BUILDING PERFORMANCE

Consultation for amending Acceptable Solutions and Verification Methods

July 2016

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government

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CONTENTS

INTRODUCTION

Purpose of this consultation document

The Ministry of Business, Innovation and Employment (MBIE) seeks your views on proposals to:

- amend Acceptable Solutions (AS) and Verification Methods (VM)
- update references to standards and industry documents that are cited in Acceptable Solutions and Verification Methods
- Introduce two new Acceptable Solutions, E2/AS4 and E3/AS2

MBIE would like your feedback on the proposed changes to:

- B1 Structure: referenced Standards, B1/AS1, B1/VM1, B1/VM4
- B2 Durability: referenced Standards, B2/AS1
- C1-C6 Protection from fire: referenced Standards, C/AS1-C/AS7
- D1 Access routes: referenced Standards, D1/AS1, D1/VM1
- D2 Mechanical installations for access: referenced Standards, D2/AS1
- E1 Surface Water: referenced Standards, E1/VM1
- E2 External Moisture: referenced Standards, introduce E2/AS4
- E3 Internal Moisture: referenced Standards, E3/AS1, introduce E3/AS2
- F2 Hazardous building materials: referenced Standards, F2/AS1
- F4 Safety from falling: F4/AS1
- F6 Visibility in Escape Routes: F6/AS1
- F8 Signs: referenced Standards, F8/AS1
- G2 Laundering: referenced Standards, G2/AS1
- G3 Food preparation and prevention of contamination: G3/AS1
- G4 Ventilation: referenced Standards, G4/AS1, G4/VM1
- G10 Piped Services: referenced Standards, G10/AS1
- G11 Gas as an Energy Source: referenced Standards
- G12 Water Supplies: referenced Standards, G12/AS1, G12/AS2
- G13 Foul Water: referenced Standards, G13/AS1, G13/AS2, G13/AS3
- G14 Industrial Liquid Waste: referenced Standards
- H1 Energy efficiency: referenced Standards, H1/AS1, H1/VM1
- transitional arrangements

How to provide your feedback

You can provide your feedback on this consultation document to us by:

- Completing our online submission here: www.mbie.govt.nz/info-services/building-construction/consultations/acceptable-solutions-verification-methods

- Downloading the submission form here: www.mbie.govt.nz/info-services/building-construction/consultations/acceptable-solutions-verification-methods, and sending your submission by

  - emailing your feedback to buildingfeedback@mbie.govt.nz, with "Consultation – Amendments to Acceptable Solutions and Verification Methods 2016" in the subject line

  - posting or couriering your feedback to:
    Consultation – Amendments to Acceptable Solutions and Verification Methods 2016
    Compliance Solutions Team
    Ministry of Business, Innovation and Employment
    Level 5, 15 Stout Street
    P O Box 1473
    Wellington 6143

Timeframe for providing feedback

Submissions on this consultation document close at 5 pm on 31 August 2016.

What happens to your feedback

Your feedback will contribute to updating the Acceptable Solutions and Verification Methods. 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 with will not be made public. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

BACKGROUND

Legislation governing building work in New Zealand consists of the Building Act 2004 and the Building Code. One purpose of the Act is to ensure that buildings have attributes that contribute appropriately to the health, physical independence and well-being of the people who use them. This purpose is reflected in the Building Regulations 1992 and the Building Code. The Building Code sets performance criteria that buildings must meet. All building work must comply with the Building Code.

Acceptable Solutions and Verification Methods are issued by MBIE and provide one way of demonstrating compliance with relevant clauses of the Building Code.

Standards are documents that define materials, methods, processes and practices. These are used to set requirements and describe a means of compliance. There are over 200 Australian and New Zealand Standards cited in the Acceptable Solutions and Verification Methods.

The Government's goal is a more efficient and productive building industry that builds it right the first time and stands behind the quality of its work. To help achieve this, MBIE seeks to ensure that the Acceptable Solutions and Verification Methods reflect the latest research, knowledge and building practices. The proposed changes to amend some Acceptable Solutions and Verification Methods and update referenced Standards and industry documents are part of this work.

There are Standards that are cited in the Acceptable Solutions and Verification Methods that have been amended or updated and are now proposed to be incorporated into the relevant Acceptable Solutions and Verification Methods.

PROPOSAL

Effective Date: 31 October 2016

It is proposed that the amendments to the Acceptable Solutions and Verification Methods will be published on, and have an effective date of 31 October 2016.

Transitional Arrangements: 4 months

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

The table below illustrates how the proposed transitional provisions will work, with an explanation to follow:

	Before 31 October 2016 the proposed Effective Date	**Between 31 October 2016 (Effective Date)* to 28 February 2017 (Cessation Date)***	**From 28 February 2017 (the proposed Cessation Date)**
Existing Acceptable Solutions and Verification Methods	If used, will be treated as complying with the Building Code	If used, will be treated as complying with the Building Code	No longer available for use
Amended Acceptable Solutions and Verification Methods	Not available in this period	If used, will be treated as complying with the Building Code	Will be treated as complying with the Building Code

* The actual Effective Date and actual Cessation Date may change following the consideration of responses received.

Under the proposed transitional arrangements

- the existing Acceptable Solutions and Verification Methods, if used for building consent applications lodged before the Cessation Date, will be treated as complying with the relevant provisions of the Building Code;
- the amended Acceptable Solutions and Verifications Methods, if used for building consent applications lodged after the Effective Date, will be treated as complying with the relevant provisions of the Building Code; and
- to avoid doubt, in the period between the Effective Date and the Cessation Date, building consent applications will be treated by Building Consent Authorities as complying with the relevant provisions of the Building Code if they correctly use either i) the existing Acceptable Solutions and Verification Methods or ii) the amended Acceptable Solutions and Verification Methods

More Information

To find out more, or to make a comment, go to www.mbie.govt.nz/info-services/building-construction/consultations and click on "Amending Acceptable Solutions and Verification Methods".

Materials to be incorporated by reference described above are:

- available for inspection free of charge at the Ministry of Business, Innovation and Employment, 15 Stout Street, Wellington.

or

- may be purchased from Standards New Zealand, 15 Stout Street, Wellington or online at www.standards.govt.nz

B1: Structure

Proposed updates

MBIE proposes to include the retrospective consultation on changes made 1 June 2016 to B1/AS1 to reference the current requirements for glass barriers in NZS 4223.3:2016.

