BUILDING PERFORMANCE

Summary of submissions

Building Code fire safety review

Issues in the Building Code regulations

August 2025

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa
New Zealand Government

Ministry of Business, Innovation and Employment (MBIE)

Hīkina Whakatutuki – Lifting to make successful

MBIE develops and delivers policy, services, advice and regulation to support economic growth and the prosperity and wellbeing of New Zealanders.

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August 2025

Executive summary

Consultation on issues in the fire safety provisions in the Building Code

The Ministry of Business, Innovation and Employment (MBIE) conducted a public consultation from 23 October to 24 December 2024 on issues in the fire safety provisions of the Building Code. The consultation aimed to gather feedback on whether the current fire safety regulations are effective, clear, and responsive to modern building practices and technologies. It did not propose specific changes.

MBIE received 112 submissions which is the highest number for a fire safety consultation in the past decade. Submitters included architects, engineers, building consent authorities, product suppliers, building owners and occupants, disabled persons' organisations, and Fire and Emergency New Zealand.

This document contains a summary of the feedback received during consultation.

Key findings

- **Submitters supported the direction of the review** – Over 80% of respondents agreed with the four proposed outcomes: improving clarity of protection levels, keeping pace with new technologies, ensuring cost-effectiveness, and reducing regulatory inconsistencies.
- **Concerns about current performance** – Fewer than 10% of respondents believed the Building Code was performing very well to achieve these outcomes. Most said it performed somewhat well or not well at all and suggested areas that needed improving.
- **Evacuation for all building users** – Nearly half of all submissions highlighted the need to improve evacuation provisions for people with disabilities, older adults, and children.
- **Gaps in how the Building Code addresses specific fire hazards** – Many submitters noted that the Building Code does not adequately reflect risks associated with building height, use, or complexity, and that it lacks flexibility to accommodate new technologies such as electric vehicles, solar panels, and battery storage systems.
- **Barriers to innovation** – Submitters pointed to difficulties using overseas products, mass timber, and alternative fire safety systems due to restrictive or outdated provisions.
- **Clarity and consistency were frequently cited priorities** – Submitters stated the need for clearer language, better alignment between Building Code clauses and supporting documents, and more consistent building classifications.

Submitters provided over 1,900 individual comments, identifying 183 contributing issues, including 10 new issues not previously documented.

Some submitters raised out-of-scope issues related to the building consent system, practitioner competency, and the Building Warrant of Fitness scheme.

MBIE will use the feedback to inform the next phase of the fire safety review, including the development of potential options for regulatory change.

Contents

1. Submitters

1.1. What we sought feedback on

1.1.1. MBIE sought feedback on issues in the Building Code

From 23 October to 24 December, MBIE collected feedback on issues in the Building Code fire safety provisions. Submissions for the consultation could be provided via letters, email, and an online survey tool. A sign language version of the survey was also available.

MBIE received a total of 112 responses to this public consultation. This is the most submissions received on a fire safety topic in the last ten years. In total, the submissions included approximately 1900 individual comments totalling 200 pages of comments alongside 140 pages of attachments.

1.1.2. MBIE received submissions from individuals and organisations

Submitters were asked to describe their role. Responses are shown in Table 1.1 and Figure 1.1. There were 64 submissions on behalf of organisations and 48 submissions from individuals. The largest number of submitters were from architects, designers, and engineers. Submitters in other categories included:

- Researchers
- Representatives and members of deaf and disabled peoples' communities
- Firefighters' union and Fire and Emergency New Zealand
- Electricity distributors
- Building product manufacturers and suppliers
- Twelve submissions from those who did not state a role or preferred not to say.

In comparison to past consultations, typically, fire engineers and building consent authorities make up approximately 60% of all submissions on fire safety. For this consultation, these organisations make up only 30% of the submissions. Relatively more submissions were received from disabled people, building product suppliers, commercial and residential building owners, and building users than in previous consultations.

Industry bodies who submitted on the consultation included:

- Building Officials Institute New Zealand (BOINZ)
- Society of Fire Protection Engineers New Zealand Chapter (SFPE NZ)
- Engineering New Zealand Te Ao Rangahau
- New Zealand Professional Firefighters Union (NZPFU)
- Fire Protection Association New Zealand (FPANZ)
- Association of Building Compliance (ABC)
- Insurance Council of New Zealand (ICNZ)
- Deaf Aotearoa
- Disabled Persons Assembly NZ (DPA)
- Deaf Action NZ
- New Zealand Disability Support Network (NZDSN).

A full list of the submitters is provided in Appendix A. List of submitters.

Submitters

Table 1.1. Number of submissions received in the consultation

Role	Number of submissions and percentage of total
Architect, designer, or engineer	25 (22%)
Builder or tradesperson	4 (4%)
Building consent officer or building consent authority	16 (14%)
Building product manufacturer or supplier	14 (13%)
Building owner, resident, or occupant	12 (11%)
Independent qualified person (IQP)	6 (5%)
Others including those who did not state a role	35 (31%)

Figure 1.1. Number of submissions received

2. Outcomes of the fire safety review

2.1. What we sought feedback on

2.1.1. MBIE identified outcomes to achieve in the overall review

The overall review proposed the following outcomes:

- 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 inconsistencies in fire safety regulation to provide certainty, clarity, and consistency.

2.1.2. Questions on the outcomes

These questions were asked on the outcomes of the review. Responses received that were out of scope or discussed individual issues are analysed in other parts of this document.

1.	Do you agree or disagree with the outcomes MBIE identified for the review of fire safety provisions in the Building Code?
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.
3.	Are there other outcomes MBIE should consider for the review?
4.	Would you like to provide feedback on your answers?

2.2. What we heard

2.2.1. Outcomes of the safety review were highly supported

There was a high level of agreement on each outcome proposed. Of those who responded to question 1, over 80% strongly agreed or agreed on each outcome (Table 2.1 and Figure 2.1). The highest level of agreement was with the outcome to minimise gaps and inconsistencies; 92% of submissions agreed or strongly agreed with this outcome. Building consent authorities, designers, and engineers were more likely to support the outcome on consistency in the requirements. Building users (owners, occupants, and others) were more likely to support the outcome on the level of safety.

There are only five submitters who disagreed or strongly disagreed with at least one of the outcomes. Four of these submitters disagreed with all of the outcomes and did not provide comments stating why they disagreed. Instead, they provided comments on other items to be changed in the Building Code or regulatory system. One submitter disagreed with some of the outcomes. This submission stated that there was no issue with the current level of performance in the Building Code and that, as a performance-based Building Code, it was not sensitive to changes in technology or building type or use. None of the industry associations disagreed with any of the outcomes proposed.

While submitters provided comments and feedback on question 3 for other outcomes to consider, none of these comments contained items that were substantially different than the outcomes identified in the consultation document. Some submitters identified that the acceptable solutions and verification methods also required a review.

Table 2.1: Number of submissions agreeing and disagreeing with the outcomes identified in the consultation

Statement[1]	+SA	+A	N	-D	-SD	NR
Building Code requirements need to be clear on protection levels based on building types and their users.	56 (64%)	24 (27%)	3 (3%)	3 (3%)	2 (2%)	25
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.	55 (59%)	21 (24%)	6 (13%)	2 (1%)	3 (1%)	26
Ensure fire safety regulatory requirements in the Building Code are fit for purpose and cost-effective.	52 (59%)	21 (24%)	11 (13%)	1 (1%)	3 (3%)	25
Minimise gaps and inconsistencies in fire safety regulation to provide certainty, clarity, and consistency.	63 (71%)	19 (21%)	3 (3%)	0 (0%)	4 (4%)	24

Key: +SA = Strongly agree, +A = Agree, N = Neither agree or disagree, -D = Disagree, -SD = Strongly disagree, NR = No response, don't know, or not applicable

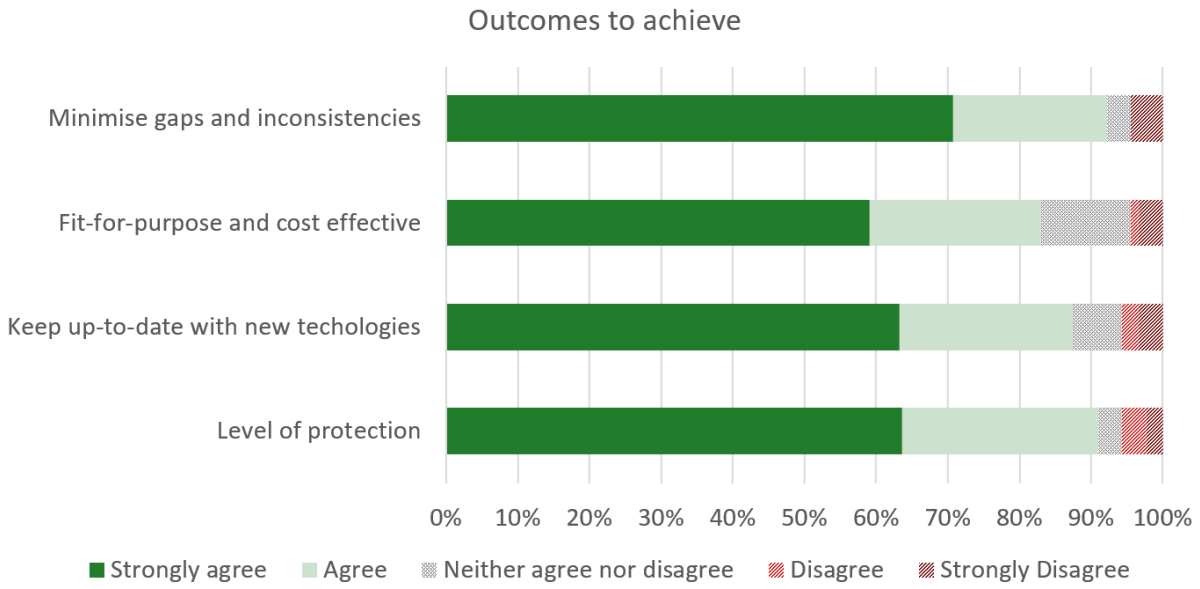

Figure 2.1: Favourability of the outcomes identified in the consultation

2.2.2. Performance of the Building Code against the outcomes

Submitters were asked how well they thought the fire regulations in the Building Code are currently performing against the suggested outcomes (Table 2.2 and Figure 2.2).

[1] Percentages in this table for +Sa, +A, N, -D, -SD are based on submissions with responses only

Table 2.2: Number of submissions on the performance of the Building Code against the outcomes

Statement	Very well	Somewhat well	Not very well	Not at all well	Don't know or not applicable
How well do you think the fire regulations in the Building Code are currently performing against the suggested outcomes?	4 (8%)	44 (59%)	23 (23%)	14 (16%)	27

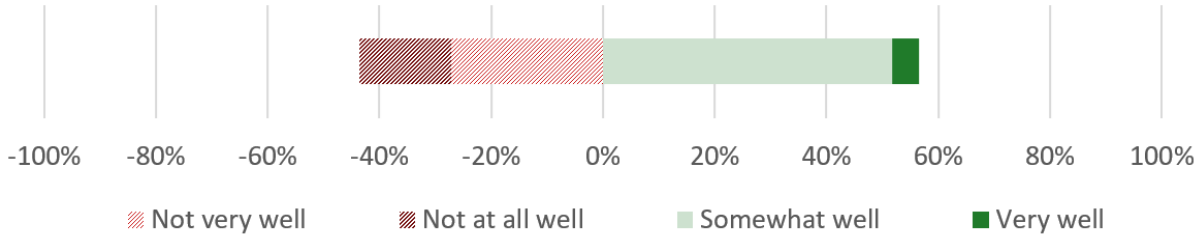

Figure 2.2: How well the Building Code is performing against the outcomes

The responses were split on how well the Building Code was performing. Sixty percent of the responses stated that the Building Code was performing 'somewhat well'. Four submissions stated that the Building Code was performing very well. From these four submissions:

- One submission provided no additional comments on why they thought it was performing well.
- Two of these submissions provided additional statements of items to improve in the Building Code fire safety requirements.
- One submission stated that the current C-clauses in the Building Code were a significant improvement on the previous performance requirements in C1 to C4 from pre-2012.

