

Consultation submission form

Building Code update 2022

Plumbing and drainage
Structural stability of hollow-core floors
Protection from fire



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How to submit this form

How to submit this form

This form is used to provide feedback on proposals found within the Building Code consultation documents:

- › Plumbing and drainage
- › Structural stability of hollow core floors
- › Protection from fire

When completing this submission form, please provide comments and reasons explaining your choices. Your feedback provides valuable information and informs decisions about the proposals.

You can submit this form by 5pm, Friday 1 July 2022 by:

- › email: buildingfeedback@mbie.govt.nz, with subject line Building Code consultation 2022
- › post to: Ministry of Business, Innovation and Employment, 15 Stout Street, Wellington 6011
or: Ministry of Business, Innovation and Employment, PO Box 1473, Wellington 6140

Your feedback will contribute to further development of the Building Code. It will also become official information, which means it may be requested under the Official Information Act 1982 (OIA).

The OIA specifies that information is to be made available upon request unless there are sufficient grounds for withholding it. If we receive a request, we cannot guarantee that feedback you provide us will not be made public. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

Background

Submitter information

MBIE would appreciate if you would provide some information about yourself. If you choose to provide information in the “About you” section below it will be used to help MBIE understand the impact of our proposals on different occupational groups. Any information you provide will be stored securely.

A. About you

Name: Chelydra Percy

Email address: Chelydra.Percy@branz.co.nz

B. Are you happy for MBIE to contact you if we have questions about your submission?

Yes No

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

Yes No

If yes, please tell us the title of your company/organisation.

Building Research Association of New Zealand (BRANZ).

D. The best way to describe your role is:

- | | |
|--|--|
| <input type="checkbox"/> Architect | <input type="checkbox"/> Engineer (please specify below) |
| <input type="checkbox"/> BCA/Building Consent Officer | <input type="checkbox"/> Residential building owner |
| <input type="checkbox"/> Builder or tradesperson (please specify below) | <input type="checkbox"/> Commercial building owner |
| <input type="checkbox"/> Building product manufacturer or supplier
(please specify the type of product below) | <input checked="" type="checkbox"/> Other (please specify below) |
| <input type="checkbox"/> Designer (please specify below) | <input type="checkbox"/> Prefer not to say |

Please specify here.

Please refer to background section below for a description of BRANZ and our role in the building and construction system.

Background

E. Privacy information

- The Privacy Act 2020 applies to submissions. Please tick the box if you do **not** wish your name or other personal information to be included in any information about submissions that MBIE may publish.
- MBIE may upload submissions or a summary of submissions received to MBIE's website at www.mbie.govt.nz. If you do **not** want your submission or a summary of your submission to be placed on our website, please tick the box and type an explanation below:

F. Confidential information

- I would like my submission (or identifiable parts of my submission) to be kept confidential and **have stated** my reasons and ground under section 9 of the Official Information Act that I believe apply, for consideration by MBIE.

If you have ticked this box, please tell us what parts of your submission are to be kept confidential.

Background

BRANZ welcomes the opportunity to provide a submission on the proposals by MBIE as outlined in the 2022 Building Code update consultation documents.

In this submission we will first provide some background which describes our role generally in the building and construction system. This will provide the contextual lens through which we have responded to the more detailed proposals outlined in the consultation document and the questions in this submission form.

We are committed to working with MBIE to ensure the Building Code is grounded in a robust evidence base. We seek a Code that is optimally balanced to allow for innovation in the building system, drives higher performing buildings, addresses environmental and climate change aspirations, while managing safety and risk. We welcome engagement with MBIE on any aspects of the feedback we have provided. We also welcome any discussion on areas that have been raised by other submitter that BRANZ can have a role to play to support the proposals outlined.

Our role

BRANZ is a multi-faceted, independent science-led organisation. We use independent research, systems knowledge and our broad networks to identify practical solutions that improve Aotearoa New Zealand's building system performance. BRANZ is driven by the knowledge that to thrive as a society, New Zealanders need a built environment that is safe, healthy and performs well.

