

# Consultation submission form

## Building Code update 2021

## Building Code operating protocols



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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 consultation documents:

- › Building Code update 2021 – Issuing and amending acceptable solutions and verification methods
- › Building Code operating protocols – Referencing standards and a tier framework to support standards in the Building Code system

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 28 May 2021 by:

- › email: [buildingfeedback@mbie.govt.nz](mailto:buildingfeedback@mbie.govt.nz), with subject line Building Code consultation 2021
- › 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.

## Submitter information

### 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:

Dr Chris Litten

Email address:

chris.litten@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:

Architect

Engineer (please specify below)

BCA/Building Consent Officer

Residential building owner

Builder or tradesperson (please specify below)

Commercial building owner

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

Other (please specify below)

Designer (please specify below)

Prefer not to say

Please specify here.

Independent, impartial research organisation

**Proposal 1: Energy efficiency for housing and small buildings****Proposal 1. Energy efficiency for housing and small buildings**

To make buildings warmer, drier, healthier and more energy efficient, we are considering options to increase the minimum insulation levels for roof, windows, walls and floors for new housing and small buildings. The options for minimum insulation levels vary across the country so that homes in the coldest parts of New Zealand will need more insulation than those in the warmest parts. As part of this, we are proposing to issue new editions of Acceptable Solution H1/AS1 and Verification Method H1/VM1 for housing and small buildings.

**Questions for the consultation**

**1-1.** Which option do you prefer? (Please select one)

- Status quo
- Option 1. Halfway to international standards
- Option 2. Comparable to international standards
- Option 3. Going further than international standards

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

BRANZ has provided a detailed submission on Proposal 1 separately.

**1-2.** For your preferred option, how quickly should this change come into effect?

(Please select one)

- 12 months
- 24 months
- 36 months or more
- Not sure/No preference

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

## Proposal 1: Energy efficiency for housing and small buildings

**1-3.** If there are factors we should consider to progressively phase in your preferred option, please tell us below.

These factors may include material availability or affordability, regional differences in the requirements, different building typologies or other considerations.

**1-4.** Do you support issuing the new editions of H1/AS1 and H1/VM1 as proposed?

H1/AS1:  Yes, I support it                       No, I don't support it                       Not sure/no preference

H1/VM1:  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?

**1-5.** What impacts would you expect on you or your business from the proposed options?

These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

## Proposal 1: Energy efficiency for housing and small buildings

**1-6.** 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?

## Proposal 2: Energy efficiency for large buildings

### Proposal 2. Energy efficiency for large buildings

To make buildings warmer, drier, healthier and more energy efficient, we are proposing to increase the minimum insulation levels for roof, windows, walls and floors for large buildings. The proposed minimum insulation levels will vary so that buildings in the coldest parts of New Zealand will need more insulation than those in the warmest parts. As part of this, we are proposing to issue a new Acceptable Solution H1/AS2 and Verification Method H1/VM2 for large buildings.

#### Questions for the consultation

**2-1. Which option do you prefer? (Please select one)**

- Status quo
- Option 1. 10% reduction in energy use for heating and cooling
- Option 2. 20% reduction in energy use for heating and cooling
- Option 3. 25% reduction in energy use for heating and cooling Is there anything you would like to tell us about the reason(s) for your choice?

#### General comments by BRANZ

MBIEs Building for Climate Change (BfCC) programme will require significant reductions in energy use from large buildings. Requiring a 25% reduction in energy use, will help to achieve the BfCC's ambitions.

The Building Energy End-use Study (BEES) project (Amitrano et al., 2014) found that the energy use of large buildings was reflected in the diversity of usage within those buildings. Refrigeration was dominant in supermarkets, office equipment was important in offices and that the types and quality of lighting was diverse throughout the entire BEES sample.

Lighting is an important end use for large buildings and the inclusion of more specific lighting power density requirements from NZS4243.2 is welcomed. However, these requirements are only one aspect of lighting energy use with how the lighting is controlled (occupancy sensors, daylighting, dimming and scheduling) also being an important factor. Lighting energy use reductions lack a strong evidence base and further surveys of lighting energy use would be beneficial.

Large buildings are increasingly internally load dominant with cooling becoming an increasingly important energy end use. It is important to consider the specific design requirements for individual buildings in preference to increasing one aspect of the thermal design (namely the insulation value of the thermal envelope).

