in 2024, the Calculation Method leads to more effective insulation assessments that takes into account the needs of specific properties. In turn, this reduces the cost of the insulation required and results in houses that perform better than under the Schedule Method.  However, we have had the privilege of reading the submission developed by the Window and Glass Association of New Zealand, and we are open to their suggestion of allowing the Schedule Method to function as a guide rather than as a prescriptive standard in some instances, such as small alteration work where matching or retrofitting is required. We have tested this with our members and they agree there are aspects of small alteration or simple retrofit projects, in particular, that might mean neither the Calculation Method nor the Modelling Method are practical in these instances.  We therefore support the proposal to **remove the Schedule Method for new builds**, while providing the ability for the Schedule Method to be used for small alteration and simple joinery retrofit projects. |  |
|  |  |  |
| **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? | No, I don’t support it |
| 2-2 | We believe that adjusting the values that are currently in place would be a backwards step, as the industry has worked hard to have these raised. Lessening them will only reduce the total thermal efficiency of the build, and so while we are keen to reduce costs and complexity in construction, we would not want to see thermal performance sacrificed unnecessarily. |  |
|  |  |  |
| **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, with changes |
| 3-2 | This should only be allowed where the heating element is placed on top of the slab, under the tiles and not where the heating elements are contained within the slab. |  |

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.

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| In 2024, we collaborated on research with EBOSS and YourQS to quantify the extra cost added to new builds by the H1 regulations and the relative performance of different ways of assessing the insulation needs of different builds. We have already shared this research with MBIE and in the media but, to summarise, this research found that the financial cost of higher insulation standards could be reduced significantly by replacing the Schedule Method with the Calculation Method.  We are convinced that there are considerable savings to be made for homeowners in changing these methods, not only in the upfront cost of building a new home but also in ongoing running costs. In addition, there are of course enormous health benefits – which themselves come with economic benefits in terms of reduced load on the health system – by ensuring properly insulated homes.  We are aware that there are occasional problems with over-heated homes, which is often attributed to over-insulation. We are not convinced that these problems are necessarily the result of changing insulation standards; they are more likely to be caused by poor design decisions, such as site orientation or a lack of shading. This is a position supported by BRANZ. We urge that these non-insulation-related factors are taken into account when final amendments are made. |

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

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| Many of our members are already providing their clients with more sophisticated methods of calculating insulation requirements, and so we do not envisage major additional costs. This may change if a more complex modelling method is mandated.  In our view, the industry more broadly had already made considerable investment to meet the requirements of H1 when it was first introduced, and the greatest concern that this investment would have been wasted, had the H1 regulations been repealed in their entirety. We are pleased to see that this option is no longer being considered. |

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.

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| Regardless of the specifics of this proposal, we would urge decision-makers to consider the longer-term implications of insulation, as it works in conjunction with air-tightness and ventilation.  As we have outlined above, the costs to be considered include not only the initial costs of the build itself, but the ongoing running costs, and additional costs involving the health of the occupants. When considering the upfront building costs, we encourage MBIE to bear in mind these longer-term costs and not seek to unduly reduce the initial costs at the expense of the longer-term benefits health benefits. |

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 |
| 4-2 |  |  |
|  |  |  |
| **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 |
| 5-2 | We strongly agree that thermal bridging in walls needs to be considered, as we believe there is considerable heat loss in this respect. In general, we support any amendments that would seek to capture a more complete picture of where heat is being lost and the insulation required to address this problem. |  |
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| **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 |
| 6-2 |  |  |
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| **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 |
| 7-2 |  |  |
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| **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 |
| 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 |
| 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 |
| 10-2 |  |  |
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| **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 |
| 11-2 |  |  |

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.

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| We strongly support these proposals aimed at ensuring consistency of interpretation and application across all building sites and BCAs. We regularly hear from our members that interpretation of building regulations varies from BCA to BCA, so the more certainty that can be introduced, the better.  We are also pleased to see these proposals take practical form in user-friendly look-up-tables and the like. We repeat our earlier comments that different regional characteristics need to be taken into account (for example, insulation needs in Northland will differ from those in Southland), but the basic principle of making things consistent and easily checked is sound. |

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

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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.

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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

Please explain your views.

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|  |

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?

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| We strongly support the proposal that overheating and internal moisture needs to be taken into account when reforming these insulation regulations.  We are reluctant to recommend a specific approach, as there are a range of options that can address these issues, and every building site and region is different. In some areas, mechanical ventilation and air tightness testing will be appropriate, whereas for other builds, problems may be addressed via design considerations such as site orientation and passive techniques such as shading for windows.  In principle, however, we believe that MBIE should set out clearer expectations that insulation requirements need to be considered in conjunction with overheating and moisture considerations, rather than framing these requirements in isolation. |

# Insulation in large buildings

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| 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 | Please explain your views |  |
|  |  |  |
| **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 | 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 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 | 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.

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| [Please type here] |

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

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| [Please type here] |

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.

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| [Please type here] |

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 | 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)? | ☐ Yes, I support it  ☐ Yes, with changes  ☐ No, I don’t support it  ☐ 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? | ☐ Yes, I support it  ☐ Yes, with changes  ☐ No, I don’t support it  ☐ Not sure/no preference |
| 17-2 | Please explain your views |  |
|  |  |  |
| **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  ☐ Not sure/no preference |
| 18-2 | Please explain your views |  |
|  |  |  |
| **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 | 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? | ☐ Yes, I support it  ☐ Yes, with changes  ☐ No, I don’t support it  ☐ 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? | ☐ Yes, I support it  ☐ Yes, with changes  ☐ No, I don’t support it  ☐ Not sure/no preference |
| 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? | ☐ Yes, I support it  ☐ Yes, with changes  ☐ No, I don’t support it  ☐ 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.

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| [Please type here] |

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

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| [Please type here] |

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.

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| [Please type here] |

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.

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| --- |
| [Please type here] |

# 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.

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| --- |
| We have made this submission to represent the interests of our membership, which comprises trade qualified residential builders. As such, we have confined our submission to the sections that apply to residential insulation requirements, rather than those relating to large, commercial buildings.  Similarly, while we have offered commentary on some of the more technical aspects of the consultation document, we defer to more specialised organisations with expertise in the thermal performance of specific products and building practices.  In broad terms, however, we are supportive of the need to reform building regulations to ensure healthy buildings are considered in their entirety. As stated elsewhere, we are in broad favour of replacing the Schedule Method with the Calculation Method for new builds, while acknowledging there may be some benefit in retaining the Schedule Method as an informative guide for small alterations and joinery retrofit works, where the use of modelling and calculation is not practical. Similarly, there may be aspects of the Modelling Method that could improve the thermal performance of buildings but at the potential cost of additional expense from requiring more specialised expertise at the design phase. |