The BRANZ vision is to *Challenge Aotearoa New Zealand to create a building system that delivers better outcomes for all.*

To do this, BRANZ has strong relationships with industry, government and building users through collaboration and facilitating the sharing of insights, opportunities and ideas. These relationships underpin the range and depth of BRANZ's knowledge and ability to understand the linkages and interactions that influence the building system. This uniquely broad perspective not only influences BRANZ's research, but also our commercial services.

BRANZ undertakes and commissions research, funded by the Building Research Levy, which is both practical and drives positive building and construction system change. This work helps improve industry practices around the performance of buildings and how we use them, through to informing policy and legislation and all points in between.

BRANZ also contributes to practical improvements in Aotearoa New Zealand's built environment through a suite of independent product testing, assurance and consultancy services. Evidence-based advice is available at all phases of the product life cycle from preliminary R&D and standards compliance, through to verifying end-use product performance. A BRANZ assessment is universally trusted, providing assurance that the products should do what the manufacturer says they will do. We hold the responsibility to ensure our work is of the highest standard at the core of what we do.

Background

Our submission

In this submission we will focus on two of the three areas where proposals for building code updates are proposed. These are – *Structural Stability of Hollow-core Floors*, and *Protection from Fire*. Our connection to, and expertise in, these areas is summarised below and it is from these perspectives that we respond in more detail to the proposals.

1. *Structural stability of hollow-core floors.*

BRANZ was proud to participate in, and support through the Building Research Levy, the national research programme, ReCast which investigated seismic issues relating to precast floors. We are pleased to see that this fruitful collaborative research programme with the Universities of Auckland and Canterbury has provided the evidence-base to underpin the proposals outlined in the consultation document.

2. *Protection from fire (Proposals 1 & 2).*

BRANZ has extensive fire research and experimental capabilities, which form part of our Building fire-safe densified housing research programme¹. This programme was launched in 2020 and aims to facilitate densified housing, and support the evidence base to the building code fire safety clauses. BRANZ's long standing fire research works across the building system with collaborators and stakeholders. We developed a roadmap for research in 2011 and updated this in 2017² to guide the direction of this research.

BRANZ also conducts testing associated with the majority of the fire test standards referenced in the consultation document. Based on the test evidence for fire and other aspects, we issue BRANZ Appraisals and CodeMark certificates which demonstrate compliance with the code.

Many of our responses on the Protection from fire Proposal 1. *Protection from fire for residential homes* are detailed and are outlined in the table in the Appendix.

We have not responded to the proposals related to *Plumbing and Drainage*, given our areas of knowledge and expertise.

¹ <https://www.branz.co.nz/fire-research-draft/research-programme/>

² <https://www.branz.co.nz/fire-research-draft/fire-research-roadmap-for-the-built-environment/>

Structural stability of hollow-core floors

Structural stability of hollow-core floors

We are proposing changes to the compliance pathway for hollow-core floors to make new buildings safer in the event of earthquakes. The proposed change will include the removal of a deemed to comply solution for the support of hollow-core floors from Verification Method B1/VM1.

Questions for the consultation

1-1. Do you support amending Verification Method B1/VM1 Paragraph 3.1.1 as proposed to make the design of hollow-core floor supports an alternative solution?

Yes, I support it No, I don't support it Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

Based on current evidence provided through the ReCast programme, we support the proposal to amend Verification Method B1/VM1 Paragraph 3.1.1 so that an alternative solution compliance pathway will be required for detailing the support of hollow-core floors.

1-2. What impacts would you expect on you or your business from the proposed change? These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

Not applicable.

Structural stability of hollow-core floors

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

Yes

No

Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

BRANZ is keen to understand what additional information and resources can be provided for the industry. Should there be any needs identified by submitters in response to this question, we welcome a discussion with MBIE on what BRANZ can do to support the industry through the levers we have available.

1-4. Do you agree with the proposed transition time of 1 year for the new requirements to take effect?