Amitrano, L., Isaacs, N., Saville-Smith, K., Donn, M., Camilleri, M., Pollard, A., Babylon, M., Bishop, R., Roberti, J., Burrough, L., Au, P., Bint, L., Jowett, J., Hills, A., and Cory, S. (2014). BEES Part 1: Final Report - Building Energy End-use Study. BRANZ Study Report 297/1, BRANZ, Judgeford, Porirua.

**2-2. For your preferred option, how quickly should this change come into effect?**

(Please select one)

- 12 months       24 months       36 months or more       No preference

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

## Proposal 2: Energy efficiency for large buildings

Climate change is an issue growing more urgent each day. We prefer a relatively quick adoption of the 25% energy reduction. However, this must be tempered with the ability of the building and construction sector to adapt and meet these stringent requirements.

### 2-3. If there are factors we should consider to progressively phase in your preferred option, please tell us below.

These factors may include material availability or affordability, regional differences in the requirements, different building typologies or other considerations.

We feel the phasing needs to focus on buildings which use more energy, than those that do not.

Large buildings generally require more operating energy than small buildings, however there are significantly fewer large buildings constructed than small buildings. This provides an opportunity to be more exacting and focussed on the design and operation of large buildings with the potential to achieve more accurate energy performance.

Having experience with large buildings will allow the learnings to quickly flow into smaller buildings. These should follow similar focussed principles.

### 2-4. Do you support issuing the new editions of H1/AS2 and H1/VM2 as proposed?

H1/AS2:  Yes, I support it  No, I don't support it  Not sure/no preference

H1/VM2:  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?

The separation of acceptable solutions and verification methods for small and large buildings improves the clarity of the requirements for large buildings.

We feel this is an improvement to existing documentation.

### 2-5. What impacts would you expect on you or your business from the proposed options?

These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

## Proposal 2: Energy efficiency for large buildings

Our comments are based on the industry impact rather than the impact on our organisation. There will be an impact on the industry due to the increased energy reduction requirements. Designers, constructors, and product manufacturers (especially) will need to work differently to achieve the proposed targets.

This is offset by the cost (energy) savings that the building owners/users will see over the lifetime of the building.

BRANZ sees this as an acceptable trade-off, especially coupled to the associated reduction in carbon emissions through the operation of the building.

## Proposal 2: Energy efficiency for large buildings

**2-6.** 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?

Our comments are based on support that the industry will need rather than our organisation. The designers, constructors and product manufactures are likely to need support around how to design and build buildings with significantly lower energy emissions. This could be around education, new product availability and detailed guidance.

**Proposal 3: Energy efficiency for HVAC systems in commercial buildings****Proposal 3. Energy efficiency for heating, ventilation, and air conditioning (HVAC) systems in commercial buildings**

Currently, there is no acceptable solution or verification method issued for the energy efficiency of heating, ventilation and air conditioning (HVAC) systems in commercial buildings (Clause H1.3.6 of the Building Code). We are proposing to issue a new Verification Method H1/VM3 will establish a baseline and standardised procedures that will help building designers and building consent authorities demonstrate and verify the compliance of this clause.

**Questions for the consultation****3-1. Do you support issuing the new edition of H1/VM3 as proposed?**

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?

BRANZ supports the inclusion of HVAC equipment into the verification method to reduce the possibility of poorly designed or installed systems.

BRANZ, however, does not have the expertise to comment on the details of the proposed set of requirements.

**3-2. Do you think the proposed Verification Method H1/VM3 covers all important aspects of energy efficiency of HVAC systems in commercial buildings?**

Yes     No     Not sure/no preference

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



## Proposal 4: Natural light for higher-density housing

### Proposal 4. Natural light for higher-density housing

We are proposing to issue new acceptable solutions and verification methods for G7 Natural Light to adopt new compliance pathways for higher-density housing. The new pathways are more suitable for these types of buildings. As a consequence of the change, the scope of the existing documents are proposed to be limited.

#### Questions

##### 4-1. Do you support issuing the new G7/AS1, G7/AS2, G7/VM2 as proposed?

G7/AS1:  Yes, with minor considerations  No, I don't support it  Not sure/no preference

G7/AS2:  Yes, with minor considerations  No, I don't support it  Not sure/no preference

G7/VM2:  Yes, with minor considerations  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?