Additionally, MBIE proposes to amend the Acceptable Solution B1/AS1 and Verification Methods B1/VM1 and B1/VM4 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments for clarity

B1 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution and Verification Methods unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution and Verification Methods would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution and Verification Methods would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution and Verification Methods to include referencing the latest version of Standards and industry documents that are available, and update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution and Verification Methods. There would be no confusion as to which Standard to apply.
- The Acceptable Solution and Verification Methods would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question B1 – 1 Do you have any comments on the B1 options?

B1 References

Current Text	Proposed Changes
NZS 4223.1:2008 Code of practice for glazing in buildings - Glass selection and glazing	**NZS 4223.1:2008:** Glazing in buildings - Part 1: Glass selection and glazing, Amend: 1 **Explanation**: Update reference to include amendment 1
NZS 4223: 1985 Part 2 Code of practice for glazing in buildings – The Selection and Installation of Manufactured Sealed Insulation Glass Units, Amend: 1, 2	**NZS 4223.2:2016** Glazing in buildings - Part 2: Insulating glass units **Explanation**: Update reference to include latest version (2016)
NZS 4223.3:1999 Glazing in buildings - Part 3: Human impact safety requirements	**NZS 4223.3:2016** Glazing in buildings - Part 3: Human impact safety requirements **Explanation**: Update reference to include latest version (2016)
NZS 4223.4:2008 Glazing in buildings - Part 4: Wind, dead, snow, and live actions	**NZS 4223.4:2008** Glazing in buildings - Part 4: Wind, dead, snow, and live actions, Amend 1 **Explanation**: Update reference to include amendment 1

Question B1 – 2 **Do you agree with the proposed changes to the B1 references?**

Changes to Verification Method B1/VM1

Current Text	Proposed Changes
	Amend paragraph 2.2.14A to allow the hazard factor to be used for structures with natural frequencies less than 0.67. Delete the comment.
2.2.14A NZS 1170 Part 5, Clause 3.1.4 Add (to the end of Clause 3.1.4): "The minimum hazard factor Z (defined in Table 3.3) for the Canterbury earthquake region shall be 0.3. Where factors within this	**2.2.14A** NZS 1170 Part 5, Clause 3.1.4 Add (to the end of Clause 3.1.4): "The minimum hazard factor Z (defined in Table 3.3) for the Canterbury earthquake region shall be 0.3. Where factors within this

Current Text	Proposed Changes
region are greater than 0.3 as provided by NZS 1170 Part 5, then the higher value shall apply." The hazard factor for Christchurch City, Selwyn District and Waimakariri District shall apply to all structure periods less than 1.5 seconds." COMMENT: The revised Z factor is intended only for use for the design and assessment of buildings and structures, pending further research. All structures with periods in excess of 1.5 seconds should be subject to specific investigation, pending further research.	region are greater than 0.3 as provided by NZS 1170 Part 5, then the higher value shall apply." **Explanation**: The changes have been made to reflect research and consultation with experts since modifying NZS 1170.5 in B1/VM1
2.2.14C NZS 1170 Part 5, Clause 3.1.5 Add (as another paragraph after the last sentence in Clause 3.15): "In the Canterbury earthquake region, the risk factor for the serviceability limit state shall not be taken less than Rs = 0.33."	Delete paragraph 2.2.14C **Explanation**: Remove modifications in B1/VM1 to the serviceability return period factor in NZS 1170.5. After further research and consideration it has been determined that the risk factor for the serviceability limit state will return to the value of R_s= 0.25.
3.1 NZS 3101: Part 1 subject to the following modifications: b) Amend Clause **9.3.9.4.13 Minimum area of shear reinforcement** In Clause 9.3.9.4.13 c) delete the words after "750 mm" and substitute "and the depth of the precast unit is equal to or less than 300 mm."	Replace paragraph 3.1 with the following **3.1 NZS 3101: Part 1** subject to the following modifications: b) Amend Clause **9.3.9.4.13 Minimum area of shear reinforcement** In Clause 9.3.9.4.13 c) delete the words after "750 mm" and substitute "and the depth of the precast unit is equal to or less than 300 mm and the overall depth is equal to or less than 400 mm." **Explanation**: A limit applies to the overall depth
13.1 NZS 4219 subject to the following modifications in the *Canterbury earthquake region*: Where the building structure period is less than 1.5 seconds, the zone factor Z shall be	Replace paragraph 13.1 with the following, and delete the Comment **13.1 NZS 4219** subject to the following modification in the *Canterbury earthquake region*: The zone factor Z shall be determined from the Standard but shall not be less than 0.3.

Current Text	Proposed Changes
determined from the Standard but shall not be less than 0.3. **COMMENT:** All building structure periods in excess of 1.5 seconds should be subject to specific investigation, pending further research. The component risk factor R_c shall be determined from the Standard but shall not be less than 0.33.	**Explanation**: The limitation whereby building structure periods in excess of 1.5 seconds should be subject to specific investigation no longer applies. This means the minimum zone factor Z of 0.3 applies to all building structure periods.

Question B1 – 3 **Do you agree with the proposed changes to Verification Method B1/VM1?**

Confirming change to glass barrier requirements already made in Acceptable Solution B1/AS1

The changes below were made to B1/AS1 on 1 June 2016, unlike other proposed changes in the consultation document which have not been implemented yet. This consultation on the changes made on 1 June 2016 seeks your view on whether to confirm the changes, in accordance with section 30(2) of the Building Act.

Text before 1 June 2016	Changes made on 1 June 2016
	The glass barrier requirements in NZS 4223.3: 1999, used in B1/AS1, were replaced with those in NZS 4223.3: 2016. Paragraph 7.3.3 was replaced as follows
7.3.3 NZS 4223: Part 3 Clause 312.2 Unframed or partly framed balustrades and fences Delete Clause 312.2 (a) and (b) Replace with: "Unframed and partly framed balustrade systems shall be designed in accordance with AS/NZS 1170 as modified by B1/VM1."	**7.3.3 NZS 4223: 1999 Part 3 Clause 312 Balustrades and fences** Delete Clause 312 Replace with: "Glass balustrades and fences that are fully framed, unframed or partly framed or structural shall comply with section 22 of NZS 4223.3: 2016."
7.3.4 NZS 4223: Part 3 Clause 312.3 Structural balustrades and fences Delete Clause 312.3 Replace with: "Clause 312.3. Where glass is used as a structural member, toughened safety glass shall be used. The thickness used shall be determined in accordance with AS/NZS 1170 as modified by B1/VM1."	Paragraph 7.3.4 was deleted **Explanation**: The barrier requirements in NZS 4223.3:1999 do not adequately account for the consequences of failure should a glass pane, in a frameless glass barrier, break.