Thirty-seven submissions stated that the Building Code was not performing well. Generally, the submissions noted specific reasons why they thought the Building Code was not performing very well. From a high-level, this included that:

- Life safety was not provided to an adequate level for specific building occupants which put some people at higher levels of risk. Some raised concerns that consideration of the financial implications would result in lowering life safety to an unacceptable level.
- The lack of clarity in the requirements and the gaps in the Building Code cause frustration for both new construction and when altering existing buildings. This issue was the most mentioned in comments. Many submitters made specific comments about the lack of certainty, clarity, and consistency in the Building Code alongside the disconnects to other legislation and regulation such as the Resource Management Act, Fire and Emergency New Zealand Act, and Health and Safety Act. Other submissions stated that inconsistencies and gaps the acceptable solutions and verification methods also need to be updated as part of the review.

> "The performance requirements C1-6 are structured differently from the rest of the building code and out of alignment with the C/AS1 and C/AS2 acceptable solution documents."

- The operation of specific buildings such as early childcare centres, hospitals, courthouses, and police stations are not addressed well in the Building Code and this results in unnecessary costs when trying to demonstrate compliance.
- Fire safety requirements were not as cost effective as they could be for design, consenting, and construction and that costs were increasing.

> "The huge costs of fire design for the varying types of buildings now proposed for development is an inhibitor of development and growth, particularly in cities. More prescriptive principles and performance requirements would improve this."

Other comments on specific items are discussed later in this document.

Broken down by the types of submitters; engineers, architects, and designers generally agreed with all the outcomes, but were split on the performance of the Building Code. Building consent authorities strongly agreed with the outcomes and generally thought the Building Code was performing somewhat well. Other submitters generally indicated that the Building Code was not performing well. This included building owners and occupants.

3. Effectiveness of fire safety measures in the Building Code

3.1. What we sought feedback on

3.1.1. Effectiveness of the Building Code is one of main themes of the review

MBIE sought feedback on whether the regulations fully address fire safety risks, and identified issues that could mean some buildings and building users may not be adequately protected from fire.

3.1.2. Questions on the issues

There were three questions asked on this topic.

5. Do you agree or disagree with MBIE's assessment of the issues on the effectiveness of fire safety measures in the Building Code?
6. Are there any other issues MBIE should consider on the effectiveness of fire safety measures in the Building Code?
7. Would you like to provide any other comments or feedback on the effectiveness of fire safety measures in the Building Code?

3.2. What we heard

There was much support for the issues identified for this topic (Table 3.1). Twenty-one submitters agreed or strongly agreed with all statements on effectiveness of the code. For all but one of the statements, three to five times more submitters (strongly) agreed than (strongly) disagreed. The first statement, regarding the evacuation needs of different occupants in a building, received the highest net level of support. The lowest level of support was for the third statement regarding the protection of a building which still had twice as many of those agreeing than disagreeing.

There were 30 submitters who disagreed or strongly disagreed with one or more of the statements used as examples for this issue. Ten of those submissions did not provide comments or did not provide specific reasons to why they disagreed with the statements.

Table 3.1: Number of submissions agreeing and disagreeing with the statements on effectiveness of the code

Statement	+SA	+A	N	-D	-SD	NR
[1] 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.	34 (40%)	21 (25%)	20 (24%)	9 (11%)	0 (0%)	28
[2] 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.	26 (31%)	28 (34%)	18 (22%)	10 (12%)	1 (1%)	29
[3] 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.	19 (22%)	21 (25%)	27 (32%)	11 (13%)	7 (8%)	27
[4] The Building Code does not provide comprehensive measures for firefighters responding to fires or other emergencies.	18 (23%)	17 (22%)	33 (42%)	10 (13%)	1 (1%)	33
[5] The Building Code does not provide sufficient consideration on maintenance over the life of a building including during construction.	26 (31%)	21 (25%)	27 (32%)	9 (11%)	0 (0%)	29

Key: +SA = Strongly agree, +A = Agree, N = Neither agree or disagree, -D = Disagree, -SD = Strongly disagree, NR = No response, don't know, or not applicable

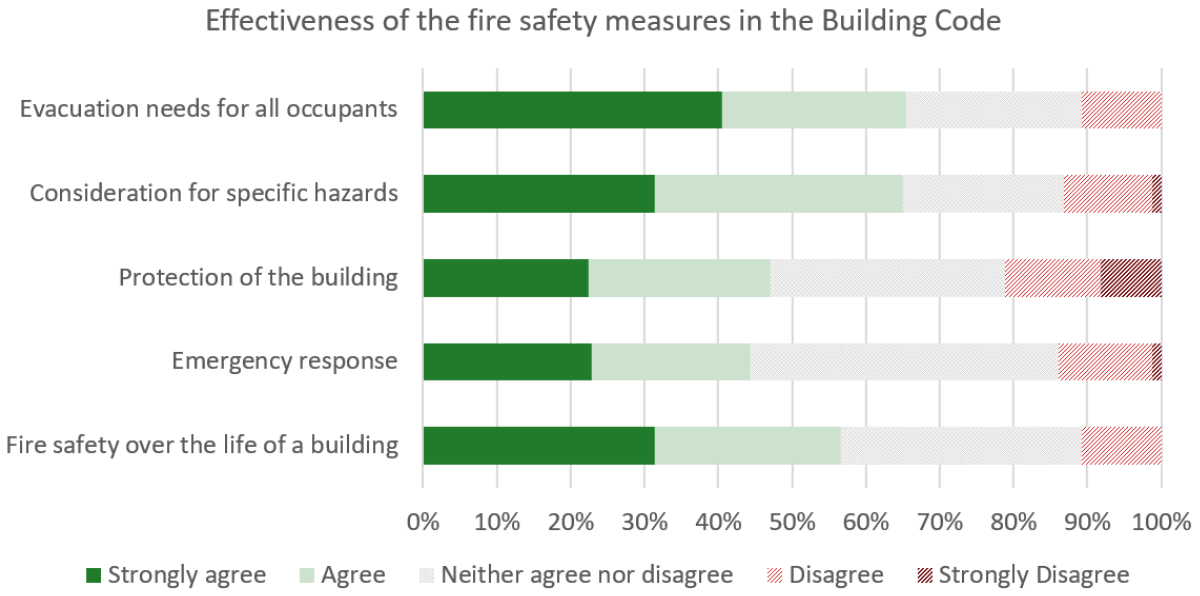

Figure 3.1: Favourability of the statements on the effectiveness of the Building Code

3.2.1. Evacuation needs for all occupants

Statement 1: 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.

This statement received the highest level of support in this topic. Fifty-five submissions agreed or strongly agreed that insufficient consideration is given to the evacuation needs of different occupant. Comments on the issue included:

- mentioning features that are provided in buildings around the world but not in New Zealand such as visual alerting devices, accessible escape paths, and lifts as part of the means of escape
- personal stories from disabled people and the difficulties faces when trying to evacuate a building
- the threshold levels of the fractional effective dose (FED) specified in the Building Code and whether this was appropriate for all building types.

> "Disabled people are still an afterthought when it comes to fire safety and evacuations. Elsewhere in the world there are fire-safe lifts and slides out of buildings - this has yet to come here meaning that physically disabled people are often left inside buildings unable to evacuate."

Nine submissions disagreed with this first statement. Two of these submissions disagreed it was an issue in the Building Code clauses and instead that it was an issue in the acceptable solutions and verification methods. The other seven submissions did not provide further comments about their disagreement with this statement.

3.2.2. Consideration of specific hazards

Statement 2: 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.

Fifty-four submissions agreed or strongly agreed that the Building Code did not adequately consider specific fire hazards for the use or type of building. Comments in the submissions highlighted specific challenges for:

- residential accommodation buildings where the level of safety provided is not adequate for the users of the buildings
- simple standalone and low-rise residential buildings where simple solutions are desired in design and construction
- early childcare centres and schools, courthouses, police stations, and hospitals where security features and operational procedures in the buildings are not aligned with the Building Code
- warehouse buildings where the lack of fire safety features puts firefighters at increased risks when responding to an incident.

> "In the past the highest risk occupancy was the SI risk group, a sleeping purpose group for people under care or detention, such as hospitals rest homes and prisons. These are now required to be fully sprinklered and have full smoke detector coverage. The highest number of fatalities in fires occurs in risk group SH (detached dwellings), however the highest risk is in risk group SM (sleeping (non-institutional)) as although the number of fatalities is lower, overall occupancy is much lower resulting in a higher fatality rate per number of occupants. This risk group is divided into Permanent Accommodation, Transient Accommodation (short term), and Educational accommodation. Of these three, transient accommodation is the higher risk as shown in Thomas & Harding 2014."

Some of the additional hazards provided in the comments included charging electrical vehicles and solar panels, wildfires, storage of flammable materials, and automated racking systems in warehouses. The height of the building was also identified as a risk factor which the Building Code does not adequately address.

> "One example of this is that required fire resistance does not vary with height, despite the consequence of failure increasing substantially. This puts the New Zealand Building Code at odds with the Building Codes examined in the Discussion Document. Periods of required structural fire resistance in the Building Code are not sufficient to be sure the Building Code objectives are met."

Eleven submissions disagreed or strongly disagreed with this statement. Of those who disagreed:

- One submission stated that the issue was with the users of the documents and not the documents themselves.
- One submission disagreed with the statement because it was focused on the hazards in the building and not the people in the building.
- One submission stated that the Building Code already considers building height and importance level but also noted that these were hard to find and inconsistent in their use in the Building Code.
- The remaining eight submissions did not provide comment on why they disagreed with this statement.

3.2.3. Protection of the building

Statement 3: 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.

Forty submitters supported this statement. Those who supported stated that protecting a building in a fire has flow on effects that can limit the impact of the fire on the community from disruptions of services, limit the impact on the environment by reducing pollution to the air and water run-off, and reduce the carbon impact of rebuilding or repairing the building. The submissions also highlighted that protection of a building was also important to prevent structural collapse of tall buildings.

> "…structural stability is critical for certain buildings (e.g. tall buildings), which may need to be kept in place longer even after people who use those buildings or fire fighters have exited the building or location of fires. It is partly why the effects of inadequate structural fire resistance is not easily picked up by designers (because the life safety focus appears to be concentrated on evacuations only)."

Eighteen submitters disagreed or strongly disagreed with this statement. This was the highest number of disagreements for this section. This included eight engineers, four building consent authorities and two building owners. Of those who disagreed:

- One submission stated focusing on life safety and firefighting safety provides a high level of safety already to prevent and confine fires.
- Four submissions stated that protection of a building should be at the owner's discretion or should not be part of the Building Code.
- Three submissions stated it was not required in the Building Act and therefore should not be considered in the Building Code.
- One of the building owners was concerned about cost increases.
- The remaining ten submissions did not provide comment on why they disagreed with this statement.

3.2.4. Emergency response

Statement 4: The Building Code does not provide comprehensive measures for firefighters responding to fires or other emergencies.

Thirty-five submitters agreed or strongly agreed there were not enough measures to facilitate firefighting in the Building Code. Excluding submissions provided by firefighters and Fire and Emergency New Zealand, there are seven main topics commented on by others from the submissions:

- Alignment of the Building Code with Fire and Emergency New Zealand operational procedures (11 submissions)
    - It is not clear what assumptions on firefighting are provided for in the Building Code.
- Inconsistencies between the Fire and Emergency New Zealand Act and Building Act (6 submissions)
    - The FENZ Act considers that firefighters have additional fire safety objectives not promoted by the Building Code (i.e. the principles objectives in section 10, 11, and 12 of the FENZ Act versus the objectives in clause C1 of the Building Code).
    - S112 of the Building Act does not consider compliance for firefighting operations which means that the provisions for firefighting can worsen over time as buildings are altered.
- Firefighting access to infill and densified housing (7 submissions)
- Attendance points including rural property access and requirements (6 submissions)
    - There is a disconnect on the expectations for rural locations and volunteer fire service brigades versus urban locations with fulltime firefighters.
    - There needs to be a balance of practicality for remote or existing buildings.
- Water supplies for firefighting (8 submissions)
- Hand-held suppression (6 submissions)
- Other emergencies such as medical response (2 submissions)
- Access and water supplies for fires during construction (2 submissions)

Comments from firefighters highlighted similar issues with firefighting access and response and provided specific examples of warehouses and other buildings in which firefighters had been put at increased risk due to a lack of safety features.