The proposals all seem sensible and valuable, however we wish to make the following points:

1. There is no recognition that differing and changing sunshine hours alters the illumination available to buildings – for example, the daylight factors recorded in table 2.1.2.3 in G7/VM2 assume an unchanged climate. It is not clear from the consultation document if the Daylight Factor (DF) is going to be updated in line with the new climate zones proposed for H1.

2. To be able to continue to use the simplest G7/AS would mean having a glazing visual transmittance of no less than 0.7 in G7/AS1. With the reduced scope of G7/AS1, this may have the undesired consequence of encouraging the overuse of clear glazing to use the simple compliance path of G7/AS1. High-performing glazing systems would be a better choice in order to manage carbon emissions and achieve higher levels of thermal performance, however, the more onerous compliance paths must be used. Reducing the glazing visual transmittance limit does have other undesired effects, but we hope that there will be greater use of the other compliance paths. These effects include lower natural light penetration into the spaces, less beneficial solar gains to offset heating needs, and potentially a lower awareness of the outside because of the darker tinting.

3. The consultation document does not appear to have a definition of "clear glazing" (solar heat gain coefficient (SHGC) above 0.7). Presumably, this is based on two panes of single glazing each with a visible transmittance of around 0.84. However, the variety of glazing types now available means that visual transmittance varies greatly. Many low iron glasses now have higher visual transmittances, and many insulated glazing units (IGUs) have different visual transmittance values. While modern IGUs, typically, have lower transmittance values, they can have higher thermal performance. This is a potential conflict between requirements in G7 and H1. The Window & Glazing industry have a 'Glazing calculator' to determine R-values, but it could be expanded to calculate visual transmittance, and be made publicly available.

##### 4-2. What approach do you think we should take for G7/VM1?

It should be revoked

It should remain as is

It should be amended

Not sure/no preference

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

## Proposal 4: Natural light for higher-density housing

See section 4.1

### 4-3. What impacts would you expect on you or your business from the new editions of G7/AS1, G7/AS2, G7/VM1, and G7/VM2?

These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

BRANZ is supportive of making compliance pathways easier to understand and providing the sector options to show compliance.

The new editions proposed appear to meet this objective.

### 4-4. Do you agree with the proposed transition time of 12 months for the new G7/AS1, G7/AS2, G7/VM1, and G7/VM2 to take effect?

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

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

It is our view, that the changes are relatively straightforward and are designed to enable clarity and options to show compliance.

Therefore, 12 months is an appropriate timeframe.

**Proposal 5: Weathertightness testing for higher-density housing****Proposal 5. Weathertightness testing for higher-density housing**

We are proposing to issue a new edition of E2/VM2 to reference BRANZ Evaluation Method EM7 Performance of mid-rise cladding systems (version 3, June 2020). This update version of EM7 is easier for test laboratories, cladding system suppliers, and building designers to use than the previous version. The new version does not significantly change the minimum performance requirements of the test method, and existing tested cladding systems will not need to be retested.

**Questions for the consultation**

**5-1.** Do you support issuing the new edition of E2/VM2 as proposed to cite BRANZ EM7 version 3?

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?

BRANZ is the author of BRANZ Evaluation Method EM7, we believe the latest version is an improvement over the previous versions.

**5-2.** What impacts would you expect on you or your business from the new edition of E2/VM2?

These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

We do not expect any impacts to the industry. We see the revised EM7 easier to use to demonstrate compliance.

## Proposal 5: Weathertightness testing for higher-density housing

**5-3.** Do you agree with the proposed transition time of 12 months for the new Verification Method E2/VM2 to take effect?

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

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

BRANZ has worked with the latest version of EM7 to make the method more usable, we see no reason why a user would choose to use the old version of EM7. From that point of view, the transition could be shorter, but we see no negative consequences of having a 12 month transition.

## Proposal 6: Standards for citation in B1 Structure

### Proposal 6. Standards referenced in B1 Structure

We are proposing to amend referenced standards in the acceptable solutions and verification methods for clause B1 Structure. The amended references include new versions of AS/NZS 4671, AS/NZS 5131, AS/NZS 2327, the NZGS document “Field Description of Soil and Rock – Guideline for the field descriptions of soils and rocks in engineering purposes”. Previous versions of these documents are currently referenced by the acceptable solutions and verification methods.