Question B1 – 4	**Do you agree with the changes made on 1 June 2016 to Acceptable Solution B1/AS1?**

Changes to Acceptable Solution B1/AS1

Current Text	Proposed Changes
	Insert a new Paragraph 3.1.2A, after Paragraph 3.1.2, to modify Figure 7.10(c) in NZS 3604 as follows **3.1.2A NZS3604 Figure 7.10(c)** On the plan view insert the text "At each strap location (at joist ends and nogging), 2/ M12 x 240 mm long coach screws are required" On the plan view, replace the text "2 / M12 x 250 mm coach screws at 140 crs. vertically" with "2 / M12 x 200 mm coach screws at 140 crs. vertically" On the section view, replace the text "M12 x 200 mm coach screws at 400 crs. vertically" with "M12 x 240 mm coach screws at 140 crs. vertically. This detail also applies to joist ends" On the section view, insert the text "Comment: The additional 2 / M12 bolts at 400 crs connecting boundary joist pairs together are only required where pairs of M12 bolts at 140 mm crs vertically (required for fixing nogging or joists or posts to outer joists) are further apart than 400 mm" **Explanation**: Paragraph inserted to clarify the requirements of Figure 7.10(c)
7.0 Glazing **……** **7.1 NZS 4223.1** subject to the following modifications: **Clause 1.2(e)** Reword to read: "For framed, unframed, and partly framed glass assemblies in buildings up to 10 m high, glass shall be selected in accordance with section 5." **7.2 NZS 4223.2** **7.2.1 201 Selection and installation of sash and frames** Delete Clause 201.1 (b)	Delete Paragraphs 7.1 – 7.4 and replace with the following **7.0 Glazing** **……** **7.1 NZS 4223.1** **7.2 NZS 4223.2** **7.3 NZS 4223.3** **7.4 NZS 4223.4**

Current Text	Proposed Changes
Replace with: “Clause 201.1(b). They must allow for contraction and expansion of the building and comply with relevant clauses of AS/NZS 1170 and NZS 4223.1 section 3.5.” **7.3 NZS 4223.3** **7.3.1 Related documents, New Zealand Standards** Delete NZS 4203: 1992 General structural design and design loadings for buildings Replace with: “AS/NZS 1170 Structural Design Actions.” **7.3.2 Clause 310.1** Delete Clause 310.1 Replace with: “Glazing used in any building in situations that require protection for occupants from falling 1000 mm or more from the floor level shall meet the barrier requirements of AS/NZS 1170 as modified by B1/VM1.” **7.3.3 NZS 4223: 1999 Part 3 Clause 312 Balustrades and fences** Delete Clause 312 Replace with: “Glass balustrades and fences that are fully framed, unframed or partly framed or structural shall comply with section 22 of NZS 4223.3: 2016.” **7.3.5 NZS 4223: Part 3 Section 313 Stairwells and Porches** Delete Clause 313.1 Replace with: “Glazing in stairways within 2000 mm horizontally or vertically, from any part of a stairway or landing shall be Grade A safety glass in accordance with Table 3.1. Stairways include stairwells, landings and porches and comprise at least two risers. All glazing in stairways protecting a fall of 1000 mm or more shall also meet the barrier requirements of AS/NZS 1170 as modified by B1/VM1.” **7.3.6 Table 3.7** Glazing protecting a difference in level in any building. Delete Table 3.7	

Current Text	Proposed Changes
7.3.7 Table 3.8 Unframed or partly framed balustrades and fences. Delete Table 3.8 **Appendix 3.E** Delete Appendix 3.E Replace with: "Refer to NZS 4223 Part 1 Section 5.4" **7.4 NZS 4223.4**	**Explanation**: updating the glazing Standards to the latest version and removing modifications made to the previous versions

Question B1 – 5 **Do you agree with the proposed changes to Acceptable Solution B1/AS1?**

Changes to Verification Method B1/VM4

Current Text	Proposed Changes
$H_u \frac{2}{3}\sqrt{\frac{2H_u}{3K_pD_s\gamma}} + f\Big] - M_{ult} = 0$	Correction to paragraph 4.3.4(a)(ii) $H_u\left[\frac{2}{3}\sqrt{\frac{2H_u}{3K_pD_s\gamma}} + f\right] - M_{ult} = 0$ **Explanation**: Front bracket inserted between Hu and 2/3

Question B1 – 6 **Do you agree with the proposed changes to Verification Method B1/VM4?**

B1 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question B1 – 7 **Do you agree with the proposed B1 transitional arrangements?**

B2: Durability

Proposed updates

MBIE proposes to amend the Acceptable Solution B2/AS1 to:

- Introduce Standard NZS 4223.2:2016 to clarify the durability requirements of insulating glass units (IGUs) with respect to Clause H1 energy efficiency

B2 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged. This would mean that Acceptable Solution would not describe how durability could be established for insulating glass units (IGUs) with respect to Clause H1 energy efficiency.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to incorporate the updated Standard NZS 4223.2:2016 Glazing for Buildings – Part 2: Insulating glass units. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question B2 – 1 **Do you have any comments on the B2 options?**

B2 References

Current Text	Proposed Changes
	Insert new Standard after NZS 4223.1
	NZS 4223.2: 2016: Glazing in buildings - Part 2: Insulating glass units
	Explanation: NZS 4223.2 sets requirements to monitor insulating glass units (IGU) quality during manufacturing, which influences the durability of IGU thermal performance

Question B2 – 2 **Do you agree with the proposed changes to the B2 references?**

Changes to Acceptable Solution B2/AS1

Current Text	Proposed Changes
	Insert a new Paragraph 3.5, after Paragraph 3.4, as follows:
	3.5 Insulating Glass Units **3.5.1** NZS 4223.2 is an Acceptable Solution for meeting the durability requirements of insulating glass units, within its scope.
	Explanation: NZS 4223.2 sets requirements to monitor insulating glass units (IGU) quality during manufacturing, which influences the durability of IGU thermal performance linked to compliance with NZBC clause H1

Question B2 – 3 **Do you agree with the proposed changes to Acceptable Solution B2/AS1?**

B2 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question B2 – 4 **Do you agree with the proposed B2 transitional arrangements?**

C1-C6: Protection from Fire

Proposed updates

MBIE proposes to amend the Acceptable Solutions to:

- Update or replace with the latest versions of referenced standards
- Include editorial changes to the citing of standards, correct errors, and revise numbering format for clarity

C1-C6 Options

Option One: Status Quo

MBIE could leave the Acceptable Solutions unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solutions would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solutions would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solutions to include referencing the latest version of Standards and industry documents that are available, and update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solutions. There would be no confusion as to which Standard to apply.
- The Acceptable Solutions would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions to ensure the system operates efficiently

Question C1-C6 – 1 Do you have any comments on the C1-C6 options?

