BUILDING PERFORMANCE

# Consultation submission form

# **Building Code fire safety review**

Issues in the Building Code regulations

October 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 Building Code fire safety review discussion document.

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 fire safety proposals for the Building Code.

MBIE needs your feedback on the Building Code fire safety review by 5:00 pm on Friday, 6 December 2024.

- Email: building@mbie.govt.nz, with subject line Building Code Fire Safety review
- Post:
  Building Code Fire Safety review
  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 develop potential options for improvements to fire safety provisions in the Building Code.

MBIE will seek feedback on these potential options for change through a further round of public consultation. Timelines for the review will depend on the information received in this year's consultation and any new or emerging issues along the way.

## Use of information

**Release of information on MBIE website**

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

If your submission contains any information that is confidential which you do not want published, please:

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

**Release of information under the Official Information Act**

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

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

Get help from the ombudsman – Ombudsman New Zealand

## Seeking feedback

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 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.

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. Go to MBIE's privacy web page for more information.

www.mbie.govt.nz/Privacy

# 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: | Martin Gordon, General Manager Consultancy Services |
| Email address: | |

## 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.

BRANZ – Building Research Association of New Zealand

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

☐ Architect

☐ Engineer (please specify below)

☐ BCA / TA / Building Consent Officer

☐ Evacuation specialist

☐ Builder or tradesperson (please specify below)

☐ Fire and Emergency NZ

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

☐ Independent Qualified Person (IQP)

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

☐ Residential building owner

☐ Commercial building owner

☒ Other (please specify below)

☐ Designer (please specify below)

☐ Prefer not to say

Building research and testing organisation.

## E. Personal information

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

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

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

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

[Please insert here]

## G. Official information

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

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

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

[Please insert here]

**PREFACE – ABOUT BRANZ**

The Building Research Association of New Zealand (BRANZ) welcomes the opportunity to provide feedback on the Building Code fire safety review.

BRANZ's primary role is as an independent science and research organisation. BRANZ is the only national research institution focused exclusively on building and construction.

Our current strategic and research investment priorities are in four main areas:

- Affordability – Housing is affordable for people to build, maintain and live in.
- Resilience – Buildings protect people from earthquakes, fire, extreme weather and climate change.
- Sustainability – Buildings are environmentally designed, built, maintained and recycled.
- Quality – Buildings are safe, warm, dry and fit for future generations.

Alongside research, BRANZ offers commercial, independent, science-based testing and assurance services. BRANZ has over 50 years of expertise in assessing both domestic and international products entering the market.

BRANZ's scientists, technicians and product auditors draw on their extensive materials- and systems-testing expertise to assess a wide range of building products. BRANZ's independent team works with product manufacturers, importers and authorities to provide robust scientific evidence of whether new and existing materials will be safe and durable if used in New Zealand's buildings and whether they meet the requirements of the Building Code.

BRANZ's new research and testing laboratories can simulate fire, earthquakes and extreme weather at scale and in close-to-realistic conditions. This work is essential in keeping New Zealanders safe for generations to come. Over the past decade, we've seen the impacts of catastrophic building fires – most notably, the Grenfell Tower fire in London and, closer to home, the Loafers Lodge fire in Wellington. As we build with higher density in Aotearoa New Zealand, improving fire safety is more important than ever.

Our new fire laboratory and equipment will help improve understanding of fire risk in modern building practices. It will enable BRANZ and our partners to better test how fire, smoke and carbon monoxide spread across multi-storey and higher-density buildings.

This work is crucial in supporting decision makers to help prevent future fire tragedies. The fire laboratory will:

- test the impacts of fire on multi-storey buildings
- simulate and measure fire spread
- analyse smoke density, carbon monoxide and carbon dioxide
- ensure close-to-realistic testing conditions to replicate high-density housing.

# 1. Outcomes of the review

This section covers the outcomes that MBIE wants to achieve with its Building Code fire safety review. These outcomes provide areas of focus for the issues MBIE wants to resolve.