Yes, it is about right

No, it should be longer (2 years or more)

No, it should be shorter (less than 1 year)

Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

From our perspective in the industry, we consider that a one-year transition period is about right, but will defer to industry colleagues working within the system who are in a better position to respond to this question.

Protection from fire

Proposal 1. Protection from fire for residential homes

Protection from fire

Proposal 1. Protection from fire for residential homes

We are proposing to increase the scope of C/AS1 to include additional types of low-rise multi-unit homes, with accompanying changes to address the associated fire risks. This proposal considered fire safety settings for all building types proposed to be covered by C/AS1 and takes into account previous feedback on the document, the latest standard for smoke alarms, and international practices for residential fire safety.

Questions for the consultation

1-1. Do you support issuing the new Acceptable Solution C/AS1 with the changes proposed to the following parts of the document?

- | | |
|--|---|
| Part 1. General | <input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference |
| Part 2. Firecells, fire safety systems and fire resistance ratings | <input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference |
| Part 3. Means of escape | <input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference |
| Part 4. Control of internal fire and smoke spread | <input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference |
| Part 5. Control of external fire spread | <input type="checkbox"/> Yes, I support it <input checked="" type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference |
| Part 7. Prevention of fire occurring | <input checked="" type="checkbox"/> Yes, I support it <input type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference |
| References, definitions, and appendices | <input type="checkbox"/> Yes, I support it <input checked="" type="checkbox"/> No, I don't support it <input type="checkbox"/> Not sure/no preference |

Is there anything you would like to tell us about the reason(s) for your choice?

Please refer to the detailed comments in the Appendix.

We support the expanded scope and the move to make C/AS1 a standalone document, that is incorporating content that practitioners previously had to find in C/AS2. However, this does make C/AS1 a more complex document for those interested only in simple buildings. We suggest revisiting the SH/AS1 approach of a single compliance document covering all NZBC clauses for simple buildings.

We note that the distance from boundary where fire resistance rating (FRR) requirements for roof overhangs / eaves are triggered has dropped from 650 mm to 300 mm. We consider this will cause a potentially significant increase in external horizontal fire spread risk, yet this has not been covered in the consultation explanatory notes. We would like more background information on the expected fire risk impact of this change.

We support the reduction of the 9 m higher wall / 5 m lower roof requirements (as outlined in C/AS1 Section 5.4). However, 2 m/2 m is a very large decrease, and this will also potentially lead to an increase in external fire spread risk. The rationale for this decrease has not been covered in the explanatory notes.

Protection from fire

Proposal 1. Protection from fire for residential homes

We recommend adding this information to the explanatory notes. BRANZ Study Report 409³ Table 13 shows that a 6 m higher wall / 3 m lower roof requirement would be expected to keep the exposing heat flux on the adjacent higher wall below 16 kW/m² for a fully involved 5 m x 5 m, single storey compartment fire. We therefore recommend that instead of 9m/5m, C/AS1 Section 5.4 has a 6m/3m requirement.

We recognise the need for 60-minute fire resistance ratings for some elements of construction given the increased SH scope. We also recognise the value in keeping the compliance requirements simple and that the cost of compliance is unlikely to be prohibitive. However, we do also note that the fire risk does not likely warrant the need for 60-minute fire resistance ratings for many simple buildings still covered under C/AS1.

The current smoke control door requirements in Appendix E provides for solid timber doors and frames, unless otherwise proven as fire doors only. This precludes options such as aluminium doors or frames where smoke control is required. We recommend investigating a performance-based option that would allow other material choices for smoke control doors.

We note that referenced fire test standards have not been updated. We recommend that they be updated as soon as possible. One example is AS 1530.4, which is now out of alignment with Australia as New Zealand references the 2005 version and Australia references the 2014 version. This means that manufacturers and suppliers wishing to sell product in both markets may need to complete two tests or a test and an assessment. It may also mean that they have to provide slightly different products for the two markets.