C1-C6 References

Current Text	Proposed Changes
	NZS 4514:2009 Interconnected Smoke Alarms for houses
	Explanation: New referenced Standard as result of proposed changes below.

Question C1-C6 – 2 Do you agree with the proposed changes to the C1-C6 references?

Changes to Acceptable Solution C/AS1

Current Text	Proposed Changes
	Replace paragraph 1.1.1 b) with the following:
Scope **1.**1.1 The scope of this Acceptable Solution is restricted to *risk group* SH. This covers *buildings* where people sleep including multi-unit residential with some restrictions on height and outbuildings (as described in Clause A1 7.0 of NZBC). This includes the following: b) Multi-unit dwellings with no more than one unit above another (see Figure 1.1) and where each unit has an *escape route* independent of all other units, and including associated garages or carports whether or not they are part of the same *building*	**Scope** **1.**1.1 The scope of this Acceptable Solution is restricted to *risk group* SH. This covers *buildings* where people sleep including multi-unit residential with some restrictions on height and outbuildings (as described in Clause A1 7.0 of NZBC). This includes the following: b) Multi-unit dwellings with no more than one unit above another (see Figure 1.1), where the escape routes do not pass within 1m if sprinklered or 2m if un-sprinklered of unprotected areas of other firecells, and including associated garages or carports whether or not they are part of the same *building* **Explanation**: Clarifies the meaning of an independent escape route.
	In Table 3.2, replace "NZS 4512 Smoke Detection System" with "NZS 4514 Interconnected Smoke Alarms"
Table 3.2 NZS 4512 Smoke detection system	**Table 3.2** NZS 4514 Interconnected Smoke Alarms **Explanation**: Changes requirements from a commercial fire alarm system to domestic smoke alarm system for housing
	In paragraph 5.1.2, replace "firecells" with "household units"
5.1.2 For *firecells* under common ownership …	**5.1.2** For *household units* under common ownership … **Explanation**: Clarifies original intent was protection of household units not outbuildings

Question C1-C6 – 3 Do you agree with the proposed changes to Acceptable Solution C/AS1?

Changes to Acceptable Solution C/AS2 – C/AS7

Current Text	Proposed Changes
	In C/AS2 – C/AS6, replace the third paragraph of 1.1.2 as follows:
C/AS2 – C/AS6, third paragraph of 1.1.2 *Buildings* that require specific *fire* engineering design (ie, those requiring design calculations and modelling) also fall outside the scope of Acceptable Solutions C/AS1 to C/AS7. If the Acceptable Solution cannot be followed in full, use Verification Method C/VM2 to demonstrate compliance.	**C/AS2 – C/AS6, third paragraph of 1.1.2** If the Acceptable Solution cannot be followed in full, use Verification Method C/VM2 or an Alternative Solution to demonstrate compliance.
	Explanation: Clarifies that alternative solutions are an option to comply with the building code
	In C/AS2 – C/AS6, replace paragraph 2.2.3 with the following:
C/AS2 – C/AS6 **2.2.3** If any *firecell* in a building requires a manual or automatic *fire* alarm or sprinkler system, that system shall be provided in all other *firecells* throughout the *building* (refer to Figure 2.1). As a Type 5 system (refer to Table 2.1) provides for non-latching smoke detection with heat detection back-up in sleeping spaces, other (non-sleeping) *firecells* shall be protected with standard automatic smoke detection. Smoke detection shall not be extended into *risk group* VP: heat detection shall be provided instead.	**C/AS2 – C/AS6** **2.2.3** Where table 2.0 requires any firecell to have a manual or automatic fire alarm or sprinkler system, that system shall be provided in all other *firecells* throughout the *building* except:- 1 Type 1 shall be provided within other sleeping area firecells where table 2.1 requires SM firecells to have type 2; and 2 Type 4 shall be provided in non-sleeping area firecells when a lower floor contains sleeping area firecells and table 2.1 requires only type 1. This shall activate alerting devices in all sleeping areas within the *building*; and 3 Type 4 can be substituted for type 3 where the environment is challenging for smoke detection; and 4 Type 4 shall not be extended into *risk group* VP: type 3 shall be provided instead; and 5 Type 5 shall not be extended into non-sleeping area firecells; type 4 shall be provided instead; and 6 Type 6 can be substituted for type 3 in risk group VP if it is separated from the rest of the building with fire separations designed to the property rating; and 7 Type 7 shall not be extended into risk

Current Text	Proposed Changes
	group VP; type 6 shall be provided instead **Explanation**: Provides clarity in selecting fire alarm type for mixed use buildings
C/AS2 – C/AS6 **2.2.11** If any upper floor, of a *building* containing other *risk groups*, contains *risk group* SM, all floors below shall have a smoke detection system (Type 4 or Type 5) which shall activate alerting devices in all sleeping areas within the *building*. If the lower *risk group* contains uses where smoke detection is unsuitable heat detectors may be used in lieu.	In C/AS2 – C/AS6, delete paragraph 2.2.11 **C/AS2 – C/AS6** **Explanation**: In combination with changes to paragraph 2.2.3, this provides clarity in selecting fire alarm type for mixed use buildings
C/AS7	In C/AS7, insert a new paragraph 4.1.3, after paragraph 4.1.2, as follows: **C/AS7** **4.1.3** Where cross ventilation is provided the limitations on intermediate floor area do not apply. **Explanation**: Remove the limitation on intermediate floors for multi-deck car parks where smoke ventilation is provided
C/AS2 – C/AS6	In C/AS2 – C/AS6, insert a new paragraph 5.5.7, after paragraph 5.5.6, as follows: **C/AS2 – C/AS6** **5.5.7** As an alternative to the table method the Commentary to Verification Method Appendix A: Methodology for Horizontal Fire Spread (Tabular Data) can be used. For this method the tables for unprotected area together with wing/return wall tables in the commentary must be used together. C/AS2 - For the use of these tables the FLED shall be 400 MJ/m2. C/AS3 - For the use of these tables the FLED shall be 400 MJ/m2. C/AS4 - For the use of these tables the FLED