#### Questions for the consultation

**6-1.** Do you support the amendment of B1/AS1, B1/AS3 and B1/VM1 as proposed to include the following referenced standards and document?

AS/NZS 4671: 2019 Steel for the reinforcement of concrete:

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

AS/NZS 5131: 2016 Structural Steelwork – Fabrication and Erection:

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

AS/NZS 2327: 2017 Composite structures – Composite steel-concrete construction in buildings Amendment 1:

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

Field Description of Soil and Rock – Guideline for the field descriptions of soils and rocks in engineering purposes, New Zealand Geotechnical Society Inc., December 2005:

- 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?

The changes are relatively minor and are technically justified.

AS/NZS 4671: The standard has been revised to include material which was already included in the previous NZBC B1 reference to AS/NZS 4671.

AS/NZS 5131: The standard was amended by some changes in terminology and corrected some minor errors. The NZBC change incorporates the amendment to the standard.

AS/NZS 2327: The standard was amended to correct some minor typographical errors. The NZBC change incorporates the amendment to the standard.

Field descriptions: NZBC reference cites an older version (1988) no longer available. Revised version already referenced in NZS 3604 and has been in use for some time.

## Proposal 6: Standards for citation in B1 Structure

### 6-2. What impacts would you expect on you or your business from the referencing of these standards and document?

These impacts may be economic/financial, environmental, health and wellbeing, or other areas.

We see the changes proposed are minor and would expect that the industry finds this material easier to use and understand.

### 6-3. Do you agree with the proposed transition time of 12 months for the new Acceptable Solutions B1/AS1 and B1/AS3 and Verification Method B1/VM1 to take effect?

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

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

The timing seems reasonable based on the scope of proposed changes. Because the impacts are so small, a 12 month transition is appropriate.

## Proposal 7: Editorial changes to Acceptable Solution B1/AS1

### Proposal 7. Editorial changes to Acceptable Solution B1/AS1

We are proposing to amend text within Acceptable Solution B1/AS1 to make editorial changes in regards to geotechnical requirements. Editorial changes may include obvious errors in the text, typos, spelling mistakes, incorrect cross-references, changes in the formatting, minor clarifications of text with minor to no impact, or other items related to current document drafting practices.

#### Questions for the consultation

**7-1.** Do you support the amendment of B1/AS1 to address the editorial changes to geotechnical requirements as proposed?

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?

Changes are only editorial and will improve consistency and clarity.

## New look for Building Code documents

### Building Code operating protocols

We are seeking feedback on two draft operating protocols that are intended to provide transparency and certainty around the work MBIE does as the building and construction regulator. The two operating protocols for this consultation are:

- › Referencing standards in the Building Code system
- › Tier framework to support standards in the Building Code system

### Questions for the consultation

#### 1. Do you agree with the proposed criteria for referencing a standard in the Building Code system?

These proposed criteria include: alignment to the Building Code, in scope, clear, specific, implementable in New Zealand and available.

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

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

The proposed criteria would create significant problems for standards currently cited in the Building Code. The proposed criteria would disable mechanisms that exist in these standards to deliver separate building system components that comply with performance requirements of the Code.

For example, the proposed criteria would make it impossible to cite standards that define roles. An example of a role is an independent certifier of key building systems such as fire sprinkler systems.

These roles are used to allow for flexibility in the interpretation of the standards' requirements. This enables new technologies and innovative design approaches that do not necessarily fit within the prescriptive requirement of the standard.

These roles also play a key part in the quality assurance process to ensure that the Building Code requirements are met. If the currently cited standards are no longer enforceable there will be quality assurance gaps that may result in systems not meeting requirements of the Building Code.

The consultation document does not provide alternatives for these existing mechanisms that have a long track record of working well.

The consultation document is not clear on how the proposed operating protocol is going to impact:

- standards currently referenced,
- standards that have been revised but the latest version has not been referenced yet, and
- standards that will be revised in the future.

To support any changes to the current approach, BRANZ would need to see the questions above addressed.

Please refer to the detailed examples provided below.

#### **NZS 4541**

As an example, we believe that key aspects of NZS 4541:2020 'Automatic fire sprinkler systems' would not comply with the proposed criteria.

It is not clear from the proposed operating protocol if the references to NZS 4541 in acceptable solutions C/AS1/2 and verification method C/VM2 would have to be removed or modified. The same applies to the

## New look for Building Code documents

standard itself and associated quality assurance systems: they would have to be substantially revised to comply with the proposed criteria for referencing standards.