We support the concept of consistent appendices between the C/AS1, C/AS2, and C/VM2 compliance documents. To keep the appendices consistent, we recommend including all definitions from all compliance documents (including wharenuī, smoke control door, etc) in the definition appendix. We also recommend including an appendix that defines how Group Numbers are determined. They are referenced in the document (4.2.2.1) but users need to know to go to C/VM2 to find out how a Group Number is achieved.

Please refer to the table Appendix for more detailed comments and suggestions.

³ SR 409 Fire spread from lower roofs project: Final report (2019). See: <https://www.branz.co.nz/pubs/research-reports/sr409/>

Protection from fire

Proposal 1. Protection from fire for residential homes

1-2. Do you think the proposed Acceptable Solution C/AS1 covers all important aspects for protection from fire for risk group SH?

Yes No Not sure/no preference

If there are additional aspects of this document that you think should be included, please tell us.

1-3. What impacts would you expect on you or your business from the proposed changes? These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

The greater scope and more internally complete C/AS1 will support densified housing which aligns well with the intended outcomes of the BRANZ Building Fire safe densified housing research programme. From our experience, through our interactions with industry within this programme we expect the proposed changes will provide greater clarity for the industry and likely reduce ambiguity.

1-4. What support would you or your business need to implement the proposed changes if introduced?

Should there be gaps identified from submitters working in the system in response to this question, we welcome a discussion with MBIE on what BRANZ can do to support the industry through the levers we have available.

Protection from fire

Proposal 1. Protection from fire for residential homes

1-5. Do you agree with the proposed transition time of 12 months for the proposed changes to take effect?

- Yes, it is about right
- No, it should be longer (2 years or more)
- No, it should be shorter (less than 1 year)
- Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

From our experience through the engagement we have with the industry we anticipate that twelve months will allow an adequate time for the industry to transition to the proposals. We expect that many will use sooner as the new C/AS1 provides greater clarity for the increased scope it covers. However, we note that BRANZ does not have a complete and comprehensive gauge of the industry's perspectives.

Protection from fire

Proposal 2. Fire safety system standards

Protection from fire

Proposal 2. Fire safety system standards

We are proposing to improve the protection of people and buildings by bringing the requirements for fire safety systems (fire alarms, sprinklers, smoke alarms and smoke control in air-handling systems) in line with the latest industry standards. These changes would ensure the provisions in our compliance pathways for fire safety systems are up-to-date, consistent and clear.

Questions for the consultation

2-1. Do you support the amendments to Acceptable Solutions C/AS1 and C/AS2 and Verification Method C/VM2 to reference the following standards?

- | | |
|--|---|
| NZS 4512: 2021 Fire detection and alarm systems in buildings | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |
| NZS 4514: 2021 Interconnected smoke alarms for houses | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |
| NZS 4541: 2020 Automatic fire sprinkler systems | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |
| AS 1668.1: 2015 Fire and smoke control in building Amendment 1 | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |

Is there anything you would like to tell us about the reason(s) for your choice?

We support referencing the latest versions of the above standards, in particular the NZS standards. These represent the most recent updates in practice from the New Zealand fire protection industry. We are strongly supportive of the reference to NZS 4514:2021. The inclusion of wirelessly interconnected smoke alarms is expected to provide positive life safety impact.

Protection from fire

Proposal 2. Fire safety system standards

2-2. Are there any additional modifications to the referencing of the fire safety system standards that we should consider?

Yes

No

Not sure/no preference

If there are modifications that you think should be included, please tell us below.

While not included in the scope of this Building Code update, we recommend updating the referenced fire test standards where appropriate. This will ensure there is alignment with international markets and ensure that test methods are fit for purpose for modern building materials and systems.

2-3. Do you support amending Acceptable Solution F7/AS1 and referring to C/AS1 and C/AS2 for requirements for warning systems?

Yes, I support it

No, I don't support it

Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

It makes good sense to move warning systems into the protection from fire compliance documents. This should reduce confusion and the potential for errors in the building process.

Protection from fire

Proposal 2. Fire safety system standards

2-4. Do you support the amendments to Acceptable Solution C/AS2 for the following topics?