Current Text	Proposed Changes
	shall be 800 MJ/m2. C/AS5 - For the use of these tables the FLED shall be 600 MJ/m2. C/AS6 - For the use of these tables the FLED shall be 1200 MJ/m2. **Explanation**: Provides designers an option to use enclosing rectangle method for calculating unprotected area
C/AS2 **4.9.6** Unsprinklered household units or suites with an escape height of greater than 4.0 m shall either: a) Open into a safe path or a smoke lobby not shared by other suites or household units, or b) Open into an external escape route complying with Paragraph 3.11, or c) Have more than one direction of escape.	In C/AS2, delete paragraph 4.9.6 and replace with the following **C/AS2** **4.9.6** THIS PARAGRAPH DELIBERATELY LEFT BLANK **Explanation**: This paragraph conflicts with paragraph 3.9.6
C/AS3 and C/AS4, Paragraph 4.16.12 **COMMENT:** Smoke control system shut down on alarm activation, on its own, is not sufficient where a delayed evacuation strategy is in place. The commentary provides further guidance on smoke control in air handling in this case	In C/AS3 and C/AS4, after Paragraph 4.16.12 add the following and replace comment with the following: **C/AS3 and C/AS4, Paragraph 4.16.12** Where evacuation is delayed ventilation ducts that pass through a fire and/or smoke separation the performance of the smoke separating function must also not be compromised with a smoke damper complying with AS/NZS 1668.1. **COMMENT:** Delayed evacuation relates to any evacuation regime other than all building occupants moving directly to a place of safety outside, simultaneously and immediately on detection of fire. **Explanation**: Commentary document has not been updated with further guidance
	In C/AS2 and C/AS4 – C/AS6 delete Paragraph

Current Text	Proposed Changes
	5.8.3 and replace with the following
C/AS2 & C/AS4 – C/AS6, Paragraph 5.8.3 **5.8.3** The requirements in Paragraph 5.8.1 b) do not apply if the building is sprinklered and has a building height of 25 m or less.	**C/AS2 & C/AS4 – C/AS6, Paragraph 5.8.3** **5.8.3** THIS PARAGRAPH DELIBERATELY LEFT BLANK
	Explanation: Following recent cladding fires in Australia and Dubai knowing that fires that originate on the outside of buildings the dispensation for sprinklers needs to be removed
	In C/AS3, replace paragraph 3.15.5 b) ii) as follows:
C/AS3, paragraph 3.15.5 b) Within exitways (including entry and final exit doors), reduce the minimum exitway width required by Paragraph 3.3 by no more than the 125 mm per door leaf allowed under Paragraph 3.3.6 d) to: i) 950 mm into horizontal safe paths, or ii) 1250 mm within horizontal safe paths and in vertical safe paths, and	**C/AS3, paragraph 3.15.5** b) Within exitways (including entry and final exit doors), reduce the minimum exitway width required by Paragraph 3.3 by no more than the 125 mm per door leaf allowed under Paragraph 3.3.6 d) to: i) 950 mm into horizontal safe paths, or ii) 1250 mm within vertical safe paths, and
	Explanation: Remove the inconsistency between minimum door width and corridor widths in C/AS3
	In C/AS2 – C/AS6, insert a new table, after Appendix C Paragraph C4.1.2, as follows:
C/AS2 – C/AS6 **C4.1.2** Material for internal surface linings shall be given a *Group Number* in accordance with Appendix A of C/VM2 and tested to either: ISO 5660 Reaction-to-fire tests Part 1 Heat release rate (cone calorimeter method), and Part 2 Smoke production rate (dynamic method), or ISO 9705 Fire tests – Full scale room test for surface products. Or in lieu of testing refer to Table A1 of Appendix A in C/VM2.	**C/AS2 – C/AS6** **C4.1.2** Material for internal surface linings shall be given a *Group Number* in accordance with Appendix A of C/VM2 and tested to either: ISO 5660 Reaction-to-fire tests Part 1 Heat release rate (cone calorimeter method), and Part 2 Smoke production rate (dynamic method), or ISO 9705 Fire tests – Full scale room test for surface products. Or in lieu of testing refer to Table A1 of Appendix A in C/VM2. Australian and European classifications can be used to achieve Group Numbers in Table C1.

<table>
<tr><th>Current Text</th><th>Proposed Changes</th></tr>
<tr><td></td><td>
Table C1 – Alternative means of achieving material group numbers
<table>
<tr><th>Group Number according to NZBC Clause C3.4(a) using ISO 9705:1993</th><th>Australian Group Number according to NCC Specification C1.10 Clause 4 using AS ISO 9705: 2003</th><th>European Classification using EN 13501-1: 2007 and A1: 2009</th></tr>
<tr><td>Group Number 1-S</td><td>Group 1, and a smoke growth rate index not more than 100</td><td>Class A1, A2 or B
and
Smoke production rating s1 or s2</td></tr>
<tr><td>Group Number 1</td><td>Group 1</td><td>Class A1, A2 or B</td></tr>
<tr><td>Group Number 2-S</td><td>Group 2, and a smoke growth rate index not more than 100</td><td>Class C
and
Smoke production rating s1 or s2</td></tr>
<tr><td>Group Number 2</td><td>Group 2</td><td>Class C</td></tr>
<tr><td>Group Number 3</td><td>Group 3</td><td>Class D</td></tr>
<tr><td>Group Number 4</td><td>Group 4</td><td>Class E and F</td></tr>
</table>
Explanation: Provides alternative testing requirements for internal surfaces from overseas
</td></tr>
</table>

Question C1-C6 – 4 **Do you agree with the proposed changes to Acceptable Solutions C/AS2 to C/AS7?**

C1-C6 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question C1-C6 – 5 **Do you agree with the proposed C1-C6 transitional arrangements?**

D1: Access routes

Proposed updates

MBIE proposes to amend the Acceptable Solution D1/AS1 and Verification Method D1/VM1 to:

- Update or replace with the latest versions of referenced Standards
- Introduce a new Standard which incorporates the same pendulum test method as is currently used for slip resistance. The number now given for acceptable slip resistance is different because the current Standard expresses these values differently. In practice, there is no change in the actual slip value from the previous referenced Standard.
- Delete the Verification Method, D1/VM1 due to change in slip resistance Standard
- Include editorial and technical amendments for clarity

D1 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution and Verification Method unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution and Verification Method would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution and Verification Method would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution and delete the Verification Method to include referencing the latest version of Standards and industry documents that are available, provide clarity and improve understanding of slip resistance, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solutions would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question D1 – 1 Do you have any comments on the D1 options?