## Questions for the consultation

1. MBIE has identified outcomes they would like to achieve for fire safety in the Building Code. Please select whether you agree or disagree with these outcomes.

| Outcome | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Don't know or not applicable |
|---|---|---|---|---|---|---|
| Building Code requirements need to be clear on protection levels based on building types and their users. | ☐ | ☐ | ☐ | ☐ | ☒ | ☐ |
| Fire safety provisions in the Building Code need to keep up with changes in urban design, modern construction methods, and the different ways buildings are being used. | ☐ | ☐ | ☐ | ☐ | ☒ | ☐ |
| Ensure fire safety regulatory requirements in the Building Code are fit for purpose and cost-effective. | ☐ | ☐ | ☐ | ☐ | ☒ | ☐ |
| Minimise gaps and inconsistencies in fire safety regulation to provide certainty, clarity, and consistency. | ☐ | ☐ | ☐ | ☐ | ☒ | ☐ |

## Outcomes of the review

2. How well do you think the fire regulations in the Building Code are currently performing against these suggested outcomes? Please provide evidence if you can.

| Not at all well | Not very well | Somewhat well | Very well | Don't know |
|---|---|---|---|---|
| ☐ | ☐ | ☒ | ☐ | ☐ |

There are often differences between the Building Code provisions and building design, and what is finally installed or found 'as built'. Designs can be interpreted in different ways and skill level in the fire disciplines (e.g fire engineering, passive/active fire installation) vary immensely across the sector, from design to construction/installation trades, to the consenting/inspection stage.

The benefits of improved industry practice have been discussed in the following BRANZ research:

Frank, K., Hare, G. & Wade, C. (2019). Escape route pressurisation systems: A pilot study of New Zealand data. BRANZ Study Report SR440. Judgeford, New Zealand: BRANZ Ltd. https://www.branz.co.nz/pubs/research-reports/sr440/

Frank, K. M., Baker, G. B. & MacIntyre, J. D. (2018). Assessing the risk of noncompliant firestopping and smokestopping in New Zealand residential buildings undergoing alterations. BRANZ Study Report SR410, Judgeford, New Zealand: BRANZ Ltd. https://www.branz.co.nz/pubs/research-reports/sr410/

3. Are there other outcomes MBIE should consider for the review?

☒ Yes ☐ No

Although considered secondary to Building Code regulations, outcomes for a fire safety review should include improvements to the competency and training of sector, as mentioned above.

BRANZ suggests having the fire disciplines included as a licensed class in the LBP scheme, e.g fire engineering, passive fire installation, active fire installation.

4. Would you like to provide feedback on your answers, please tell us.

☐ Yes ☒ No

n/a

## Outcomes of the review

# 2. Effectiveness of fire safety measures in the Building Code

These questions relate to the effectiveness of the fire safety measures in the Building Code. An effective Building Code supports the purposes and principles of the Act, to make sure that:

- People who use buildings can do so safely and without endangering their health.
- People who use a building can escape from the building if it is on fire.
- People entering a building to carry out rescue operations or firefighting are protected from injury.
- Protection is provided to limit the spread of fire and its effects.

## Questions for the consultation

5. MBIE have identified the following issues related to the effectiveness of the fire safety provisions in the Building Code. Please select whether you agree or disagree with the following statements.

| Statement | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Don't know or not applicable |
|---|---|---|---|---|---|---|
| Insufficient consideration is given to the evacuation needs of different occupants in a building, such as vulnerable occupants. This means that some people could be at greater risk in a fire. | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ |
| The Building Code fire safety provisions do not adequately consider the specific hazards, such as building height, building importance, building use, or other factors. This means that the requirements may not be cost-effective for all building owners. | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ |
| The fire safety objectives in the Building Code focus on keeping people safe and protection of other property. It does not address protecting owners' investments. This can leave gaps in the protection of buildings and increases the risk for responding firefighters. | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ |
| The Building Code does not provide comprehensive measures for | ☐ | ☐ | ☐ | ☐ | ☐ | ☒ |

| Statement | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Don't know or not applicable |
|---|---|---|---|---|---|---|
| firefighters responding to fires or other emergencies. | | | | | | |
| The Building Codes does not provide sufficient consideration on maintenance over the life of a building including during construction. | ☐ | ☐ | ☐ | ☐ | ☒ | ☐ |

6. Are there any other issues MBIE should consider on the effectiveness of the fire safety measures in the Building Code?