- | | |
|---|---|
| Domestic smoke alarms | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |
| Removing requirements for a landline phone | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |
| Removing restrictions for sprinklers to replace smoke detectors | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |
| Requiring sprinkler systems to extend into car parks | <input checked="" type="checkbox"/> Yes, I support it
<input type="checkbox"/> No, I don't support it
<input type="checkbox"/> Not sure/no preference |

Is there anything you would like to tell us about the reason(s) for your choice?

We support the reference to NZS 4514:2021 as stated above. Wireless interconnected smoke alarms will be a great improvement for household units undergoing alterations.

We agree that the requirement for a landline phone is an anachronism and welcome the update.

We support the change to remove restrictions for sprinklers to replace smoke detectors. Smoke detectors primarily provide a life safety benefit in sleeping occupancies. Allowing sprinklers to replace smoke detectors in public access and educational facilities (CA) and business and commercial (WB) occupancies is likely to reduce false alarms. It is also likely to provide an overall property and life safety benefit.

We support the extension of sprinkler systems to car parks. Car parks represent a present and growing potential fire hazard with greater parking density (e.g., car stackers) and new energy sources. We think the fire safety benefit will outweigh the additional cost of extending sprinkler systems and this will also make determining compliance simpler.

Protection from fire

Proposal 2. Fire safety system standards

2-5. Do you support the editorial changes to Acceptable Solution C/AS2 and Verification Method C/VM2 for the following items?

Correcting cross referencing errors in Table 2.3

- Yes, I support it
- No, I don't support it
- Not sure/no preference

Combining Tables 2.2a, 2.2b, 2.2c and 2.2d into one Table 2.2

- Yes, I support it
- No, I don't support it
- Not sure/no preference

Moving process steps into an informative figure

- Yes, I support it
- No, I don't support it
- Not sure/no preference

Aligning with the proposed changes to Acceptable Solution C/AS1

- Yes, I support it
- No, I don't support it
- Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

All of the proposed changes above support clearer fire safety compliance pathways with improved consistency and communication. Our response to the question regarding the table is "no preference", as we do not have a view one way or the other.

2-6. What impacts would you expect on you or your business from the proposed changes? These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

From our experience, through our interactions with industry, we do not expect the proposed changes will have significant impact.

Should there be impacts identified from submitters working in the system in response to this question, we welcome a discussion with MBIE on what BRANZ can do to support the industry through the levers we have available.

Protection from fire

Proposal 2. Fire safety system standards

2-7. Do you agree with the proposed transition time of 12 months for the new requirements to take effect?

- Yes, it is about right
- No, it should be longer (24 months or more)
- No, it should be shorter (less than 12 months)
- Not sure/no preference

Is there anything you would like to tell us about the reason(s) for your choice?

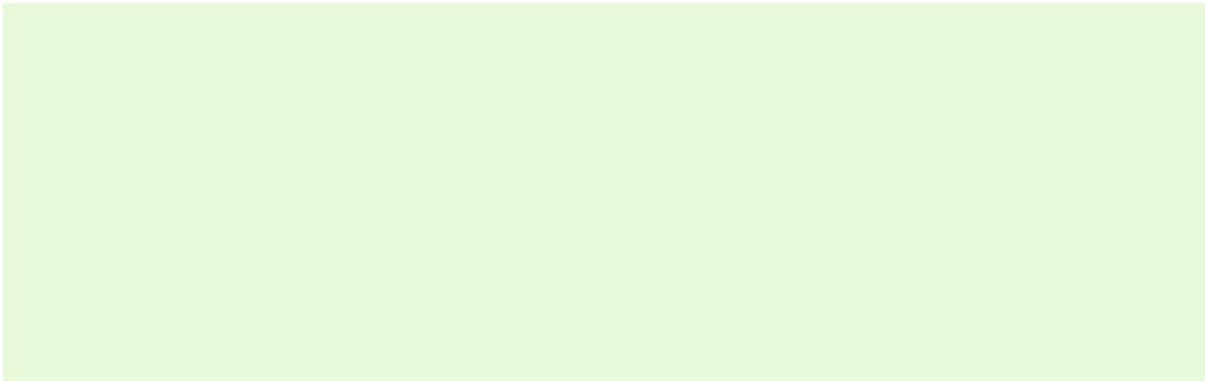
Thank you

Thank you

Thanks for your feedback, we really appreciate your insight because it helps us keep pace with modern construction methods, the needs of New Zealanders and ensure buildings are safe, warm, dry, healthy and durable.