D1 References

Current Text	Proposed Changes
	BS EN 14975: 2006 + Amendment 1 Loft ladders – Requirements, marking and testing

Current Text	Proposed Changes
	Explanation: Introduction of new referenced Standard in D1/AS1
AS 2890.1: 2004 Parking facilities – Part 1 Off street parking, Amend: 1	**AS/NZS 2890.1: 2004** Parking facilities Part 1: Off-street car parking
	Explanation: Citation Update - This is now a joint Australia and NZ Standard
AS/NZS 3661.1:1993 Slip resistance of pedestrian surfaces - Part 1 Requirements	**AS 4586: 2013** Slip resistance classification of new pedestrian surface materials
	Explanation: Citation update – Introduction of new referenced Standard D1/AS1. This Standard uses the same pendulum test method as the one previously referenced. The number now given for acceptable slip resistance is different because the current Standard expresses these values differently. In practice, there is no change in the actual slip value from the previous referenced Standard The proposed Standard also includes a ramp test for slip resistance measured by R values. Products from Europe often have a quoted R value. They have usually been done as an oil wet test and therefore do not give a direct indication for water wet situations. The new Section 2.1 gives advice about an acceptable R value for water wet surfaces.
NZS/AS 1657: 1992 Fixed platforms, walkways, stairways and ladders – Design, construction and installation (known as the SAA Code for fixed platforms, walkways, stairways, and ladders)	**AS 1657: 2013** Fixed platforms, walkways, stairways and ladders - Design, construction and installation
	Explanation: Citation update – Reference to include latest version (2013)
	SA HB 198:2014 Guide to the specification and testing of slip resistance of pedestrian surfaces
	Explanation: Citation update - Referred to in section 2.1 for industrial and commercial situations

Question D1 – 2 Do you agree with the proposed changes to the D1 references?

Changes to Verification Method D1/VM1

Current Text	Proposed Changes
	Replace Paragraph 1.0 with the following.
1.0 Slip Resistance **1.0.1** Compliance with the slip-resistant performance of NZBC D1.3.3 (d) may be verified by confirming that the walking surface under the expected conditions of use has a coefficient of friction (μ) of no less than: $\mu = 0.4 + 0.0125\ S$ where S is the slope of the walking surface expressed as a percentage. **1.0.2** Measurement of the coefficient of friction shall be in accordance with AS/NZS 3661.1.	No specific test methods have been adopted for verifying compliance with the Performance of NZBC D1.
	Explanation: Sloping walking surfaces are now covered adequately by AS 4586:2013. D1/VM1 is removed as AS/NZS 3661.1. is replaced with AS 4586: 2013, and referenced in D1/AS1.

Question D1 – 3 **Do you agree with the proposed changes to Verification Method D1/VM1?**

Changes to Acceptable Solution D1/AS1

Current Text	Proposed Changes
	Replace Paragraph 1.2.2 with the following
1.2.2 Cross fall Where the surface of an *access route* is subject to wetting, the surface shall have a cross fall of no less than 1 in 100. The surface of any *access route* shall not have a cross fall of more than 1 in 50.	**1.2.2 Cross fall** Where the surface of an *access route* (including an *accessible route*) is subject to wetting, the surface shall have a cross fall of no less than 1 in 100. The surface of any *access route* (including an *accessible route*) shall not have a cross fall steeper than 1:50. Additionally, the vertical variation between adjoining tiles or other flooring materials shall

Current Text	Proposed Changes
	not be more than 3 mm for square edges or 5 mm for bevelled edges. **Explanation**: This change relates to D1.3.3(b). Uneven floor surfaces can be a tripping hazard and also make movement difficult for wheelchair users.
2.1 Slip resistance **2.1.1** Level access routes to which the public has access, including level accessible routes, shall have a mean coefficient of friction μ, of not less than 0.4 when tested in accordance with AS/NZS 3661.1 (see D1/VM1). Requirements for ramps and stairways are given in Paragraphs 3.1.4 and 4.1.4. **COMMENT**: 1. Access routes to which the public have access include walking surfaces such as decks, patios and steps on the approach to the main entrance to Housing, and common areas of Communal Residential and Multi-unit dwelling accommodation. 2. For other access routes a coefficient of friction of less than 0.4 may be acceptable, but account should be taken of the effectiveness of the surface when worn or wet.	Replace Paragraph 2.1 with the following **2.1 Slip resistance** **2.1.1** For level *access routes* (including level *accessible routes)* that may become wet with water in normal use, walking surfaces shall either: a) Have an SRV classification of not less than 39 from the wet pendulum method of AS 4586 Appendix A using the Slider 96 rubber, or b) Use the materials listed in Table 2 as 'acceptable wet slip'. The exceptions are: a) situations where safety matting is provided as described in 2.1.5 b) for *housing* this requirement applies only to the access route on the approach to the main entrance and not inside the entrance. c) in areas that are primarily used barefoot, such as around swimming pools and adjacent to communal showers, Classification 'B' from the ramp method of AS 4586 Appendix C gives an acceptable slip resistance for walking surfaces. Note: See 2.1.4 for stairs, steps and sloping *access routes* in buildings including *housing*. **COMMENT**: (a) The most common internal area of buildings that becomes wet under normal use is at the entrance where water can be tracked indoors from a footpath during rain. (b) Definitions of access route and accessible route are given on page 13. Bathrooms in dwellings and accommodation units are not usually considered being on an access route so that D1.3.3(d) and this section will not

Current Text	Proposed Changes
	apply. (c) The cleaning regime established by the building owner or manager should be such that it maintains the effectiveness of slip resistant walking surfaces. Unsuitable cleaning methods can reduce the slip resistance significantly. People may still slip even on slip resistant walking surfaces because other factors such as footwear and walking gait can affect their stability. (d) Imported materials are often tested by a ramp test equivalent to Appendix D of NZS 4586. While this is an oil wet test using an industrial work shoe, an R11 result will usually be equivalent to an SRV of 39 above for water wet conditions. Additionally, the ramp test is suitable for heavily profiled surfaces for which Appendix A is not applicable. **Explanation**: An SRV of 39 under AS 4586 is effectively the same as 0.4 under AS/NZS 3661, the difference is only in the way the test results are expressed by the two Standards.
2.1.2 For a level access route which is intended to remain dry under normal usage, any of the commonly used walking surfaces listed in Table 2 will provide adequate slip resistance ($\mu > 0.4$). **COMMENT:** 1. A cleaning regime should be established by the building owner to effectively maintain the slip resistance of the walking surface. 2. Whenever a normally dry surface is wet, such as from cleaning or isolated spillage, at a time when the public have access, adequate signage should be used to identify the hazard. (Many walking surfaces which are slip resistant in the dry become very slippery when wet and can be the cause of slip injuries as pedestrians are unaware of the rapid change of slip resistance and have not altered their gait accordingly.) 3. Slipping may still occur on slip resistant walking surfaces as other factors such as the use of unsuitable footwear or unusual gaits also influence slip resistance.	Replace Paragraph 2.1.2 with the following **2.1.2** For level *access routes* that remain dry under normal use, a co-efficient of friction not less than 0.40 for walking surface materials from the friction test method of AS 4586 Appendix B is acceptable. Alternatively, the materials specified in Table 2 as 'acceptable dry slip' may be used without testing.