> "...the Building Act 2004 and Building Code potentially contain significant provisions to protect firefighters safety, our view is they are simply not applied robustly enough, their intent is not well understood and open for too much interpretation allowing building designers and consultant fire engineers to not consider or design firefighting operations and firefighter safety..."

Eleven submitters disagreed or strongly disagreed with this statement. This included six submissions from engineers and three submissions from those involved in building control. Of those who disagreed:

- Two stated that Fire and Emergency New Zealand did not help save lives or were not effective in their role.
- One submission stated that firefighter safety is an operational issue for the staff on site but also supported alignment with other building codes overseas.
- One submission disagreed it was an issue in the Building Code clauses but an issue in the acceptable solutions and verification methods instead.
- One submission stated that they were unaware of what more could be done that was cost effective to enable fire service intervention.
- One submission preferred removing the dependency or consideration of firefighting from the Building Code and instead providing overall higher levels of fire safety to the building and its occupants which would make the Building Code simpler.

- One submission stated that the provisions for firefighting were sufficient but were not enforced well enough.
- The remaining four submissions did not provide comment on why they disagreed with this statement.

3.2.5. Fire safety over the life of a building

Statement 5: The Building Code does not provide sufficient consideration on maintaining fire safety over the life of a building including during construction.

Thirty-five submitters agreed there is insufficient consideration for fire safety over the life of a building. Specific concerns brought up in the comments were on the fire safety during construction and the maintenance of fire safety systems in buildings.

> "There should be mandatory provisions developed to cover risks of construction sites and the ability for firefighting activities to be undertaken and reduce the risk of spread of fire to neighbouring property."

> "Clarity is required on maintenance of passive fire systems."

Nine submitters disagreed with this statement. No one strongly disagreed. Of those who disagreed:

- Two submissions stated that this was not a matter for the Building Code and instead the problems were with the Building Warrant of Fitness regime and change of use provisions in the Building Act.
- The remaining seven submissions did not provide comment on why they disagreed with this statement.

4. Keeping pace with new technologies and new fire challenges

4.1. What we sought feedback on

4.1.1. New technology is one of main themes of the review

New technologies, urban design and methods of construction have evolved rapidly since the last review of the fire safety regulations in 2011. MBIE identified issues where the Building Code was a barrier for the use of innovative technologies or did not provide protection from new and emerging fire risks.

4.1.2. Questions on the issues

There were three questions asked on this topic.

8. Do you agree or disagree with MBIE's assessment of the issues on keeping pace with new technologies and new fire challenges?
9. Are there any other issues MBIE should consider on keeping pace with new technologies and new fire challenges?
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?

4.2. What we heard

Support for the issues identified for this topic varied by topic (Table 4.1). The highest level of support was for the statement regarding fire hazards of new technology with 75% of submissions agreeing or strongly agreeing with the statement.

Twenty-two submitters disagreed or strongly disagreed with at least one statement in this section. Five of these submitters provided no further comments on why they disagreed. Two submitters disagreed with all of the statements in this section. The first two statements about the use of new products and mass timber construction received lower levels of support. The largest number disagreed with the first statement on the use of overseas building products.

Table 4.1: Number of submissions agreeing and disagreeing with the statements on keeping pace with new technologies and new fire challenges

Statement	+SA	+A	N	-D	-SD	NR
[1] The Building Code fire safety provisions create barriers to the use of overseas products.	20 (25%)	19 (23%)	29 (36%)	10 (12%)	3 (4%)	31
[2] The Building Code fire safety provisions do not enable mass timber construction and other modern construction methods to be used safely and efficiently.	17 (21%)	18 (22%)	34 (42%)	9 (11%)	3 (4%)	31
[3] The Building Code is not flexible enough to address fire hazards from emerging technologies such as electric vehicles, solar panels, and battery storage systems.	27 (33%)	34 (42%)	15 (18%)	4 (5%)	1 (1%)	31
[4] Further consideration is required in the Building Code for modern housing such as fire spread and access for firefighters.	23 (28%)	24 (29%)	28 (34%)	7 (9%)	0 (0%)	30
[5] There are barriers in the Building Code to using new fire safety systems or technologies as part of a design.	29 (35%)	17 (20%)	28 (34%)	8 (10%)	1 (1%)	29

Key: +SA = Strongly agree, +A = Agree, N = Neither agree or disagree, -D = Disagree, -SD = Strongly disagree, NR = No response, don't know, or not applicable

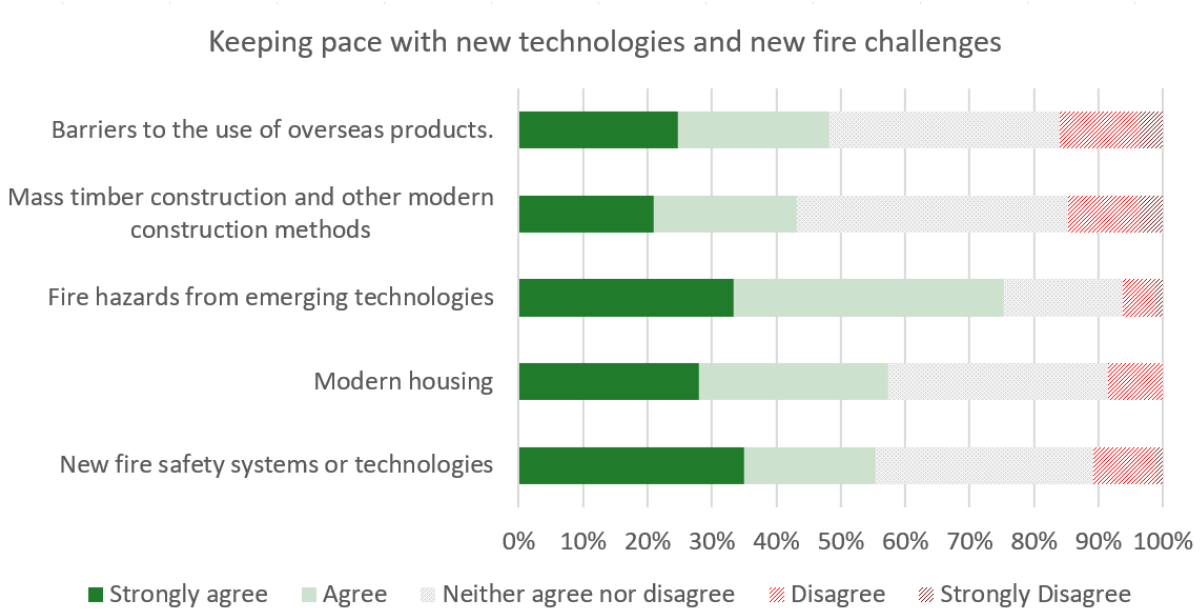

Figure 4.1: Favourability of the statements on keeping pace with new technologies

4.2.1. Overseas products

Statement 1: The Building Code fire safety provisions create barriers to the use of overseas products.

Thirty-nine submissions agreed or strongly agreed that the Building Code created barriers to overseas products. These submissions suggested often stated that the cited standards in the Building Code were too restrictive on the types of products that can be used in buildings to maintain the desired level of safety. Of those that agreed and provided comments:

- Two submissions stated that additional international standards need to be cited.

- Four submissions commented on the restrictions imposed by the citation of standards in the Building Code clause C3.4.
- Three considered the timely citation of updated standards in the AS/VM documents as a limiting factor.
- Two commented the standards themselves were not updated often enough.
- One submission cautioned that not all international standards would be suitable for New Zealand and standards would have to meet the objectives of the New Zealand Building Code.
- One submission suggested adopting mid- to large scale fire test for cladding as these would more accurately reflect cladding system behaviour in fire.

Thirteen submissions disagreed or strongly disagreed with this statement. This included eight submissions from building consent authorities and those involved in building control. Three submissions preferred that products from overseas have more onerous testing and certification requirements including certification to mandatory product assurance schemes.

- Two submissions stated that they did not believe this was an issue in the Building Code clause but a problem with testing requirements in the acceptable solutions and verification methods.
- Two submissions disagreed with the statement but still suggested that the New Zealand Building Code was not the appropriate location for quantified performance requirements (such as those found for the fire safety of surface finishes in clause C3.4).
- One submission stated that products from overseas were already in use in New Zealand so no further changes were required.
- One submission stated that removing barriers would mean that local suppliers would lose market share to products from overseas.
- One submission stated that products complying with other standards than those in the Building Code could be used through the use of a waiver or modification to the Building Code clause.
- The remaining three submissions did not provide specific comment on why they disagreed with this statement.

> "Standards exist to improve consistency and interoperability, and to decrease ambiguity and guesswork. Accepting a range of standards for the same purpose will counteract some of these objectives because each standard will have some differences. The reasons for these differences will not always be clear. Mixing and matching standards for different parts of a system may introduce incompatibilities. These factors introduce risk that building code objectives may not be met."

> "There needs to be a layer of scrutiny of overseas products being used in NZ. Taking away that will lead to issues like we faced with the Leaky Building Syndrome. We need to ensure that those overseas products are safe to use as they are often being relied upon for life safety."

4.2.2. Mass timber and modern methods of construction

Statement 2: The Building Code fire safety provisions do not enable mass timber construction and other modern construction methods to be used safely and efficiently.

Thirty-nine submissions agreed or strongly agreed with this statement. Of those who agreed and provided comments:

- One submitter stated that other performance attributes such as seismic, acoustic and sustainability should be included.

- One submission stated that increased insulation and airtightness due to modern construction should be considered.
- Two submissions stated that the Building Code and AS/VM documents need to be reviewed more frequently.
- Two submissions commented that post-fire performance is not addressed in the Building Code including for mass timber.

Twelve submissions disagreed or strongly disagreed with this statement. Of those who disagreed:

- Four submissions stated that they did not believe this was an issue in the Building Code clauses but may be an issue in the acceptable solutions and verification methods.
- One submission stated that the problem may be with mass timber construction as a technology itself and not with the Building Code.
- One submission stated that mass timber was already well accounted for in the Building Code.
- The remaining six submissions did not provide specific comment on why they disagreed with this statement.

4.2.3. Fire hazards from emerging technologies

Statement 3: The Building Code is not flexible enough to address fire hazards from emerging technologies such as electric vehicles, solar panels, and battery storage systems.

Seventy-five percent, or 61 submissions agreed or strongly agreed with this statement. Of those who agreed and provided comments:

- Five stated that the regulatory framework should be more responsive and flexible to address new risks.
- Four said the current Building Code provisions do not adequately manage the risks posed by electric vehicle charging, battery storage, and solar panels.
- Eight suggested to restrict charging batteries in buildings, by either banning these or requiring consents and specific building features, or policies or guidance.

> "A more flexible and responsive framework is needed to address emerging fire risks and adopt effective new technologies promptly."

Five submissions disagreed or strongly disagreed with this statement. Of those who disagreed:

- Four submissions stated that they did not believe this was an issue in the Building Code clauses but may be an issue in the acceptable solutions, verification methods, or guidance documents.
- One submission did not provide specific comment on why they disagreed with this statement.

4.2.4. Modern housing

Statement 4: Further consideration is required in the Building Code for modern housing such as fire spread and access for firefighters.

More than half the submissions (fifty-four, or fifty-seven percent) agreed or strongly agreed with this statement.

- Seven submissions expressed concern for firefighter access requirements.
- Three submissions stated that further consideration for means of escape and fire spread to other buildings was needed.
- One BCA expressed concern that the methods of subdivision for medium density residential does not consider future relevant boundaries when buildings are constructed prior to subdivision. For freehold

subdivisions, planning setbacks cease to exist, removing a default compliance for fire spread across boundaries.
- One submitter stated C/AS1 includes low rise apartment buildings, but its content is not detailed enough to support the trades, who are only familiar with the construction of standalone houses. C/AS1 should be expanded to include information on fire separations and fire stopping, etc.