Below are some of the examples of where NZS 4541 is not going to meet the proposed criteria for referencing standards:

1. The following section can be found on page 7 of the consultation document:

*What criteria must be met to reference a standard?*

*The Building Act 2004 section 25(2) specifies that:*

*An acceptable solution or a verification method must not contain a provision that—*

- (a) relates to contractual or commercial requirements; or*
- (b) relates to regulatory approvals, dispensations, or waivers; or*
- (c) is inconsistent with the Act or regulations.*

The role of the Sprinkler System Certifier (SSC) defined in clause 1.12 (extract below) would not comply with (b) above as the clause relates to regulatory approvals, dispensations, or waivers.

### 1.12 Roles and responsibilities of SSC

An SSC shall be responsible for certification of the sprinkler system and making other determinations as provided for in the standard. That role shall include, but not be limited to:

- (a) Approving design concepts;
- (b) Reviewing installation inspection records against the requirements of the standard;
- (c) Reviewing commissioning records against the requirements of the standard ;
- (d) Reviewing testing, maintenance, and routine surveying records against the requirements of the standard;
- (e) Listing of contractors;
- (f) Listing of equipment;
- (g) Approving equivalent variations in the design and/or components;
- (h) Maintaining records; and
- (i) Certification that the system complies with this standard.

An SSC shall employ an appropriately qualified chartered professional engineer (CPEng) for the purpose of such certification.

### APPENDIX C – EVALUATION OF CONTRACTORS BY A SPRINKLER SYSTEM CERTIFIER

(Normative)

#### C1

This standard is drafted on the basis that contractors undertaking, and having responsibility for, the roles allocated by the standard have acquired a general understanding of fire sprinkler technology and possess sufficient experience, resources, competence and organisation to permit the informed application of the requirements of the standard.

The requirement that contractors be listed by an SSC (see 1.15.2) is not intended to deny to any organisation the right to engage in contracts for fire sprinkler systems. Rather it is intended that before exercising such rights a contractor has and can demonstrate to an SSC appropriate experience, resources, competence and organisation.

#### C2

SSCs shall establish and define the specific criteria and standards of competence for listing and re-listing of contractors against the various scope elements of Table C1. These criteria and standards of competence shall meet the intent of C1 and shall be included in an SSC's AS/NZS ISO/IEC 17020 schedule of accreditation. An SSC shall make its listing criteria and standards of competence available in the public domain.

NOTE – It would be expected that this documentation should be freely available on an SSC's website.

2. Also on page 7, the consultation document proposes that:

*'Technical content shall not extend to key risk settings or requirements that involve a subjective decision on the minimum level of building performance.'*

Enhancements to the building water supply (a redundant water supply including a tank, pump, etc.) outlined in clause 6.2.5.1 (a) and (b) (extract below), for certain building characteristics, will contradict the above requirement from the above requirement.

## New look for Building Code documents

Note: In committee meetings for the last update to NZS 4541, there was debate over whether the requirement for dual water supplies should sit within NZS 4541 or should be in a AS/VM. During the recent revision, these requirements were left in the standard because it was felt by the Committee that they were not likely to be addressed in the compliance documents.

### 6.2.5 Minimum water supply requirements

#### 6.2.5.1 Class A1, A2, and B2 water supplies

A Class A1, A2, or B2 water supply, as defined in 6.2.1, with the primary supply independent of a town's main, is required for the following buildings:

- (a) Buildings greater than 45 m high, measured from the point of lowest entry to the floor level of the highest normally occupied floor; or
- (b) Buildings with a total floor area greater than 11 000 m<sup>2</sup> that have managed evacuation strategies.

#### 6.2.5.2 Class C2 water supply

A Class C2 water supply, as defined in 6.2.1, is the minimum required for buildings greater than 25 m high, measured from the point of the lowest entry to the floor level of the highest normally occupied floor.

#### 6.2.5.3 Class C1 water supply

A Class C1 water supply, as defined in 6.2.1, is the minimum requirement for all buildings not described in 6.2.5.1 or 6.2.5.2.

NOTE – The above requirements are a minimum only. In some cases, it may be desirable to provide a higher level of water supply than the required minimum to address items such as business continuity and maintenance.