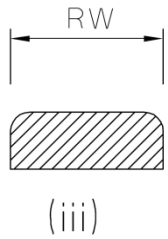
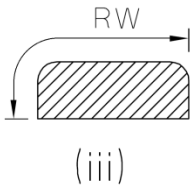
Current Text	Proposed Changes
	Explanation: This test method was in fact also included in AS/NZS 3661.1 and so it has always been an option
2.1.3 The walking surface for a level access route which may become wet during normal usage (for example, outdoor access routes or entranceways where water can be tracked indoors when it is raining) shall be selected from the list of acceptable wet slip resistant surfaces given in Table 2. COMMENT: 1. Testing as prescribed by D1/VM1 may be used to supplement Table 2. 2. The manner in which a surface wears will affect the slip resistance. This is particularly relevant to wet slip resistant surfaces if wear results in a polishing of the surface. 3. Allowing the surface texture to become clogged with dirt (through inadequate cleaning regimes) or the buildup of polishes or waxes can similarly impair slip resistance. (This comment is applicable for both dry and wet surfaces.) Guidance on the maintenance of slip resistance is given in AS/NZS 3661.2	Replace Paragraph 2.1.3 with the following: **2.1.3** For industrial and commercial situations, AS 4586 Appendix D is an acceptable method of determining the slip resistance of walking surfaces that may be contaminated by oils and similar slip-inducing materials in use. HB 198 lists acceptable R values for a range of commercial and industrial situations. Some processing activities will require floors with a profiled or displacement surface. The evaluation method given by Appendix E of NZS 4586 can be used to measure displacement area. **Explanation**: Floors in some commercial and industrial situations can become contaminated by oils of various types. If the flooring material is included in the building consent application then this section may apply.
2.1.4 Except in Housing, the transition zone between any part of the access route which is intended to remain dry under normal usage and that part of the access route which may become wet during normal usage shall be provided with: a) Water absorbent matting across the width of the effective walkway with a sufficient dimension in the direction of the pedestrian traffic to remove water which may be tracked by footwear, or b) An extension of the wet slip resistant walking surface for sufficient distance from the point at which water can be	Replace Paragraph 2.1.4 with the following: **2.1.4** For sloping *access routes* including stairs AS 4586 Appendix F shall be used to derive the appropriate slip classification for walking surfaces at various slopes. Alternatively, Table 2 lists surfaces that are acceptable for stairs as well as sloping surfaces within a limited range of slopes (see Note 2). **COMMENT** (a) Most commonly-used walking surface materials have acceptable dry slip resistance on level surfaces, but some may not be acceptable on sloping surfaces or stairs even

Current Text	Proposed Changes
tracked indoors (normally from the entrance portal) to allow water to be shed from footwear, or c) A combination of a) and b) above. **COMMENT**: 1. The dimension of the transition zone in the direction of pedestrian traffic is dependent upon the usage, however either: a) The absorbent matting should be of sufficient size to allow for at least one (preferably two) contacts between each foot with normally spaced footfalls. (As a guide, the minimum dimension is 1.8 m, but this could be reduced if the design of the entranceway restricts the spacing of the footfalls, e.g. an entranceway incorporating a revolving door), or b) The wet slip resistant walking surface should extend typically 6 m to 10 m from the entrance portal. 2. The absorbent matting should be either fixed in place (e.g. by a mat well) or should adequately grip the underlying flooring and should be of a design (e.g. with a heavy rubber backing) which will not curl up at the edges. 3. A cleaning/replacement regime should be established by the building operator to ensure the ongoing effectiveness of the matting.	when dry, as indicated by Table 2. (b) Paragraphs 3.1.4 and 4.1.4 require ramp and stair surfaces to comply with Table 2 but testing to AS 4586 Appendix A or B is another option. Note 3 to Table 2 provides for stair materials to be tested to AS 4586 on the basis of a 1:10 slope. **Explanation**: Sloping surfaces are dealt with by a table in AS 4586 so the equation in the previous D1/VM1 is not needed. The new Comment is a reminder of the need for stairs inside buildings to have adequate dry slip resistance.
	After 2.1.4, insert new Paragraph 2.1.5 with the following **2.1.5** Except in *housing*, the transition zone between any part of the *access route* which is intended to remain dry under normal usage and that part of the access route which may become wet during normal usage shall be provided with: a) Water absorbent matting across the width of the effective walkway with a sufficient dimension in the direction of the pedestrian traffic to remove water which

Current Text	Proposed Changes
	may be tracked by footwear, or b) An extension of the wet slip resistant walking surface for sufficient distance from the point at which water can be tracked indoors (normally from the entrance portal) to allow water to be shed from footwear, or c) A combination of a) and b) above. **COMMENT**: 1. The dimension of the transition zone in the direction of pedestrian traffic is dependent upon the usage, however either: a) The absorbent matting should be of sufficient size to allow for at least one (preferably two) contacts between each foot with normally spaced footfalls. (As a guide, the minimum dimension is 1.8 m, but this could be reduced if the design of the entranceway restricts the spacing of the footfalls, e.g. an entranceway incorporating a revolving door), or b) The wet slip resistant walking surface should extend typically 6 m to 10 m from the entrance portal. 2. The absorbent matting should be either fixed in place (e.g. by a mat well) or should adequately grip the underlying flooring and should be of a design (e.g. with a heavy rubber backing) which will not curl up at the edges. 3. A cleaning/replacement regime should be established by the building operator to ensure the ongoing effectiveness of the matting. **Explanation**: No change from previous requirements
Table 2: Acceptable Slip Resistance for Walking Surfaces Paragraphs 2.1.2, 3.1.4 and 4.1.4 c)	Replace the heading for Table 2 with the following: **Table 2: Slip Resistance for Walking Surfaces** **Explanation**: Included in the new text above
Note – table not reproduced	Delete the sixth column of Table 2, which is headed "Typical values for coefficient of friction (wet)" Note – table not reproduced