> "With increasing pressure on land for residential development and the removal of the requirement to provide carparking facilities more dwellings are being constructed without adequate appliance access."

Seven submissions disagreed or strongly disagreed with this statement. Five of these submissions were from engineers and two were from building consent authorities. Of those who disagreed:

- Two submissions stated that they did not believe this was an issue in the Building Code clauses but may be an issue in the acceptable solutions and verification methods.
- One submission stated features for firefighting were not required and that Fire and Emergency New Zealand can make decisions when they arrive on the scene.
- One submission stated that the features for firefighting needed to be balanced against the costs for building access in rural locations.
- The remaining three submissions did not provide specific comment on why they disagreed with this statement.

Two electricity providers asked for consideration of buildings near electrical installations such as transformers and power lines.

4.2.5. New fire safety systems and technologies

Statement 5: There are barriers in the Building Code to using new fire safety systems or technologies as part of a design.

Forty-six, or 55% agreed/strongly agreed with this issue. Three submissions highlighted that the Building Code was not well placed to permit new technology as the lack of specific details on the performance of systems in the code clauses results on over-reliance of cited standards in the acceptable solutions and verification method documents.

The types of technologies that were discussed in the submissions included:

- fire suppression systems other than wet pipe sprinkler systems.
- fire alarm systems for different applications include visual alerting devices.
- hypoxic fire prevention systems.
- eco-friendly extinguishing agent for extinguishers.
- the use of AI in fire safety systems.

One submitter expressed concern about the visibility of photoluminescent signs.

> "Technology development can outpace Standards. It is important to objectively assess equivalence to the performance requirements of any cited (Acceptable Solution) Standards when permitting alternative/new technology. There are specific provisions in NZS 4512 (Fire Alarms), NZS 4514 (Smoke alarms), and NZS 4541 (Fire Sprinklers) in respect of formal interpretations and new technology to assist in coping with technology change. As long as the Acceptable Solutions continue to lean on these Standards, there will be a degree of responsiveness to new technologies."

Nine submissions disagreed or strongly disagreed with this statement:

- Five submissions stated that they did not believe this was an issue in the Building Code clauses but may be an issue in the acceptable solutions and verification methods.
- Two submissions stated the barrier for adopting new technology is due to the challenge in demonstrating performance for a building consent application and there was insufficient knowledge of how new technologies performed in fire.
- The remaining two submissions did not provide specific comment on why they disagreed with this statement.

> "…any new prescriptive requirements need to be flexible enough to allow for technology not yet thought of or available in the New Zealand Market yet."

5. Certainty, clarity, and consistency

5.1. What we sought feedback on

5.1.1. Certainty, clarity and consistency of the building code is one of main themes of the review

The Building Code system aims to ensure building designs will be consistently assessed across the country. Its provisions need to be clear enough to support consistent decisions on whether buildings comply. MBIE identified issues where the requirements do not achieve this, leaving gaps in the regulatory framework. Gaps and inconsistencies can lead to costly and unnecessary disputes and delays.

5.1.2. Questions on the issues

There were three questions asked on this topic.

11. Do you agree or disagree with MBIE's assessment of the issues on certainty, clarity and consistency?
12. Are there any other issues MBIE should consider on certainty, clarity and consistency?
13. Do you have any other comments or feedback on the certainty, clarity and consistency of fire safety provisions in the Building Code?

5.2. What we heard

There were high levels of support for the issues identified for this topic (Table 5.1). This was consistently the highest levels of support in the consultation. Seven submitters disagreed or strongly disagreed with some of these statements.

Table 5.1: Number of submissions agreeing and disagreeing with the statements about certainty, clarity, and consistency

Statement	+SA	+A	N	-D	-SD	NR
[1] Gaps in regulation have created a complex system to navigate.	36 (43%)	29 (35%)	15 (18%)	4 (5%)	0 (0%)	29
[2] The multiple ways to classify buildings can cause confusion on what is required.	34 (40%)	33 (39%)	14 (16%)	3 (4%)	1 (1%)	28
[3] Unclear language in the fire safety provisions can lead to inconsistent decision making.	44 (52%)	29 (34%)	9 (10%)	2 (2%)	1 (1%)	28
[4] The fire safety requirements in the Building Code have inconsistencies with other legislation and regulations.	28 (34%)	28 (34%)	23 (28%)	3 (4%)	0 (0%)	31

Key: +SA = Strongly agree, +A = Agree, N = Neither agree or disagree, -D = Disagree, -SD = Strongly disagree, NR = No response, don't know, or not applicable

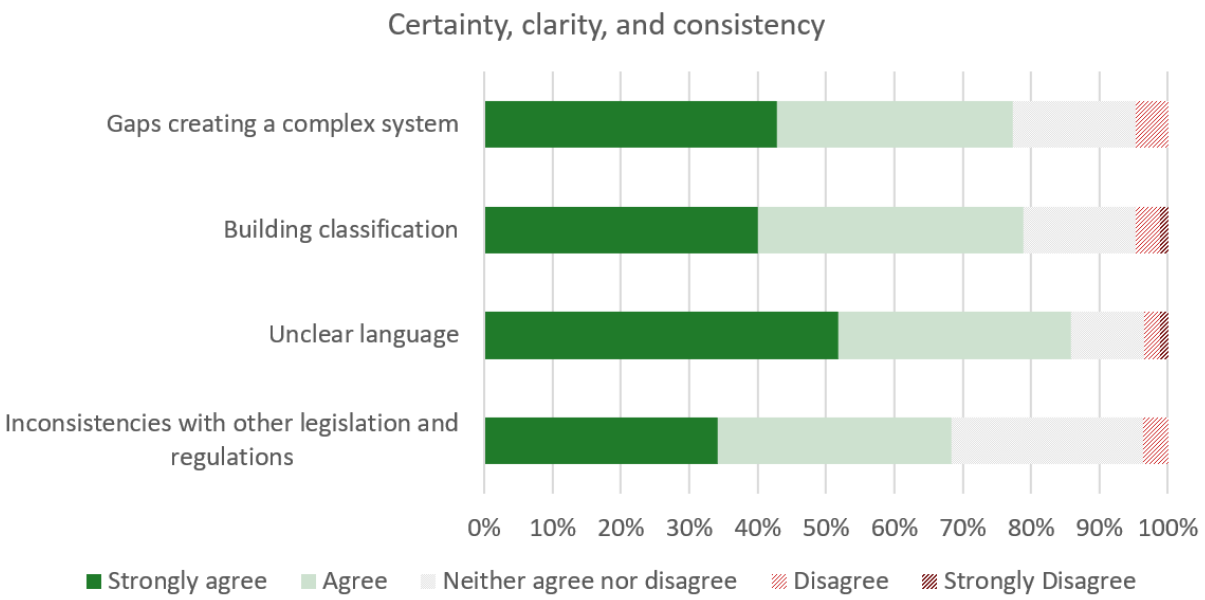

Figure 5.1: Favourability of the statements on certainty, clarity and consistency

5.2.1. Gaps creating a complex system

Statement 1: Gaps in regulation have created a complex system to navigate.

Seventy-eight percent of submissions agreed that gaps in the regulation created a complex system.

Overall, submitters stated 76 times for further information on the requirements was needed. Four submitters stated that certain concepts needed to be better defined. Others stated that the interpretations of the requirements are inconsistent, even within the same organisation, and this leads to delays in design and consenting.

Several submissions mentioned the lack of alignment between the Building Code clauses and the acceptable solutions and verification methods.

Only four submissions disagreed or strongly disagreed with this statement. Of those who disagreed:

- Three submissions did not provide any additional comments on why they disagreed with this statement.
- The remaining submission that disagreed noted that in many fields there are often competing and contradictory requirements, and it was the job of practitioners to navigate their way through.

> "…unless your building type fits exactly within the acceptable solution, it can be difficult to find a means of compliance for your building and often fire design can become complicated very quickly for otherwise very simple buildings and design proposals, adding huge costs to relatively small projects…The huge costs of fire design for the varying types of buildings now proposed for development is an inhibitor of development and growth, particularly in cities."

"As a landlord it is challenging to get answers from councils as to what they will accept causing delay and confusion with trades."

"The interpretation of means of escape by IQPs and the lack of specificity on Compliance Schedules to distinguish between fire and smoke separations for means of escape and those for property protection or external spread of flame is causing significant additional work and costs for BWoF passive fire compliance without improving fire safety."

5.2.2. Building classification

Statement 2: The multiple ways to classify buildings can cause confusion on what is required.

Sixty-seven (79%) submissions agreed the building classifications were confusing.

Six submissions mentioned there are too many ways to classify a building, and the classifications in C/AS2 (risk groups) do not align with the Classified Uses in the Change the Use Regulations. Four others stated there should be more refinement within the risk groups, especially for sleeping accommodation. There were specific mentions to improve the classification of residential uses, such as transient accommodation and at home care.

There were only four submissions that disagreed or strongly disagreed with this statement. Of these, three submissions did not provide any additional comments on why they disagreed with this statement. The remaining stated they disagreed but noted in their comments that importance levels, risk groups, classified uses, and change of use regulations should all be consistent.

5.2.3. Unclear language

This issue received the most support with 44 submitters strongly agreeing and 29 submitters agreeing, a total of 86%. Several submitters, including BCAs, said the lack of clarity led to different interpretations which create uncertainty and delays in the consenting process. Submitters stated that better definitions for building features such as means of escape, crowd, exitway and places of safety were needed.

"I believe that many barriers would be illuminated if all building features are clearly defined, including elements that are deemed obvious (like a wall – at what angle is a wall no longer a wall but a roof). It should not be assumed that everyone knows the difference between an egress route, escape route, exitway, safe path, external route, open path or dead-end open path. Building code clause A2 should be revised to include all possible definitions. Importance levels are differently defined for seismic performance than for fire performance, both B and C clauses should reference building code clause A3 instead of separately defining importance levels."

"The clearer the requirements within the code in how they are written and supported by effective diagrams then the less time designers and BCAs will spend in interpreting them and coming to the same agreement. There is a big productivity gain possible from clearer documents."

"The central regulator should not defer or encourage local regulators to interpret controversial matters differently."

There were four submissions that disagreed or strongly disagreed with this statement. Two submissions did not provide any specific comments on why they disagreed with this statement. The remaining submission suggested the issue was with the qualifications and skills of those using the documents.

5.2.4. Inconsistencies with other legislation and regulations

Statement 4: The fire safety requirements in the Building Code have inconsistencies with other legislation and regulations

Fifty-six (68%) agreed that the Building Code is inconsistent with other legislation. Submitters stated that there needed to better linkages between the Building Code and:

- the Fire and Emergency Act, and the Evacuation Scheme regulations
- the Resource Management Act (for firefighting water supplies)
- the Change the Use Regulations
- the Health and Safety at Work (Hazardous Substances) Regulations
- Ministry of Education licensing regime
- structural requirements in other code clauses

> "Fire-fighting water supply must be included in the NZBC and not just left to be magically dealt with in Resource Consent (or not dealt with as seems to be the case now)"

There were three submissions that disagreed with this statement. One submission stated that not all fire safety designs had to have the same outcome. One submission stated that the inconsistencies may indicate problems with other legislation and not the Building Act/Building Code but did not provide further explanation. The remaining submission did not provide any further specific comments on they disagreed.

6. Suggested priorities

6.1. What we sought feedback on

6.1.1. General question about priorities

The consultation included one general question on the priorities.

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

6.2. What we heard

6.2.1. Priority of outcomes

As a free-from question, respondents provided varying levels of detail and descriptions on what they thought the priorities of the review should be. These responses were analysed by their connection to the key issues and statements in the discussion document. Further analysis of the responses in relation to individual issues in presented in the next section of this document.