☐ Yes ☒ No

n/a

7. Would you like to provide any other comments or feedback on the effectiveness of the fire safety measures in the Building Code?

☒ Yes ☐ No

- Re the issue 'Insufficient consideration is given to the evacuation needs of different occupants in a building, such as vulnerable occupants. This means that some people could be at greater risk in a fire':

  The complication in Building Code Clause 3 is that both performance requirements and functional requirements are described and that these can mean different things and be interpreted in different ways. These need to align.

- Re the issue 'The Building Code fire safety provisions do not adequately consider the specific hazards, such as building height, building importance, building use, or other factors. This means that the requirements may not be cost-effective for all building owners':

  There is a provision for Alternative Solutions to meet the requirements demanded of specific hazards.

- Re the issue 'The fire safety objectives in the Building Code focus on keeping people safe and protection of other property. It does not address protecting owners' investments. This can leave gaps in the protection of buildings and increases the risk for responding firefighters':

  This is a wider discussion about public expectations of fire safety and appetite for risk. If protection of

buildings was an objective of the Building Code, costs across the system would be likely to increase to achieve this objective.

- Re the issue 'The Building Code does not provide comprehensive measures for firefighters responding to fires or other emergencies':

  It is our view that, in general, this issue is out of the remit of the Building Code as firefighters have the responsibility to make decisions on-the-ground and in response to the unique conditions found at each fire. However, the Building Code does allow for the use of new building methods and materials, many of which have unknown fire implications. Describing further: the way a fire resistance rating is determined, in accordance with the standards (AS 1530.4 and other overseas standards), does not take into account any post fire performance criteria. Once an element reaches the desired target time, even for structural adequacy, it is considered to pass. This does not deal with structural members that might fail during cooling etc, adding to the risk to firefighters. This is pertinent when related to new technologies, like mass timber.

- Re the issue 'The Building Codes does not provide sufficient consideration on maintenance over the life of a building including during construction':

  The issue of maintenance over the life of a building is also the issue of 'as built' quality not matching the consented design.

  A clause (or wording amendments) could be inserted into the Building Code to the effect that fire protection during construction is included. For example, C3.1 Buildings must be designed and constructed (including during the process of construction) so that there is a low probability of injury or illness to persons not in close proximity to a fire source.

# 3. Keeping pace with new technologies and new fire challenges

These questions are on improvements in building materials and the technologies used for fire safety systems in buildings. New technologies, urban design and methods of construction have grown rapidly since the last review of the fire safety regulations in 2011.

The Building Code should enable the use of innovative technologies and provide adequate protection from new fire risks.

## Questions for the consultation

8. MBIE has identified the following issues where the Building Code has not kept pace with new technologies and new fire challenges. Please select whether you agree or disagree with the following statements.

| Statement | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Don't know or not applicable |
|---|---|---|---|---|---|---|
| The Building Code fire safety provisions create barriers to the use of overseas products. | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ |
| The Building Code fire safety provisions do not enable mass timber construction and other modern construction methods to be used safely and efficiently. | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ |
| The Building Code is not flexible enough to address fire hazards from emerging technologies such as electric vehicles, solar panels, and battery storage systems. | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ |
| Further consideration is required in the Building Code for modern housing such as fire spread and access for firefighters. | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ |
| There are barriers in the Building Code to using new fire safety systems or technologies as part of a design. | ☐ | ☒ | ☐ | ☐ | ☐ | ☐ |

9. Are there any other issues related to keeping pace with new technologies and new fire challenges MBIE should consider?