3. 'Alignment to the Building Code' (page 7) lists the proposed criteria that would be applied to standards to be referenced in Acceptable Solutions and/or Verification Methods.

One of them is as follows:

- *Technical content shall align with the Building Code's Objectives, and not duplicate or contradict them.*

Clause 1.7 (2) does not meet the above requirement as it duplicates and could contradict other Building Code objectives.

### 1.7 Seismic resistance

#### 1.7.1 General

Sprinkler systems (as defined in 1.3) shall be designed, detailed, and installed so as to remain operational at the limit state derived from Table 8.1 of NZS 1170.5, or to a higher loading if specified.

NOTE –

- (1) AS/NZS 1170.0 requires New Zealand design and detail to NZS 1170.5 for earthquakes. In this context, the term 'importance level' refers to the building structure, not the sprinkler system itself.
- (2) Sprinkler systems are classified as parts category P.6 in Table 8.1 of NZS 1170.5, except if they are required for NZBC compliance for ongoing occupancy of IL4 buildings, in which case they are parts category P.5.
- (3) In new buildings, the seismic design of the sprinkler system should be developed in conjunction with that of the building.
- (4) The sprinkler system should not be damaged or impaired by the movement or failure of non-structural components or the movement of structural elements at the relevant serviceability limit state.

4. Durability requirements in Clause 6.6.3.1.6 (b) may also duplicate and contradict other Building Code objectives.

#### 6.6.3.1.6 Lined tanks

Tanks of the type using tank liners shall comply with AS 2304:2019 clause 3.6, noting that:

- (a) All liners shall use scrim reinforced material; and
- (b) The selected tank liners shall meet the durability requirement of the NZ Building Code.

NOTE – The durability requirement for a tank liner to comply with the NZBC will normally be 15 years.

5. Contract requirements in Clause 12.1.3 potentially contradict with Act section 25 (a) 'relates to contractual or commercial requirements' referred to on page 7 of the consultation document.

#### 12.1.3

To ensure that the testing, inspection and maintenance requirements of this standard are met, the owner of the sprinkler system shall enter into a contract with a listed contractor to conduct the routine testing, inspection, and maintenance detailed in Part 12 of this standard.

## Historical context and potential impact

## New look for Building Code documents

The role of the SSC has been defined in NZS 4541 in 1987 (when SSC was known as the Authority Having Jurisdiction or AHJ, and whose role was filled by the Ministry of Works or the Insurance Council of New Zealand); i.e. SSC predates the Building Act 1991 which included a version of the Building Act 2004 section 25(2) clause.

NZS 4541 has been referenced in the fire safety Acceptable Solutions during the entirety of their existence since 1991. The relative success of the current and historical NZS 4541 approach compared to sprinkler standards in other jurisdictions and other aspects of New Zealand fire safety controls should be noted. This may be why New Zealand hasn't experienced similar major fire disasters to those that other countries have had, despite clear shortcomings in other areas of fire safety in New Zealand. Sources: NZFS DRU Audits Thomas 2004, Kurban & Chow 2006, FPANZ 2008 report, BRANZ Study Report 410, BRANZ Study Report 440.

### Other examples where cited standards may not meet the proposed criteria for referencing standards

Currently referenced standards related to fire resistance, AS 1530.4 and AS 4072.1, define the role of registered testing authorities (clause 4.1 (a)) and others (clause 4.2 (d)). These definitions will not meet the proposed criteria (*'outside the scope of the Building Code, as it is prescriptive about a role in the building process, rather than the performance of the building'*) in Table 1 on page 9 of the consultation document.

For example, AS 1530.4 the Note to Clause 3.5.1 is prescriptive about the role:

#### 3.5 SPECIMEN ORIENTATION

##### 3.5.1 Fire resistance from either direction

Where an element is required to resist fire from either direction, specimens shall be tested from each direction. For a symmetrical wall or where the testing laboratory considers that one particular direction will give a lower fire resistance, the first test shall be conducted in that direction.

NOTE: The testing authority may, at its discretion, waive the second test.

Clause 4.4.2.3 (i) is also prescriptive about the role of the testing authority.

AS 1530.4:2014

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#### 4.4.2.3 Thermocouples for measuring the maximum temperature rise

The following applies:

- (a) If the test specimen incorporates discrete areas of different thermal insulation that are evaluated separately, the evaluation of maximum exposed face temperature of these areas shall also be undertaken separately.