Table 6.1: Number of submissions suggestion priorities for each issue statement

Issue statement	Number of submissions	Percentage of submissions
No answer	**42**	**38%**
Certainty, clarity and consistency	**32**	**29%**
4. Certainty, clarity and consistency, general	13	12%
4.3 Unclear language leads to inconsistent decision making	10	9%
4.4 Inconsistencies when also complying with other legislation and regulations	4	4%
4.2 Multiple building classifications make requirements unclear	3	3%
4.1 Gaps in regulation have created a complex Building Code system to use	2	2%
Effectiveness of fire safety measures in the Building Code	**28**	**25%**
2.1 People in some type of buildings can be at greater risk in a fire	11	10%
2.2 Requirements are not always set at the right fire risk level for different types of buildings	11	10%
2.4 Emergency response needs to be considered in more detail	3	3%
2.5 Maintaining fire safety over the life of a building can be a challenge	3	3%
Keeping pace with new technologies and new fire challenges	**10**	**9%**
3.2 The Building Code has not kept pace with modern construction methods	5	4%
3. Keeping pace with new technologies and new fire challenges, general	2	2%
3.1 The fire safety provisions create barriers to using overseas products	2	2%
3.5 Barriers to using newer fire safety systems	1	1%

Suggested priorities

Of those who provided a response, most (12%) stated that more certainty, clarity and consistency was needed in general. Ensuring people in certain buildings are not at greater risk (10%), and ensuring requirements are set at the right risk level (10%) were next most mentioned, followed by using clear language to enable consistent decision making (9%).

A few considered the Building Code is not keeping up with modern construction methods (4%) as a priority and inconsistencies when complying with other regulations (4%). Multiple building classifications (3%), emergency response (3%) and fire safety over the life cycle of a building (3%), keeping pace with new technologies (2%), barriers to overseas products (2%), the complexity of the Building Code system due to gaps in regulation (2%), and one submitter stated that barriers to new fire safety systems be removed (1%).

The responses to the questions on specific issues in the other sections suggested that clarity, consistency and continuity, building classifications and maintenance of existing buildings (including Change the Use) would have been the top three priorities.

Many submitters mentioned more than one priority. Fire hazards from new technology and fire safety provisions for modern house construction were mentioned by a 1 or 2 submitters but not as the most important issue to address first. The issue no one specifically mentioned as a priority is the focus of the Building Code on life safety and protection of the building.

> "In my opinion the largest area of concern in the New Zealand Building Code (NZBC) Fire Safety clauses and the means of compliance published by the Ministry of Building, Innovation, and Employment (MBIE) is the inconsistent treatment of risk, in particular with regard to sleeping occupancies."

> "Consistency in Regulations Address gaps to ensure clear, unified guidelines and prevent varied interpretations."

> "The most important issue MBIE should consider in the review is the need to recognise proven, effective technologies that can enhance the safety of New Zealanders."

7. Contributing issues from the background paper

7.1. What we sought feedback on

7.1.1. Issues by fire safety topic

Appendix D of the background paper to the consultation contained a list of 173 issues identified in the fire safety provisions in the Building Code. Comments from submissions were also analysed to identify linkages to the issues to those items from Appendix D to identify where the comments supported or opposed these issues.

7.2. What we heard

7.2.1. Issues most mentioned

There were over 1000 comments related to issues in the background paper. There are comments received supporting 139 of the 173 issues identified with 26 issues receiving 10 or more comments supporting the issue identified. There are 47 issues identified as a priority with 22 suggested as a priority in more than two submissions.

The number one issue identified in the submissions relates to the evacuation of people of all abilities including those who are deaf, blind or disabled. This was specifically commented on by nearly half of all submitters.

Most submitters commented on the lack of certainty, consistency and clarity. There were many requests for more guidance documents to provide clarity, and more prescriptive requirements for building types and construction methods that are currently either out of scope or not covered in the AS or VMs.

7.2.2. Issues not supported in the comments

There are 34 issues from the background paper where no one provided any comments in support or opposition of the issue.

- 7 issues were related to the prevention of ignition and hazards in a building
- 12 issues were related to specific fire testing and construction requirements to limit fire spread
- 8 issues related to evacuations situations for specific building types or situations
- 6 related to features for fire alarms, suppression, and firefighter operations in buildings
- 1 issue related to structural fire safety.

There were 16 issues that submitters opposed in their comments. A list of these issues is provided in Table 7.1. The largest number of submitters opposed to these items are for the issues relating to keeping pace with new technologies and new fire hazards including those issues related to overseas products, the design and construction of mass timber buildings, modern housing, and fire hazards from green technologies. In all of these cases, there were significantly more comments received that supported the issues identified and some people noting these as priority issues to resolve.

Table 7.1: Number of submissions opposing specific issues in the Building Code

Issue	Number of submission opposing	Number of submissions supporting	Number of submissions stating it is a priority
5-1 Barriers to overseas products	12	24	4
9-3 Timber structures (including light weight and mass timber buildings)	11	17	1
2-1 Protection of the building	9	16	2
6-1 Changes in technology	8	36	3
3-3 Housing densification	5	22	3
4-3 Green technologies and emerging risks	4	29	5
8-3 Responding to other emergencies	2	4	1
2-2 Fire and other emergencies	2	7	2
10-1 Multiple building classifications	2	23	5
4-6 Fire hazards on the outside of the building	1	3	0
8-4 Protection of staging areas	1	3	0
9-1 Hazards and consequences for structural design	1	5	1
9-6 Alignment with B1 Structure	1	13	1
4-1 Hazards for different buildings	1	21	5
2-5 Lifespan of a building	1	23	4
8-1 Access and facilities for firefighting	1	24	1

7.2.3. New issues identified

There were ten issues identified in the submissions that were not previously discussed in the background paper or discussion document. The new issues included:

- Residential fire safety
  - Issue 3-14. Aging in place – Further considerations are required on the abilities of occupants to evacuate as they get older (Submission 022).
  - Issue 3-15. Attached garages – Garages attached to housing contain many fire hazards but there are no requirements for attached garages to be fire separated or otherwise protected from the adjacent dwelling (Submission 049).
  - Issue 3-16. Firestopping in small residential buildings – There are no solutions for firestopping between attached household units design in accordance with C/AS1. This presents challenges in maintaining the fire separation especially for routing of services (Submission 034).
- Fire hazards and prevention
  - Issue 4-21. Automatic storage and retrieval systems – Automatic storage and retrieval systems in warehouses use robots and shuttles to move items around and have limited access for people. This can be challenging to extinguish the fire and for firefighters to access the buildings. Further consideration is required for the fire protection and access needs for these types of facilities. (Submission 027)

- Fire safety systems
    - Issue 6-22. Photoluminescent exits signs – There is an inconsistent level of performance provided between photoluminescent and illuminated exit signs in smoke obscured conditions and it is unclear what the minimum level of performance is permitted (Submission 049).
    - Issue 6-23. Illuminated exit signs in marae – Illuminated exit signs in marae wharenui can be a nuisance as the light disturbs those trying to sleep which may lead to ad hoc coverings to block the light (Submission 059).
    - Issue 6-24. Carbon monoxide alarms – The performance criteria in F7 Warning Systems only covers alarms for fires and other emergencies. It does not contain specific criteria related to the detection of carbon monoxide (Submission 059).
- Emergency response
    - Issue 8-16. Confusing limits on application – The limits on application of clauses C5.3 to C5.8 are confusing and poorly worded. For example, as read, the limit on application of C5.3 would state that a hardstanding is not required within a multi-unit dwelling (Submission 041).
    - Issue 8-17. Assumption on firefighting – Assumptions for firefighting in the Building Code and C/VM2 about the contribution of firefighting and response times are no longer be valid (Submissions 043).
- Buildings undergoing alterations or change of use
    - Issue 10-8 Maintenance and checking of specific systems – Further clarity on the checking and maintenance of some fire safety systems including illuminated exit signs, ventilation systems, and passive fire systems (Submissions 015 and 024).

Additionally, there were comments on 20 issues that highlighted additional scenarios or provided additional details of the problem the issue was creating. These issues included:

- Objectives of the Building Code
    - Issue 2-2. Fire and other emergencies – Emergency access also needs to account for the operational safety of ambulance and police personnel in addition to firefighters. Any emergency response can be greatly affected by the design and layout of a building or development (Submission 31).
    - Issue 2-6. Unacceptable risks and low probabilities – There are also differences in the level of onerousness and conservatism between C/AS2 and C/VM2 (Submission 013).
- Residential fire safety
    - Issue 3-1. Residential specific requirements – Small, attached units with fire separation may also require specific solutions for fire stopping (Submission 034).
    - Issue 3-2. Accommodation buildings and at risk populations – The MBIE guidance for the fire safety of residential community housing recommends a declaration of support and management systems to be in place but does not cover what this should contain (Submission 022).
    - Issue 3-5. Classification of residential buildings – Residential buildings for people with disabilities may trigger a change in use and upgrades to the building which may be a barrier for disabled people living in the community (Submission 022).
    - Issue 3-12. Soffits – There is also a lack of clarity around the fire rating of shared entrances with shared eaves (Submission 055).
- Fire hazards and prevention
    - Issue 4-1. Hazards for different buildings – Smaller single or two-storey commercial buildings which may have limited size and fire risks but rather onerous fire safety requirements (Submission 018).
    - Issue 4-6. Fire hazards on the outside of the building – Fire hazards on the outside of the building also include electric transformers, overhead wires, or other electrical infrastructure (Submission 088).

- Fire spread
    - Issue 5-3. Performance criteria of passive fire protection – The New Zealand Building Code clauses C1-C6 do not contain any performance requirements for fire separations. There are no statements on how fire separations are to be constructed or how openings and penetrations must be protected to maintain the integrity of the fire separation. (Submission 026).
    - Issue 5-11. Building description for surface finishes – There is confusion on the application of surface finishes in escape routes in multi-unit apartment buildings (Submission 055).
    - Issue 5-17. Modelling rules and fire dynamics for current construction methods – Greater airtightness, increased insulation, sound proof construction, and material changes can also impact on the performance of fire safety systems and present additional challenges for responding firefighters not captured in the C/VM2 firefighting operations scenario (Submissions 043 and 044).
    - Issue 5-39. Notional boundaries – Notional boundaries are not clear for C/AS1 type buildings nor for eaves, overhangs, or irregularly shaped buildings (Submission 034).
- Fire safety systems
    - Issue 6-16. Interfaces with other parts of the Building Code – Occupant loads used in fire safety design also impact other parts of the code including importance levels, accessibility, and toilets (Submission 080).
- Evacuation and means of escape
    - Issue 7-8. Fractional effective doses – Clause C4.3 only works practically in reference to C/VM2 as the measurement of fractional effective dose requires computer modelling to determine the value. Alternative solutions to determine FED without using computer modelling or other methodologies are virtually non-existent (Submission 078).
    - Issue 7-24. Occupant load densities – Occupant load densities for early childhood centres also require further consideration (Submission 046).
- Emergency response
    - Issue 8-1. Access and facilities for firefighting – Specific concerns for firefighting access exist when there are multiple buildings configured on a single site and for non-fire rated roofs and canopies made of lightweight materials that may collapse (Submissions 022, 043, 044).
    - Issue 8-2. Protection of staging areas – Specific concerns exist where non-fire rated roofs and canopies made of lightweight materials may collapse on firefighters and firetrucks (Submission 044)
    - Issue 8-3. Responding to other emergencies – The operational safety and needs of ambulance and police personnel also need to be taken into account (Submission 031)
- Structural fire safety
    - Issue 9-3. Timber structures – Lightweight timber elements can also face issues when used in more complex buildings (Submission 007).
- Buildings undergoing alterations or change of use
    - Issue 10-1 Multiple building classification systems – There are also issues in the alignment of building classifications with warehouse and factories, buildings with emergency management classifications for post-disaster use, and the National BCA competency assessment system levels (Submissions 031, 034, 052).

8. Other comments

8.1. What we sought feedback on

8.1.1. Scope of the review

The focus of the discussion document was to identify issues in the Building Code regulations and other related regulations, including:

- the fire safety provisions set out in the objectives, functional requirements, and performance criteria in the Building Code
- other regulations under the Building Act that are consequentially impacted.

The discussion document did not make any specific proposals to change the Building Act, the regulations, acceptable solutions, or verification methods. However, submitters were able to provide further feedback to MBIE at the end of the survey on any other aspects of fire safety and the building regulatory system.

8.1.2. Questions on the outcomes

These questions provided opportunities for comments on other aspects of fire safety.

15. If you have any other comments on this review, please tell us.
16. If you have anything else you would like to tell MBIE about fire safety in the Building Code, please leave your feedback below.