☒ Yes ☐ No

The Building Code itself, being performance based, can keep pace with new technologies. However, the processes and pathways to establish and prove Code compliance cannot respond quick enough. For example, new sprinkler technologies were on the market a long time before the process to incorporate them into 'NZS 4541:2020 Automatic fire sprinkler systems' was completed.

10. Do you have any other comments or feedback on the ability of the Building Code to keep pace with new technologies and new fire challenges?

☒ Yes ☐ No

- Re the issue 'The Building Code fire safety provisions do not enable mass timber construction and other modern construction methods to be used safely and efficiently':

  As mentioned in the response provided to questions 7 (4th bullet point), post-fire performance is not addressed.

- Re the issue 'The Building Code is not flexible enough to address fire hazards from emerging technologies such as electric vehicles, solar panels, and battery storage systems':

  See response to question 9, regarding the speed of processes. For example, currently inherent assumptions exist about fire source, and there is no acceptable solution or verifiable method that considers a photovoltaic (PV) starting above a sprinkler system.

- Re the issue 'Further consideration is required in the Building Code for modern housing such as fire spread and access for firefighters':

  It could be that guidance similar to that available for Medium-Density Housing is created (https://www.building.govt.nz/building-code-compliance/introduction-to-medium-density-housing), depending on what is included in the term 'modern housing'.

- Re the issue 'There are barriers in the Building Code to using new fire safety systems or technologies as part of a design':

  The Building Code itself is not a barrier to using new fire safety systems or technologies. The challenge is in demonstrating its performance in a way that Building Consent Authorities can be satisfied it meets Code compliance.

# 4. Certainty, clarity, and consistency

These questions are on the certainty, clarity, and consistency of the fire safety provisions in the Building Code. These provisions should be clear enough to support consistent decisions on whether a building complies with the Building Code.

## Questions for the consultation

11. MBIE has identified the following issues where the fire safety provisions do not support certainty, clarity, and consistency in building design and consenting. Please select whether you agree or disagree with the following statements.

| Statement | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Don't know or not applicable |
|---|---|---|---|---|---|---|
| Gaps in regulation have created a complex system to work with. | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ |
| The multiple ways to classify buildings can cause confusion on what is required. | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ |
| Unclear language in the fire safety provisions can lead to inconsistent decision making. | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ |
| The fire safety provisions in the Building Code are inconsistent with other legislation and regulations. | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ |

12. Are there any other issues related to certainty, clarity and consistency MBIE should consider?

☐ Yes ☒ No

n/a

13. Do you have any other comments or feedback on the certainty, clarity and consistency of fire safety provisions in the Building Code?

## Certainty, clarity, and consistency

☒ Yes ☐ No

- Re the issue ‘Gaps in regulation have created a complex system to work with’:
  The need for guidance documents is an indication of gaps and uncertainty in the settings.

- Re the issue ‘The multiple ways to classify buildings can cause confusion on what is required”:
  For example, ‘risk groups’, ‘occupancy types’, ‘importance levels’.

- Re the issue ‘Unclear language in the fire safety provisions can lead to inconsistent decision making’:
  An example of this is the phrase “a low probability of occurrence", which is unclear and can lead to differences of opinion between different sector groups, e.g. BCAs, engineers, FENZ.

# 5. General questions

14. What do you think are the most important issues MBIE should consider in the review?

If prioritised, the issues in section 4, about certainty, clarity and consistency need to be considered first. These are the issues that make it difficult for new products, technologies and systems to be accepted and used.

As mentioned, there is an important issue about the varying levels of competent practice across the sector regarding fire engineering design, and passive and active construction/installation.

15. If you have any other comments on this review, please say.

n/a

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

Another area of concern is the inconsistency in building documentation, across the building's life. This includes (but isn't limited to) records of built work; maintenance, renovation and modification records; material markings. Using a quality assurance process throughout the build and during work on the building over its life, - and one that incorporates an enduring record of work, such as the Artisan app, would be one way to significantly improve record keeping.

# Thank you

Thank you for your feedback. MBIE really appreciate your insight because it helps them identify the needs of New Zealanders and their thoughts on fire safety in buildings.