NOTE: This may require additional unexposed surface thermocouples.

- (b) For floors or roofs with wooden beams or joists, the distance to the nearest side of the beam or joist shall be at least 50 mm.
- (c) The distance of the thermocouples to the joints shall be  $15 \pm 2$  mm.
- (d) Additional thermocouples shall be positioned as follows:
  - (i) *Before the heating period*—at any point, including a joint, which, in the opinion of the testing authority, is likely to become hotter than those points specified in Clause 4.4.2.1.

AS 4072.1 Clause 4.1 (c) is, again, prescriptive about the role of a registered testing authority.

## New look for Building Code documents

AS 4072.1—2005

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### SECTION 4 VARIATIONS PERMITTED SUBJECT TO FORMAL OPINION

#### 4.1 GENERAL

The basis of this Standard is the interpretation of data taken from testing a specimen sealing system in accordance with AS 1530.4 and the subsequent application of the test data to systems that incorporate minor variations from the tested specimens.

Variations from the tested specimen shall be—

- (a) approved by the regulatory authority or other authority having jurisdiction;
- (b) permitted in accordance with AS 1530.4; or
- (c) certified in writing by a registered testing authority—
  - (i) to be acceptable in terms of this Standard; and
  - (ii) to be capable of achieving a specified fire resistance level when subjected to the fire resistance test.

#### Other things we believe should be considered when implementing the proposed operating protocol

1. For the aspects of current standards and standards under revision that are proposing changes, that do not meet the proposed operating protocol. There should be a plan for how these aspects will be managed if they are able to be included in the standard. For example, in the case of the SSC, alternative provisions should be put in place to allow the SSC role to continue. These alternative provisions should be made available to other fire safety system communities that may wish to adopt similar roles.
2. It is recognised that the proposed criteria are not practicable for international standards. On page 8 the consultation document states: *'It is recognised that for standards developed internationally, with no input from New Zealand, there is little opportunity to ensure the content meets all these criteria.'* This would result in New Zealand cited standards being disadvantaged and, potentially, subjected to more scrutiny than international standards.
3. The Building Code requirements will evolve and most often on a different schedule to the revision of individual standards. What happens when the Building Code requirements change and are no longer reflected in the content of an individual standard?

#### 2. Do you agree with the proposed criteria for deciding the tier status of standards?

- Risk severity:  Yes, I agree with the criteria  No, I don't agree  Not sure/no preference
- Contribution to the Building Code:  Yes, I agree with the criteria  No, I don't agree  Not sure/no preference
- Design focus:  Yes, I agree with the criteria  No, I don't agree  Not sure/no preference

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

## New look for Building Code documents

While BRANZ agrees that simplifying, clarifying and providing alternate options is important, in this case we feel that the simplified system overlooks important factors.

We disagree with the ratings system proposed in the consultation document when considering NZS 3602 and NZS 3640. When considering these standards against the proposed three selection criteria, there appear to be some underlying factors that mean these two standards are overlooked within the suggested simplified system.

### **Proposed criteria 1: Risk Severity**

New Zealanders are still experiencing consequences of the leaky buildings issue which is having a significant impact on the New Zealand economy to the tune of billions of dollars and the leaky buildings issue is yet to be fully resolved. A contributing factor of this failure was due to changes within both NZS 3602 and NZS 3640, combined with a lack of adequate revision and review of the changes made after 1993. It was another 10 years before they were amended in 2003 as a direct side effect of the discovery of rotting homes.

We are concerned that if in the future these two standards were reviewed separately, there could be a higher risk to buildings and their occupants than if the two standards are reviewed together. There may be unintended consequences that arise through separate reviews.

### **Criteria 2 Contribution to the Building Code**

New Zealand is unique in our requirement for durability ratings for the materials used within our buildings. NZS 3602 and NZS 3640 form the foundation for defining timber durability as assessed directly for the NZ environment. The testing and definition of these durability requirements are well understood by the industry and are not available as concise guidance anywhere else. Even the most recent updates of the AS/NZ 1604 preservation standards have started to move away from having New Zealand centric guidance for durability.