8.2. What we heard

8.2.1. Response to questions

Forty-two individual comments from 28 submitters in response to these two questions were determined to be in scope of the review. The remaining comments are discussed in section 8.3 below.

Eight submitters provided general support for the review and four encouraged further consultation as the review progresses. A further 10 comments related to specific matters covered elsewhere, which have been incorporated into the analysis in the preceding sections. The remaining comments were about:

- specific acceptable solutions or verification methods (7)
- ensuring changes lead to simple, clear and consistent requirements, and gaps are minimised (5)
- specific code clauses (5)
- support for visual alerting devices (2).

8.3. Out of scope comments

Across all responses to all questions, there were 160 out of scope comments. The most common comments were about the regulation or competency of those involved in the design and consent process or the building consent system itself. Table 8.1 shows the number of comments by summary topic.

Other comments

Table 8.1: Number of out of scope comments by topic

Topic	Number of comments
Occupational regulation of different roles across the system, including competency concerns	41
Building consent system or processing	37
Existing buildings including the application of the Building Act section 112 (alterations to existing buildings) and the Building Warrant of Fitness regime	23
Issues or suggestions in relation to compliance and enforcement, education and guidance, or dispute resolution	16
Product regulation or standards	14
Other	12
Building use or maintenance, including building user behaviour	11
Issues that fall within other portfolios (Internal Affairs, Workplace Relations and Safety)	6

Some of the comments made by multiple submitters included:

- section 112 (Alteration of existing buildings) of the Building Act should be amended due to challenges such as the application of the 'as near as reasonably practicable' requirement
- some or all products should be subject to third-party certification
- roles and responsibilities are unclear
- competency needs to be lifted across a range of professions or roles, including designers, engineers, BCAs or territorial authorities, and IQPs
- there are challenges or inconsistencies in relation to the role of FENZ in the consenting process.

Appendix A. List of submitters

ID	Name	Organisation	Role
1	Leslie R Mellars		Evacuation specialist
2	Name withheld on request		
3	Steve Bailey		Independent Qualified Person (IQP)
4	Name withheld upon request		
5	Andrew Abercrombie	Site Scope Ltd	Building product manufacturer or supplier
6	Name withheld on request		
7	Peter Carruthers	Frame & Truss Manufacturers Association of New Zealand	Building product manufacturer or supplier
8	Name withheld on request		
9	Kim Robinson		Building resident, occupant or user
10	Name withheld on request		
11	Name withheld on request		
12	Name withheld on request		
13	Name withheld on request		
14	David Lennon		Independent Qualified Person (IQP)
15	Dylan Mooyman		Independent Qualified Person (IQP)
16	Name withheld on request		
17	Bev James		Other
18	Adrienne Slattery		Prefer not to say
19	Name withheld on request		
20	Name withheld on request		
21	Juliana Carvalho dos Santos		Prefer not to say
22	Peter Reynolds	New Zealand Disability Support Network	Other
23	Name withheld on request		
24	Name withheld on request		
25	Name withheld on request		
26	Name withheld on request		
27	Paul Clements	Clements Consultants	Engineer
28	Name withheld on request		
29	Name withheld on request		
30	Name withheld on request		
31	Patrick Cummuskey		Other
32	John Tait	Carterton District Council	BCA / TA / Building Consent Officer
33	Name withheld on request		

Appendix A. List of submitters

ID	Name	Organisation	Role
34	Name withheld on request		
35	Gemma Winstanley	Simpli Centre of Excellence	BCA / TA / Building Consent Officer
36	John Hudson		BCA / TA / Building Consent Officer
37	Name withheld on request		
38	Calvin Clapperton		Building product manufacturer or supplier
39	Name withheld on request		
40	Diogo Alves DeSouza	Hilti New Zealand	Building product manufacturer or supplier
41	Name withheld on request		
42	Professor George Charles Clifton		Engineer
43	Dr Stephanie Rotarangi	Fire and Emergency New Zealand	Fire and Emergency NZ
44	Peter Hallett	New Zealand Professional Firefighters Union (NZPFU)	Fire and Emergency NZ
45	Name withheld on request		
46	Name withheld on request		
47	Name withheld on request		
48	Name withheld on request		
49	Neil Mcleod		Prefer not to say
50	Stephen Ridder		Prefer not to say
51	Peter Scholes		Prefer not to say
52	Name withheld on request		
53	Alister Arcus	Hamilton City Council	BCA / TA / Building Consent Officer
54	Chris Scott	Wellington City Council Building Compliance and Consents	BCA / TA / Building Consent Officer
55	Name withheld on request		
56	Paul Kauri		BCA / TA / Building Consent Officer
57	Ben Bakker	FPANZ - SIG Passive Fire	Builder or tradesperson
58	Name withheld on request		
59	Bryan King	Lighting Council New Zealand	Building product manufacturer or supplier
60	Ramiro Díaz Vela	MAUS	Building product manufacturer or supplier
61	Eirik Oijordsbakken	Pacific Door Systems Ltd	Building product manufacturer or supplier
62	Name withheld on request		
63	Renelle Gronert	Ministry of Education	Commercial building owner
64	Jerome Sheppard	Ministry of Justice (Development of this submission has been	Commercial building owner

Appendix A. List of submitters

ID	Name	Organisation	Role
		supported by Martin Feeney, Holmes Group, and Mike Stannard, Kestrel Group)	
65	Nicola Weavers	New Zealand Police	Commercial building owner
66	Michael Belsham	BelshamFire Ltd	Engineer
67	Grant Haggett	Core Fire Safety Ltd	Engineer
68	Dianne Patrick	Engineering NZ	Engineer
69	Name withheld on request		
70	Name withheld on request		
71	Greg North	Society of Fire Protection Engineers New Zealand Chapter	Engineer
72	Stuart Oliver	Structural Engineering Society New Zealand	Engineer
73	Geoff Thomas	Thomas Fire Engineering Ltd	Engineer
74	David Prosser		Engineer
75	Name withheld on request		
76	Name withheld on request		
77	Name withheld on request		
78	Kevin Irwin		Engineer
79	Mike Stannard		Engineer
80	Peter Reddin		Engineer
81	Trent Fearnley	Association of Building Compliance	Independent Qualified Person (IQP)
82	Martin Gordon	BRANZ – Building Research Association of New Zealand	Other
83	Rachel Hargreaves	Deaf Aotearoa	Other
84	Chris Ford	Disabled Persons Assembly NZ	Other
85	Andrew Saunders	IAG	Other
86	Clement Tang	Ministry of Education – Early Learning Regulation	Other
87	Cristean Monreal	RCP	Other
88	Aimee Gulliver	Vector Limited	Other
89	John Gardiner		Other
90	Andrew Wilson	Accessible Properties New Zealand Ltd (Accessible Properties)	Residential building owner
91	Kerry Beveridge		Residential building owner
92	Marcela Jorquera Medel		Residential building owner
93	Name withheld on request		

Appendix A. List of submitters

ID	Name	Organisation	Role
94	Alison Curtis	Western Bay of Plenty District Council	BCA / TA / Building Consent Officer
95	Stella Hye Chung Jeon		Other
96	Susan Ivory	Te Kāhui Inihua o Aotearoa / The Insurance Council of New Zealand (ICNZ)	Other
97	Tony Abu	University of Canterbury Fire Engineering Structural Fire Performance Group	Engineer
98	Mahmood Nasir	Health New Zealand Te Whatu Ora	Commercial building owner
99	Philip Xie	Christchurch City Council	BCA / TA / Building Consent Officer
100	Jared McDowell	Tauranga City Council	BCA / TA / Building Consent Officer
101	Name withheld on request		
102	Carol Caldwell		Engineer
103	David Baker		Prefer not to say
104	Lilian Henwood		BCA / TA / Building Consent Officer
105	Murray Jacobs	Murray Jacobs Limited Structural Engineers	Engineer
106	Name withheld on request		
107	Nick Hill	Building Officials Institute of New Zealand (BOINZ)	BCA / TA / Building Consent Officer
108	Hugh Jones		Prefer not to say
109	Denise Whelan	Auckland Council	BCA / TA / Building Consent Officer
110	Angela Lindsay		Prefer not to say
111	Anne Wyrill	Deaf Action NZ	Other
112	Ben Tuifao-Jenkinson	Wellington Electricity Lines Ltd	Other

Appendix B. Comments related to individual outcomes and issues

This appendix provides an overview of comments related to each of the contributing issues identified in the background paper for the consultation.

Table B.1 Issues related to the statements

Statement	Related issues
2.1. People in some types of building can be at greater risk in a fire There is insufficient consideration of the evacuation needs of different occupants in a building including those with disabilities. This means that some people could be at greater risk in a fire.	3-2, 6-4, 6-8, 7-5 to 7-8, 7-10 to 7-14, 7-18, 7-20, 7-23, 7-26, 7-32, 8-6, 10-3
2.2. Requirements are not always set at the right fire risk level for different types of buildings The Building Code fire safety provisions do not adequately consider the height, importance, use of the building, or other factors. This means that the requirements may not be cost-effective for all building owners.	2-2, 2-4, 2-5, 3-1, 3-3, 3-4, 3-5, 3-7, 3-9, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-14, 4-15, 4-16, 4-17, 4-18, 5-1, 5-2, 5-4, 5-6, 5-7, 5-9, 5-10, 5-14, 5-15, 5-18, 5-22, 5-23, 5-24, 5-26, 5-28, 5-29, 5-34, 5-37, 5-39, 5-42, 6-2, 6-3, 6-5, 6-12, 6-13, 6-14, 6-18, 6-19, 6-20, 7-4, 7-7, 7-8, 7-9, 7-11, 7-12, 7-13, 7-14, 7-15, 7-23, 7-26, 7-33, 7-34, 8-1, 8-2, 8-3, 8-5, 8-6, 8-7, 8-8, 8-9, 8-10, 8-11, 8-12, 8-13, 9-1, 9-2, 9-3, 9-4, 9-6, 9-7, 9-9, 9-11, 9-12, 10-2, 10-3, 10-4, 10-5, 10-7
2.3 The building code focusses on life safety and protection of other property. There is a narrow focus when protecting a building in a fire. This can leave gaps in the protection of buildings and increases the risk for responding firefighters.	2-1, 2-2, 2-5, 2-7, 2-8, 3-1, 3-3, 3-4, 3-7, 3-11, 3-12, 4-1, 4-4, 4-5, 4-6, 4-10, 4-14, 4-18, 5-5, 5-6, 5-7, 5-8, 5-14, 5-15, 5-20, 5-31, 5-32, 5-33, 5-34, 5-35, 5-36, 5-39, 5-40, 5-41, 6-14, 6-20, 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8, 9-9, 9-10, 9-11, 9-12, 10-4, 10-5
2.4. Emergency response needs to be considered in more detail The Building Code does not provide comprehensive measures for firefighters responding to fires or other emergencies.	2-1, 2-2, 2-3, 2-4, 2-7, 3-1, 3-3, 4-7, 4-9, 5-8, 5-9, 5-19, 5-26, 5-38, 6-3, 6-7, 6-10, 6-14, 7-7, 7-16, 7-28, 7-29, 7-30, 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, 8-8, 8-9, 8-10, 8-11, 8-12, 8-13, 8-14, 8-15, 9-3, 9-11, 10-4, 10-5
2.5 Maintaining fire safety over the life of the building can be a challenge The Building Code does not provide sufficient consideration of fire safety systems during the life of a building including during construction.	2-5, 3-7, 5-4, 5-15, 6-2, 7-23, 10-3, 10-4, 10-5, 10-6
3.1 The fire safety provisions create barriers to using overseas products	5-1, 5-3, 5-12, 5-13, 5-14, 5-27