To help us continue to improve our Building Code update programme, we would appreciate any suggestions or comments you may have on what's working and how we can do better.

If you have any other comments, please leave your feedback below:



Detailed comments

The table below provides more detailed feedback on the draft Second edition of C1-C6 Protection from fire Acceptable Solution C/AS1.

Document reference	Page number(s) in draft	BRANZ Recommendation	Rationale
C1-C6 Protection from fire Acceptable Solution C/AS1 (C/AS1) 1.1.1 Scope of this document	5	Consider a way to flag aspects of the document intended for more complex buildings. A way of doing this could be like is done in C/AS2, where clauses pertaining to certain risk groups are flagged with the risk group icon.	We recognise the intent behind broadening the scope which reflects construction trends (particularly residential) and the associated increase in complexity of C/AS1. However, it is important to note that this will likely increase the level of competencies and skills required to use and interpret C/AS1. There will still be a large number of less complex buildings that will be covered by the more complex document. Code compliance of these building types will not require an understanding of the full document, nor should it be expected for someone only interested in simple building compliance. Providing a clear and easy navigable document which highlights relevant areas will increase its useability and decrease the chances of misinterpretation.
C/AS1 1.1 Introduction	5	Retain the comment in the previous version of C/AS1 (1. Designing a building to provide fire safety involves decisions on both the construction materials...).	We consider that this comment, while it would benefit from an update to reflect document revisions, did provide useful guidance, particularly for new C/AS1 users.
C/AS1 Figure 1.1.1.1 Multi-unit dwellings in risk group SH	6	Update Figure 1.1.1.1 so that it is consistent with the NZBC and Appendix B definitions. That is: <ul style="list-style-type: none"> - The building height dimension upper limit shown appears to be to the peak of the roof, not to “the top of the highest occupied floor” as per the NZBC definition; - The building height dimension lower limit shown appears to be to “finished ground level”, not “the floor level of the lowest occupied space above the ground” as per the NZBC definition; and - The escape height dimension lower limit appears to be to “finished ground level”, not “from the floor level of the required final exit” as described in the C/AS1 definition. 	The addition of the Figure 1.1.1.1 is very useful as the NZBC building height definition remains unclear. Still, Figure 1.1.1.1 as proposed is also unclear and is inconsistent with the NZBC definition. We anticipate this to be confusing to document users, and likely to lead to conflicting interpretations. Otherwise, Figure 1.1.1.1 is good for demonstrating the egress path and household unit configurations.
C/AS1 Table 1.1.2.1 Risk groups outside the scope of Acceptable Solution C/AS1	7	Given the definition for Wharenui has been removed, remove its italics.	Useful to ensure there is format consistency across the document