### **Criteria 3 Design focus**

This argument is flawed when considering that design is often thought of as the solution to all issues, however, leaky buildings are still being built in New Zealand today. Even a good design does not account for incorrect practices being used during the construction process. Currently, the use of treated timber is providing building owners with a buffer period to find and repair leaks. Also, by considering only NZS 3602 as part of the tiered system, a large piece of the system is being forgotten. The standard which sets the requirements for treatment/preservation is NZS 3640 and it is under this standard that all the testing and durability requirements are considered for placement within the hazard class system. For this reason, treating NZS 3602 and NZS 3640 as separate, standalone standards is flawed when considering them from only a design perspective.

### **3. Which standard(s) and their proposed tier status particularly impact you and why?**

In reviewing the consultation document there are concerns with the decision to review NZS 3602 in isolation of NZS 3640. NZS 3602 and NZS 3640 form the foundation that timber durability is considered against in New Zealand. These two standards are tightly linked and do not work independently of each other. NZS 3640 has been recently revised and is ready to be considered by the Standards Approval Board for publication. However, its publication is being held back until the revision of NZS 3602 is complete, so the two standards are released at the same time.

When only considered from a design perspective, importance of NZS 3602 and NZS 3640 is not explicitly obvious. However, these two standards set durability requirements for other key timber design standards - NZS 3603 and NZS 3604 which are placed in tier 1 in the consultation document.

## New look for Building Code documents

As part of the most recent review of NZS 3602 and NZS 3640, there was a request to reduce confusion for users of the standards by having them only refer to each other. Prior to this there was still capacity, rightly or wrongly, for the AS/NZ treatment standard to be used for the allowance of newer timber treatments into the New Zealand market. As it stands NZS 3640 is the only acceptable solution for allowing newer treatments into the market, via NZS 3602 as per the most recent updates (still to be published). Whilst alternative solutions are a pathway, they can be challenging for smaller players in the market to navigate.

The New Zealand timber industry is unlikely to fund the review of NZS 3640. There is not much support from primary players to look at alternative treatments beyond the status quo of copper chrome arsenate (CCA - one of the preservatives used across a range of the hazard classes) and boron treatments. This may lead to newer innovative treatments and timber modifications being stifled and stopped from entering the New Zealand market. This would be detrimental in a period where rapid construction is required and all solutions should be considered, notwithstanding the push towards a Carbon Zero economy. The chemical preservatives and their application currently used within timber treatments are not without their own negative contributions to the carbon equation and the environment.

As an alternative idea to reviewing both standards in isolation, BRANZ would like to suggest that NZS 3602 and NZS 3640 become a single joint standard with two parts that,

- a) cover the treatment/preservative/modification requirements (currently in NZS 3640), and
- b) where they can be used (currently in NZS 3602).

This would have the added benefit of reducing administrative burdens and reducing redundancy across the two standards. Both existing committees have a very similar make up of representatives, who are attending two separate rounds of committee meetings, doubling up travel and time commitments. In joining the two standards it will also reduce confusion for the industry of which standard to apply to when suggesting new treatments, modifications, or timber species for use in the NZ market.

#### 4. Is there anything else you would like to tell us about these protocols for the use of standards in the Building Code system?

Our main concern with the tier status proposed is that the regulator seems to be taking greater control of key standards. Subsequently, standards development will be more reliant on funding from the regulator.

The consultation documents states:

*'These criteria identify the extent to which the standard requires closer involvement of the building regulator, given the importance of the content to the regulatory system, and the level of risk it addresses.' 'Tier 1 standards will likely be reviewed more regularly over time, in addition to having the full funding and involvement of the regulator.'*

The independence of the standards' development process and the fact that they are consensus documents developed collectively by the industry and regulators are important aspects of the New Zealand building regulatory system. Standards are, currently, separate from compliance documents and should remain that way in the future. Together with compliance documents, standards provide "check and balance" in the New Zealand building regulatory system. A greater control over standards by the regulator may have a negative impact on their independence and robustness as consensus documents. That would not be a desirable outcome for standards' users and the whole of New Zealand.

## New look for Building Code documents

### New look for Building Code documents

1. Is there anything you would like to tell us about the new look of acceptable solution and verification methods?

We support the new look. They feel more readable and have improved clarity.

## 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.

Please leave your feedback below:

BRANZ is committed to challenging Aotearoa New Zealand to create a building system that delivers better outcomes for all. We are willing and able to engage with MBIE and industry to co-create and develop any required resources (roadmaps, tools, models) that would support our sector to achieve its goals.

BRANZ is available to discuss this response with MBIE and provide further evidence and supporting information.