Appendix B. Comments related to individual issues

Statement	Related issues
The fire safety provisions in the Building Code create barriers to the use of overseas products.	
3.2 The Building Code has not kept pace with modern construction methods The Building does not enable mass timber construction and other modern construction methods to be used safely and efficiently.	3-5, 4-12, 5-6, 5-12, 5-31, 7-16, 9-3
3.3. Fire hazards from new technology may not be adequately addressed The Building Code is not flexible enough to address fire hazards from emerging technologies such as electric vehicles, solar panels, and battery storage systems.	4-2, 4-3, 4-9, 4-12, 4-17, 5-2
3.4. The fire safety provisions have not kept up with modern house construction Further consideration is required in the Building Code for modern housing including the access for firefighters.	3-3, 3-10
3.5. Barriers to using newer fire safety systems There are barriers in the Building Code to using new fire safety systems or technologies as part of a design.	6-1, 6-4, 6-12, 6-14, 6-15, 7-7
4.1. Gaps in regulation have created a complex Building Code system to use Gaps in regulation have created a complex system to navigate.	3-1, 3-3, 3-5, 3-8, 3-11, 3-12, 4-1, 4-8, 4-13, 4-20, 5-3, 5-18, 5-19, 5-20, 5-21, 5-25, 5-27, 5-31, 6-14, 6-18, 6-19, 7-1, 7-2, 7-3, 7-10, 7-11, 7-12, 7-13, 7-14, 7-32, 10-1, 10-2, 10-4
4.2. Multiple building classifications make requirements unclear The multiple ways to classify buildings can cause confusion on what is required.	3-5, 10-1
4.3. Unclear language leads to inconsistent decision making Vague language in the fire safety provisions can lead to inconsistent decision making.	2-1, 2-3, 2-4, 2-6, 3-3, 3-5, 3-6, 3-10, 3-13, 4-2, 4-4, 4-6, 4-7, 4-9, 4-13, 4-15, 4-16, 4-17, 4-19, 5-5, 5-36, 5-39, 6-1, 6-12, 6-15, 6-17, 6-18, 6-20, 7-11, 7-12, 7-13, 7-14, 7-23, 8-1, 8-2, 8-3,8-4, 8-9, 8-10, 8-12, 9-10, 10-1, 10-2, 10-5, 10-6, 10-7
4.4. Inconsistencies when also complying with other legislation and regulations The fire safety requirements in the Building Code have inconsistencies with other legislation and regulations.	6-4, 6-5, 6-6, 6-8, 6-9, 6-10, 6-11, 6-13, 6-14, 6-16, 6-21, 7-3, 7-4, 7-7, 7-10, 7-17, 7-18, 7-19, 7-20, 7-21, 7-25, 7-28, 7-31, 7-32, 8-10, 8-14, 8-15, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-9, 9-11, 10-1, 10-4

Appendix B. Comments related to individual issues

Table B.2 Submissions with comments supporting the contributing issues, opposing the contributing issues, or identifying the contributing issues as priorities.

Issue	Supporting	Opposing	Identifying as priority
2-1. Protection of the building – The objectives in C1 do not apply to the protection of the building or the property where the fire starts and only state that protection of 'other' property is required.	043, 044, 074, 080, 085, 097, 109, 022, 026, 041, 042, 053, 070, 077, 100, 107	066, 067, 072, 073, 076, 079, 083, 090, 098	043, 050
2-2. Fire and other emergencies – The objectives and provisions cover fire, but no additional considerations are given for other emergencies. There are other emergencies that would require the evacuation and access into a building such as gas leaks, medical emergencies, the presence of intruders, weather events, or loss of power.	031, 074, 080, 109, 043, 053, 108	107, 108	031, 044
2-3. Role of firefighting	044, 054, 097, 027, 041, 043, 053, 071, 077, 100		044
2-4. Protection of the surrounding environment – Fires in buildings can spread to adjacent forests and trees, impact air quality, emit greenhouse gases, and run-off from firefighting water can contaminate ground water or other nearby water bodies.	027, 043, 044, 074, 095, 109, 002, 028, 046		028, 043, 050, 095
2-5. Lifespan of a building	015, 043, 044, 053, 069, 074, 079, 082, 095, 104, 107, 109, 039, 042, 066, 068, 070, 073, 076, 078, 100, 102, 061	108	003, 047, 081, 095
2-6. Unacceptable risks and low probabilities	013, 027, 042, 054, 066, 067, 070, 076, 077, 080, 084, 087, 089, 095, 097, 098, 099, 102, 104, 105, 107, 109, 074, 075		027, 067, 074, 077, 099
2-7. Purpose of warning systems	022		
2-8. Preventing unwanted ignitions			
3-1. Residential specific requirements – There are limited specific considerations for the fire safety of	034, 039, 057, 073, 074, 078,		072, 074

Issue	Supporting	Opposing	Identifying as priority
residential buildings. Housing in the New Zealand Building Code is included alongside other buildings with limits on when certain features do not apply to housing. Residential buildings have their own unique challenges and fire problems.	109, 007, 080, 055, 067, 066		
3-2. Accommodation buildings and vulnerable populations – There are larger consequences of a fire in residential buildings with vulnerable populations such as boarding houses, social housing, independent living apartments, emergency housing, and recognised seasonable employee accommodations.	018, 022, 056, 073, 093, 104, 001, 080		001, 018, 022, 056, 074
3-3. Housing densification – New developments bring challenges to the new buildings and their occupants to ensure appropriate fire safety features are provided. Specific concerns relate to housing close to boundaries, buildings with no sprinklers and single means of escape, fuel loads in modern houses, and access for firefighting.	034, 044, 066, 073, 077, 102, 105, 109, 007, 035, 049, 054, 067, 071, 090, 095, 002, 070, 076, 082, 100, 055	013, 032, 036, 066, 097	055, 066
3-4. Wildfires in residential areas – There are no special considerations for the protection of buildings from wildfire/bushfire events. Without a change of building design to address susceptibility from wildfires, we are likely to continue to needlessly lose homes due to wildfires.	095, 109, 007		
3-5. Classification of residential buildings	022, 031, 043, 055, 066, 090, 093, 097, 071, 032, 035, 041, 052, 053, 080		018, 022, 036, 043, 091
3-6. Door locks	015, 018, 104		016, 018
3-7. Fuel loads in residential building			
3-8. External safe paths	066		
3-9. Warning systems for sleeping occupants	007, 022, 066		
3-10. Evacuation schemes in multi-unit residential buildings			
3-11. Fire stopping to roof cladding	034, 057		
3-12. Soffits	034, 057, 055		
3-13. Schedule 1 exemptions			

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
4-1. Hazards for different buildings – Different types of buildings have different hazards and require different levels of protection. There are limited requirements in the Building Code clauses specific to the use of a building. Taller buildings have specific considers across multiple parts of the design.	018, 027, 044, 054, 074, 102, 104, 105, 109, 043, 053, 066, 071, 080, 084, 100, 042, 094, 099, 024, 108	107	007, 056, 080, 099, 105
4-2. Sources of ignition – The Building Code Clause C2 is very narrow on the devices or appliances that could cause a fire. Additional sources of ignition that could be subject to fire prevention requirements include electrical, mechanical, and chemical systems or processes that supply heat and could ignite combustible materials under normal operation or likely failure modes.	036, 107, 049, 067, 099, 104, 042		
4-3. Green technologies and emerging risks – Green technologies including electric vehicles, solar panels, and small and medium scale energy storage systems (including lithium-ion batteries) in residential and commercial buildings represent new fire challenges that test the current robustness of fire designs. The Building Code is not flexible to address these or other new hazards.	044, 053, 066, 069, 070, 074, 080, 092, 095, 100, 102, 109, 028, 043, 071, 108, 007, 016, 036, 054, 057, 059, 067, 079, 082, 094, 099, 104, 107	013, 032, 053, 066	016, 039, 066, 072, 095
4-4. Construction fire hazards – The Building Code does not consider fire or other natural hazards during the construction or alteration of the building. Construction fires can be a serious concern as the necessary fire safety systems to protect against a fire may not be functional. This can lead to rapid fire development that endangers the construction worker, spread to other buildings, impact the community, and put firefighters at an increased risk to their personal safety.	043, 069, 109, 039, 068, 071, 078, 082, 102		
4-5. Wildfire events – There are no special considerations for the protection of buildings from wildfire/bushfire events. There is scope within the Building Code to provide measures for how buildings might be constructed at the wildland and urban/rural interface. Hotter, drier and at times windy conditions in many areas of New Zealand increases the risk of wildfires.	074, 109, 080, 095		
4-6. Fire hazards on the outside of the building – The Building Code does not consider exterior sources of	088, 109, 071	032	

Issue	Supporting	Opposing	Identifying as priority
fire including fires from rubbish bins, trees, shrubs, vehicles, advertising boards, plastic storage tanks, gas bottles, battery storage, air conditioning units, electric transformers, overhead wires, large TV screens, or electrical infrastructure.			
4-7. Fires involving hazardous substances – There are limited considerations for fires involving hazardous materials both as a potential ignition source and as fuel or hazards that propagate fire spread.	027, 081, 109, 049, 077, 108		
4-8. Design fires and hazards	042, 097		
4-9. Flammable Refrigerants			
4-10. Chimneys and flues			
4-11. Re-entry of smoke			
4-12. Lift machine rooms	018, 099, 104, 071		
4-13. Construction requirements in hazardous substance regulations	024		080
4-14. Fuel loads for different buildings	044, 043, 071, 042		
4-15. Large retail storage of dangerous goods	080		
4-16. Tunnels	109		
4-17. Piped hydrogen gas			
4-18. Outbuildings	109		
4-19. Terminology in hazardous substances regulations	054		
4-20. Redundant Verification Method C/VM1			007, 056, 080, 099, 105
5-1. Barriers to overseas products – New Zealand specific fire testing requirements for surface finishes, cladding systems, and other fire rated products limits the availability of products that can be used in the market in New Zealand.	031, 040, 041, 043, 066, 069, 079, 087, 100, 109, 060, 071, 099, 104, 024, 025, 042, 044, 055, 067, 070, 077, 032, 008	008, 032, 053, 056, 061, 062, 081, 082, 089, 099, 104, 107	018, 039, 062, 066
5-2. Toxic gases from surface finishes – The Building Code considers the heat and smoke produced in a fire but not toxic gas productions. There is a	008, 057, 062, 087, 095, 098, 100, 109, 026, 071, 099, 070,		008

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
considerable body of evidence for considering toxic gases.	078, 097, 023, 061		
5-3. Performance criteria of passive fire protection – Performance criteria for passive is not specified in the Building Code and can be confusing on how different systems and components are to perform in fire testing.	015, 034, 056, 057, 066, 069, 087, 095, 100, 104, 109, 024, 026, 071, 040		018, 066
5-4. Reliability of passive fire protection – There are specific concerns that passive fire protection systems may have high rates of defects in installation and may not perform as expected. The reliability of different fire safety systems needs to be considered.	015, 087, 026, 042, 043, 057, 071, 016, 056, 061		018
5-5. Fire resisting elements and automatic fire suppression – Provisions to limit fire spread should consider the use of fire-resisting elements and fire separations along with automatic fire suppression systems.	054, 109, 001, 007, 071		
5-6. Fire safety of external cladding – The provisions to limit fire spread over a building does not adequately address the fire risks it is trying to mitigate.	018, 078, 109, 026, 071		018
5-7. Roofs – There is no consideration of fire spread to, from, or over roofs or in ceiling assemblies.	109, 071		
5-8. Fire spread functional requirements	069, 109, 082, 067, 070, 107		
5-9. Preventing fire spread	069		
5-10. Design conditions for fire spread	099		
5-11. Building descriptions for surface finishes	066, 069, 100, 099, 070		066
5-12. Sustainable lining materials	099		
5-13. Flooring performance testing	109		
5-14. Fire spread in internal spaces	099		
5-15. Fuel loads	042		
5-16. External walls close to the boundary			
5-17. Modelling rules for current construction methods	043, 044, 109		
5-18. Atriums	041		
5-19. Smoke layer	077		