Detailed comments

C/AS1 2.2.1.1	10	Consider retaining Table 2.1 from the previous version of C/AS1. Some of the fire safety systems listed in Appendix C are not specified anywhere else in this draft version of C/AS1. An alternative would be to note which systems in Appendix C are referenced in the relevant documents (e.g., with icons).	We recognise the desire to make compliance document appendices consistent. However, as Appendix C now includes all fire safety systems for all compliance documents, some fire systems are not specified in C/AS1. The previous Table 2.1, explicitly lists which systems are specified in C/AS1. This would be even more useful and prevent confusion that some systems may be required by C/AS1 when in fact they are not.
C/AS1 2.3.1 FRR values	10	Provide a comment noting that a 30-minute fire resistance rating would be sufficient for many C/AS1 applications, particularly simple building boundary walls, for example garages.	We recognise that with the increased complexity of C/AS1 that there are instances where the fire risk warrants 60-minute fire resistance. We also recognise that setting the required rating at a single level is a simpler approach. The cost of moving from 30 to 60 minutes is in most cases not likely to be excessive. However, we do think it would be useful to note that a 30-minute fire resistance rating would be sufficient for many C/AS1 applications, particularly simple building boundary walls such as garages.
C/AS1 2.3.2.1	10	Adding the word ceilings so that it becomes “...except floors and ceilings are only required to have an FRR for exposure from the underside.”	Adding ceilings will provide clarity and consistency, particularly for instances such as fire spread from lower roofs
A/AS1 2.3.2.3	10	Change to “ Where required by 5.1.1.1, e External walls within 1.0 m of the...”	We recommend this change to clear up any confusion as all walls within 1 m of the boundary may not require FRR as per 5.1.1.1.
C/AS1 Comment	11		We welcome the addition of this comment. It is likely to clear up any confusion regarding lateral stability requirements (i.e., notes compliance with Building Code Clause C6).
C/AS1 3.1.1.4	12	Change this clause to a comment.	The first sentence is covered by the final exit definition, and the second is informative. This will reduce redundancy and keep consistency with informative content.
C/AS1 3.2.3 and 3.4	13 and 16	Move 3.4 Doors subdividing escape routes to follow 3.2.3 Obstructions	It would be useful to keep content together that relates to similar requirements (i.e., escape route obstructions and doors).

Detailed comments

C/AS1 4.1.2.4 and 4.1.2.5	17	<p>Reword so the clauses become:</p> <p>4.1.2.4 The fire stop system selected for use as <i>fire stops</i> shall have been tested <u>or assessed as required by AS 4072.1...</u></p> <p>4.1.2.5 To avoid the passage of smoke through <i>fire separations</i>, or between <i>fire separation</i> and unrated part of the external wall <u>construction</u>, gaps shall be sealed with compliant <i>fire resistant systems</i> tested to AS 1530.4 <u>or assessed as required to AS 4072.1.</u></p>	<p>Assessments are allowed in the referenced AS 4072.1 standard. Clarification should be provided that these assessments are acceptable while “engineering judgements” not following AS 4072.1 are not.</p> <p>In addition, a material on its own cannot be considered to have a fire resistance rating when tested to AS 1530.4. Even concrete is not given a FRR without knowing the thickness / configuration. This has also been a common industry misconception. By continuing to include it in the C documents, this misconception will continue to be reinforced.</p>
C/AS1 Part 4	17	Move Clause 5.5.2 (page 33) to Section 4 to be consistent with C/AS2.	Having the cavity barrier clauses in two separate sections make C/AS1 and C/AS2 inconsistent and may cause confusion.
C/AS1 4.1.5.2	19	Remove clause.	While there will be instances where the installation of a protected shaft for services would be good practice, we consider this to be onerous for many situations.
C/AS1 4.1.6.2	19	Add “need”, so that it becomes “...outbuilding do not need a FRR.”	Minor editorial suggestion.
C/AS1 4.1.6.1 and 4.1.6.2	19	Add “cavity barriers” back in as an option (along fire stops).	Not allowing cavity barriers in these situations makes C/AS1 more onerous than C/AS2.
C/AS1 4.2.2.1	19	Add C/VM2 Appendix content on determining group numbers, plus reference.	Currently, C/AS1 does not describe how a group number is obtained. To be a self-contained document, we think that information on determining group numbers should be included in an appendix and referenced in 4.2.2.1.
C/AS1 5.2.1.3	22	Remove clause.	This clause is redundant as 2.3.3.2 already covers this point.
C/AS1 5.2.1.4	22	Remove “the” so that it becomes “...there is no limit on permitted area of the fire resisting glazing.”	Minor editorial suggestion.
C/AS1 Table 5.2.1.1	22	Change final row > 1.0, “unlimited” to “no fire resistance rating required”.	<p>We think that the current table could be confusing. We do not think that the intent of C/AS1 is to only allow fire resisting glazing in the external walls of all C/AS1 buildings.</p> <p>As currently drafted, it could be interpreted that for all C/AS1 buildings, regardless of distance to boundary, would require fire resisting glazing (albeit up to 100%).</p>
C/AS1 5.3.1	24	Ensure consistency in the use of “FRR” vs “fire rated”.	A consistent style to improve clarity.