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
5-20. Horizontal fire spread assessment methods			
5-21. Smoke separations	008, 062, 026, 023, 071		008
5-22. Fire test methods	087, 100, 070, 078, 097, 109		
5-23. Assessments of fire performance	087, 100, 109, 061		
5-24. Fire and smoke dampers	008, 062, 071, 023		008
5-25. Cavity barriers	057		
5-26. Fire doors and fire bolts			
5-27. Generic flooring materials			
5-28. Fire testing from above a floor			
5-29. Fires in corners			
5-30. Weathering of timber cladding			
5-31. Modern methods of construction – The fire provisions within the acceptable solutions have not kept pace with modern methods of construction including mass timber, modular buildings, or offsite manufacturing. Modern construction configurations and details are not well reflected in the requirements or images and are not even contemplated.	095, 100, 109, 057		018
5-32. Passive fire requirements in other parts of the Building Code	109, 071, 040		
5-33. Cladding requirements in other parts of the Building Code			
5-34. Unprotected openings in acceptable solutions	071		
5-35. Balconies	071		
5-36. Shared walls	026		
5-37. Open-sided structures			
5-38. Intermediate floors	071		

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
5-39. Notional boundaries	034, 071		
5-40. Fire performance of cladding in C/AS1			
5-41. Terminology used for external walls	026		
5-42. Building height definition	026, 043		
5-43. Fire resistant piping			
6-1. Changes in technology – The technical development of fire safety systems is moving faster than the Building Code and cited standards can be updated. There are barriers to using new technologies or the latest versions of standards until they are cited.	008, 034, 039, 043, 044, 054, 062, 073, 074, 078, 079, 080, 081, 093, 095, 103, 109, 001, 033, 060, 071, 075, 099, 022, 024, 027, 058, 070, 084, 090, 092, 100, 107, 108, 077, 067	032, 036, 056, 061, 066, 067, 082, 089	008, 028, 095
6-2. Reliability of fire safety systems – There is limited consideration for what happens if a fire safety system does not function as expected nor are there measures to ensure that they do function.	034, 042, 067, 074, 078, 079, 091, 109, 043, 071, 056		
6-3. Emergency power – Emergency power is not required for essential services in fire or other emergencies in the New Zealand Building Code. Emergency power requirements need to be considered across the building design.	109, 082		
6-4. Visual alerting devices – There are no explicit requirements for visual alerting devices in F7 Warning Systems for when they are required or what level of performance they are required to have. These devices are used to notify those with hearing impairments of an emergency and can also be used where the ambient background noise is too loud for audio alarms.	010, 011, 019, 030, 104, 110, 071, 074, 095, 022, 083, 084, 090, 109		009, 010, 019
Fire alarm and notification systems 6-5. Activation of fire alarm systems	043		
6-6. Smoke detector coverage	071		
6-7. Voice communication systems	074		
6-8. Maximum sound levels	103, 022		
6-9. Warning systems for lifts	030		

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
6-10. Fire alarm monitoring			
6-11. Sprinkler systems	080, 090, 092		
6-12. Alternate automatic suppression systems – There are no specific provisions within the New Zealand Building Code that considers other types of suppression other than fire sprinkler systems. There are other types of systems that may be more suitable for than water for the specific hazards.	095, 060, 071, 027, 043, 084		028
6-13. Enhanced water supply			
6-14. Smoke control systems – There are no explicit provisions for the design or commissioning of smoke control/smoke management systems.	044, 078		
6-15. Specified system descriptions	034, 079, 081, 093, 109		
6-16. Interfaces with other parts of the Building Code	109, 077, 080, 067, 095		
6-17. Alignment with evacuation procedures	043, 054, 081, 103, 033, 071, 022, 090, 079, 109		
Systems in specific buildings 6-18. Design guides for Government buildings	079, 001, 109		
6-19. School buildings	034, 079, 075, 109		
6-20. Prisons	034, 079, 109		
6-21. Exit sign locations	034, 067, 071		
7-1. Exits and escape routes	015, 016, 018, 021, 034, 043, 046, 054, 064, 065, 079, 083, 098, 099, 109, 001, 017, 031, 070, 071, 075, 095, 100, 104, 107, 084, 093, 108, 056		016, 017, 018, 030, 046, 083, 086, 099, 105
7-2. Design of escape roues	034, 046, 104, 109, 071, 080, 098		046, 051
7-3. D1 Access requirements	084, 109, 071, 099, 107		

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
7-4. Toxic gases during evacuation – The Building Code does not consider the impact of toxic gases on the evacuation of people.	067, 098, 109, 077, 094		
7-5. Wayfinding – There are no requirements for wayfinding in large buildings. Wayfinding measures providing information through signage, maps, message boards, audio clues, and layouts to assist with evacuation.	095, 059		
7-6. People of all abilities – Means of escape features should be designed for people of all abilities for different building uses so that everyone can maintain their independence in evacuation. Those requiring assistance in evacuation are exposed to higher risks as it may take longer to evacuate and they may have to wait until the fire service responds to assist.	009, 010, 011, 019, 021, 030, 056, 067, 069, 083, 084, 090, 098, 103, 104, 109, 001, 017, 022, 043, 053, 066, 070, 071, 076, 077, 095, 099, 100, 107, 106		009, 010, 011, 017, 019, 021, 030
7-7. Evacuation lifts – There are no provisions to use lifts for evacuation in emergencies in the New Zealand Building Code. Lifts would be useful in tall buildings, hospitals, care facilities, and other buildings.	030, 069, 098, 053, 071, 079, 056, 099, 104		
7-8. Fractional effective doses – Fractional effective doses in C4.3 expose some building users to greater risks. This criteria reflects acceptable levels for average populations and would not be suitable for the young, old, or those with respiratory issues.	067, 078, 109, 043, 066, 071, 076, 107		
7-9. Evacuation from sprinklered occupancies – Exemptions for sprinklered buildings do not consider the hazards and consequence for different building types. The exemptions apply to all buildings without further considerations of the layout of evacuation routes, the type of occupants expected in the building, how the occupants are protected from the fire.	078, 109, 071, 104		
Situations with complex evacuations 7-10. Accessible routes	021, 083, 100, 084		017, 030, 083
7-11. Phased evacuation	079, 098, 099, 109, 070, 071		099
7-12. Hospitals	079, 098, 099, 109, 001		099
7-13. Places of safety	043, 054, 071, 098		

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
7-14. Refuge areas	021, 095, 043, 098		
7-15. Exit from a place of safety	099, 043, 098		099
7-16. Security features – There are competing objectives between security of a building and provisions for means of escape. Door handle heights, door locks, access control, speed gates, and fog cannons may delay evacuation and there are not clear requirements in the Building Code for how security systems are to function in relation to fire safety.	015, 016, 018, 034, 043, 046, 064, 065, 079, 099, 031, 071, 104, 093, 108		016, 018, 046, 086, 099
Doors 7-17. Door widths	034		
7-18. Push bar door hardware	071, 075		
7-19. Dual swing doors	071		
7-20. Door forces			
Interaction with other fire safety systems 7-21. Interaction with F7 Warning Systems and F8 Signs	109		
7-22. Vision obscured by smoke			
7-23. Maintenance and inspection of specified systems	104		
Number of occupants 7-24. Occupant load densities	046, 071, 080		046
7-25. Definition of crowd spaces	071		
7-26. Very large crowds	109		
7-27. Intermittent drops in tenability	109		
Means of escape in specific circumstances 7-28. Means of escape during construction			
7-29. Means of escape in alpine regions	109		
7-30. Interaction of firefighters and occupants			
7-31. Hot surfaces			
7-32. Robustness check for sleeping occupancies	071		
7-33. Underground structures			
7-34. Intermittent access to spaces	109, 071		016, 017, 018, 030, 046, 083, 086, 099, 105

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
8-1. Access and facilities for firefighting – Provisions in the Building Code make it difficult for firefighters to respond when considering standard operating procedures and training. Specific concerns exist for the access to and within buildings and the presence of firefighting facilities.	018, 034, 044, 054, 067, 069, 109, 031, 043, 056, 070, 071, 076, 095, 097, 099, 102, 104, 107, 007, 077, 066, 080, 089		072
8-2. Protection of staging areas – There are no specific requirements in the Building Code to protect firefighting facilities including interior and exterior staging areas. Firefighters need sufficient protection from the radiation of external flames and from building collapse but these hazards and risks to be protected are not identified to the Building Code.	044, 043, 071		
8-3. Responding to other emergencies – The provisions in the Building Code only relate to fire and no additional considerations are given for other emergencies or response activities besides rescue and firefighting operations. Other incidents requiring an emergency response include things like gas leaks, medical emergencies, intruders in a building, flooding, cyclones, weather events, or loss of power.	031, 080, 109, 043	107, 108	031
The features provided for firefighters in buildings 8-4. Notification of emergency			
8-5. Command centres			
8-6. Lifts in buildings			
8-7. Communication systems	043		
8-8. Weather effects on response	109		
8-9. Extinguishers – There are no explicit requirements in the New Zealand Building Code that address handheld or manual suppression for occupants or firefighters including extinguishers or hose reels in buildings. A large portion of fires can be extinguished at an early stage using hand-held extinguishers.	074, 109, 090		
8-10. Water supplies – There is limited consideration for the access and availability of firefighting water supplies in the New Zealand Building Code.	034, 044, 067, 109, 043, 071, 076, 097, 099, 104, 066, 080		
Different emergency responses 8-11. Large buildings	044, 097		

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
8-12. Response to hazardous substances	054, 071		
8-13. Firefighting during construction	097		
Determining firefighting intervention 8-14. Fire Brigade Intervention Model			
8-15. Length of firefighter hoses	034, 044, 099		
9-1. Hazards and consequences for structural design	034, 109, 071, 097, 042	036	097
9-2. Methods for structural design – The methods used for structural design must be appropriate to the type of construction including considerations of the type of material.	042, 099, 097		097
9-3. Timber structures – There is a desire for the increased use of timber in the built environment including structural members and framing. This includes the use of hybrid construction with timber alongside other materials. There are limited provisions in the Building Code that explicitly address how timber can be used without compromising the fire safety of the building. Mass timber buildings provide additional complexities in the fire design as highlighted in the work by Timber Unlimited.	007, 042, 044, 069, 102, 071, 054, 070, 072, 082, 095, 097, 099, 100, 104, 109, 067	032, 053, 062, 064, 067, 076, 077, 079, 098, 105, 107	066
9-4. Design for different circumstances – The New Zealand Building Code has limited considerations for structural stability or robustness for different circumstances. The provisions should consider the height, importance, function and use of the building, the fire hazard, the proximity to other buildings, the size of the compartment, fire service intervention, and the evacuation time.	042, 097, 109		
9-5. Allowable damage	097, 109, 042		097
9-6. Alignment with B1 Structure – Structural performance of buildings in fire has to be aligned with other structural provisions in the Building Code including structural design practice, importance levels, provisions for seismic bracing of the fire protection systems, and post-fire stability.	066, 069, 097, 105, 109, 026, 071, 072, 099, 104, 082, 041, 067		097
9-7. Time equivalence	097		097
9-8. Structural connections	042, 097		
9-9. Consequential damage	097		097

Appendix B. Comments related to individual issues

Issue	Supporting	Opposing	Identifying as priority
9-10. Structural fire protection in compliance schedules	034, 109		
9-11. Falling objects	071		
9-12. Inherent fire resistance			
10-1. Multiple buildings classification systems – The building regulatory system contains multiple ways to define a building's use and these often overlap or leave gaps in the classification of buildings. Some of the categories are outdated and it can be unclear where a building fits and what fire safety features are required.	018, 031, 034, 043, 054, 064, 069, 076, 079, 099, 104, 107, 022, 063, 090, 032, 035, 052, 053, 055, 066, 070, 071	056, 108	018, 022, 036, 043, 090
10-2. Duration of use – The change of use regulations and other building classifications schemes in the Building Code do not consider the duration of the use or activity in a building. Some buildings may have incidental changes of use for short periods of time.	104, 109, 107		
10-3. Change in demographics			
10-4. Compliance for existing buildings – The application of s112 and s115 when altering or changing the use of a building is inconsistent across the country. There is no clear direction on fire safety systems and what features of those systems must be upgraded to improve safety.	003, 004, 013, 018, 022, 034, 036, 053, 054, 055, 066, 069, 073, 085, 087, 090, 099, 104, 107, 017, 043, 067, 071, 095, 041, 101		022
10-5. Accuracy of compliance schedules	003, 036, 064, 066, 069, 099, 067, 052		
10-6. Lining materials	104, 071		
10-7. Review by Fire and Emergency New Zealand	034, 069, 073, 108, 032, 071		072