Detailed comments

C/AS1 Figure 5.3.1.3	24	Change the left limit of the <300 mm dimension to the outside (from the house interior) of the gutter, to be consistent with clause 5.3.1.3.	Currently the Figure 5.3.1.3 dimension and the text in 5.3.1.3 are not consistent. To improve clarity, you could either change the figure or state explicitly in 5.3.1.3 that the roof projection does not include the guttering for the purposes of the 300 mm threshold.
C/AS1 5.3.3.2	25	Clarify whether deck supporting structure needs to be fire rated.	The requirement for the supporting structure could be interpreted as per 2.3.4.1, but we recommend that this should be made clear as otherwise it could be confusing.
C/AS1 5.3.3.4	25	Add the word “the” so that it becomes “In addition to the requirements...”	Minor editorial suggestion.
C/AS1 5.3.3.5	25	Add ‘s’ to requirement so that it becomes “...multi-unit dwellings the requirements of Paragraph 5.3.3.3...”. Add “to” so that it becomes “...separating adjacent household units to the full height...”	Minor editorial suggestions.
C/AS1 5.3.3.7	25	Ensure the clause is consistent with the Figure 5.3.3.7, that is discuss material combustibility requirements as shown in the figure.	We anticipate that consistency between clauses and figures will reduce confusion and the potential for different interpretations.
C/AS1 5.3.3.8	25	Change reference to Section 5.4. to Section 5.5.	We suspect that an error occurred in writing this clause and Section 5.5. was intended to be referenced.
C/AS1 5.3.4.1	28	Remove initial “The” from the clause.	Minor editorial suggestion.
C/AS1 Figure 5.3.4.3(a)	31	Extending the fire-rated floor beyond the overhang shown between stacked units as is done for Figure 5.3.3.6. Show one side as a single two-storey unit (to cover both stacked and side-by-side cases).	Making these changes will clarify the FRR requirements of the scenario covered by the figure and will also cover both the stacked and side-by-side options as per the figure caption.
C/AS1 5.5.2	33	Providing examples of acceptable cavity barriers.	Without a clear definition, cavity barriers remain problematic. Providing examples would be one way of providing some clarity.
C/AS1 7.3	36	Remove section.	To meet climate and air quality objectives, open fires have been generally discouraged. As such, we recommend removing open fires from C/AS1. In the exceptional cases where open fires may be desired (perhaps in existing buildings), alternative solutions should suffice.
Appendix B. Definitions	43-50	Retain definitions removed from for wharenuī, smoke control doors	This change would make the appendices consistent.

Detailed comments

C/AS1 Appendix B. Definitions	44	<p>Adding a specific exclusion of intermediate floors from the firecell definition.</p> <p>Suggested wording: "...Floors, in this context, include ground floors and those in which the underside is exposed to the external environment (e.g. when cantilevered), but exclude intermediate floors."</p>	Clarifying the definition will prevent misinterpretation.
AS1Appendix C. Fire safety systems	51-52	Add 'system" to the description of each system. As an example, C.2.1.1 would change from "A Type 1 is a smoke alarm..." to "A Type 1 system is a smoke alarm..."	Minor editorial suggestion, providing clarification.
C/AS1 C.2.1.1	51	Add the word "each" and "both" so that it becomes "... multiple interconnected smoke alarm devices each containing both a smoke detector and an alarm sounding feature."	Minor editorial suggestion, providing clarification.
C/AS1 C2.3.2, C2.4.2 and C2.4.3	51	Change these clauses to being comments.	These clauses are explanatory only and do not change the definition or requirements for the respective systems. We recommend changing them to comments.
C/AS1 all		Consistently use either "an FRR" or "a FRR".	Minor editorial suggestion, for consistency.