Current Text	Proposed Changes
	Explanation: Table 2 is not reproduced here as there is no change except that the right hand column is deleted. This column was only provided for information and was not relevant to particular materials being acceptable.
Table 2, Note 2 When testing stair treads without nosings acceptability for slip resistance from AS/NZS 3661.1 should be based on a slope of 1:10.	Replace Table 2, Note 2 with the following Table 2, Note 2 When testing stair treads without nosings acceptability for slip resistance should be based on a slope of 1:10. **Explanation**: To relate to the new referenced Standard
Table 2, Note 7 Glazed or polished surfaces are unsuitable in either wet or dry conditions for sloping surfaces or for stairs, even though test measurements may indicate adequacy, because of the effect of foot placement. Note also that when tested in the dry, very smooth surfaces can give anomalous high readings arising from slip-suction effects between the test slider and the test surface.	Replace Table 2, Note 7 with the following Table 2, Note 7 Glazed or polished surfaces are unsuitable in either wet or dry conditions for sloping surfaces or for stairs because of the effect of foot placement, even though test measurements may indicate adequacy. **Explanation**: Last sentence deleted as it is not needed for the use of Table 2.
Table 2, Note 9 It is noted in AS/NZS 3661.1 that the slip resistance tests prescribed in that Standard may not be suitable for heavily profiled (or patterned) surfaces. The Standard references other tests which may be more suitable for such surfaces.	Replace Table 2, Note 9 with the following Table 2, Note 9 It is noted in AS 4586 that the pendulum slip resistance tests prescribed in that Standard may not be suitable for heavily profiled (or patterned) surfaces. **Explanation**: AS 4856 has another test for profiled surfaces, as referred to in 2.1.3
	Add the following Comment underneath Paragraph 3.1.3 **COMMENT:** Handrails are not required on accessible routes with slopes flatter than 1 in 20, but the requirements of paragraph 2.3.1 apply.

Current Text	Proposed Changes
	Explanation: Clarifies requirements for handrails in paragraph 6
	Under paragraph 4.1.1, Delete Comment 1 and replace with the following **COMMENT:** 1. Figure 11 and Table 6 refer to several types of stair. Descriptions for all these types of stair and where they are to be used are given in the Definitions section. **Explanation**: Makes interpretation of Figure 11 and Table 6 easier
a) To prevent children falling or becoming held fast, the space between treads shall not permit the passage of a 100 mm sphere in areas frequented by children under 4, or a 130 mm sphere where frequented by children of 4 and 5 years of age.	Replace Paragraph 4.1.8 with the following a) To prevent children falling or becoming held fast, the space between treads shall not permit the passage of a 100 mm sphere in areas frequented by children under 6 years of age. **Explanation**: aligns paragraph 4.1.8 with the wording used in the current version of F4/AS1.
	Add the following sentence after the Comment in Paragraph 5.1.1 'BS EN 14975 is an Acceptable Solution for retractable ladders to lofts and attics in housing and for maintenance access in other buildings. **Explanation**: D1/AS1 currently does not have a specific Acceptable Solution for the construction of retractable ladders. There has been doubt about their compliance because they do not fully comply with Figure 19 of D1/AS1 for step ladders.
6.0.1 All *accessible stairways* shall have *handrails* on both sides (see Paragraph 6.0.3). All other *stairways* with a width of 2.0 m or less and having two or more risers, shall have *handrails* on at least one side. For a *stairway* of two or three risers within, or giving access to a *household unit*, the *handrail* may be omitted.	Replace Paragraph 6.0.1 with the following **6.0.1** All *accessible stairways* shall have *handrails* on both sides (see Paragraph 6.0.3). All other *stairways* with a width of 2.0 m or less and having two or more risers, shall have *handrails* on at least one side. *Handrails* may be omitted on *stairways* of two or three risers within or giving access to *household units.*

Current Text	Proposed Changes
	Explanation: The current wording is being misinterpreted.
	Insert a new Paragraph 6.0.10, after Paragraph 6.0.9, that reads: **6.0.10** Handrails are not required on the steps between tiers of seating rows such as in cinemas and stadiums where the steps take the form of two risers with a tread between and leading onto a landing adjacent to each row of seats. However, a handrail shall be provided on the wall when there is a wall alongside the steps that give access to the end of a row of seats.. **Explanation**: Clause D1.3.3(j) requires a handrail on a stair but access steps between tiered seating (known as 'radial gangways' in stadiums) need not be considered as a stair
	Modify Figure 26(a)(iii) to show the relevant width (RW) dimension measured from diagonally opposite corners:  **Explanation**: to align D1/AS1 with NZS 4121:2001
	After the first sentence in Paragraph 7.0.5, insert the following sentence: The end of handles shall be returned towards the door. **Explanation**: to align D1/AS1 with NZS 4121:2001
0 – 9 10 – 25	In column of Table 9, replace "0 – 9" with "0 – 10", and replace "10 – 25" with "11 – 25" 0 – 10 11 – 25 **Explanation**: to align D1/AS1 with Table 2 in NZS 4121:2001

Current Text	Proposed Changes
	Replace Paragraph 9.2.1 with the following
9.2.1 Accessible accommodation units shall have: a) Toilet and bathroom facilities complying with G1/AS1. b) Kitchen facilities complying with G3/AS1. c) Bedrooms, sitting and dining areas with sufficient floor area for a 1500 mm diameter wheelchair turning circle.	**9.2.1** *Accessible* accommodation units shall have toilet and bathroom facilities complying with G1/AS1 and have bedrooms, sitting and dining areas with sufficient clear floor space to provide a 1500 mm diameter turning circle for a wheelchair user. *Accessible* kitchens or *accessible* tea and coffee making facilities shall be provided, depending on the comparable facilities provided in the other units of the building or complex. **COMMENT**: Guidance on the provision of *accessible* units in public accommodation is given at www.building.govt.nz/building-code-compliance/g-services-and-facilities/g3-food-preparation-and-prevention-of-contamination/ **Explanation**: Clarifies that accessible facilities to be provided need to relate to the facilities provided in other units
	Replace Paragraph 10.1.1 and the Comment with the following
10.1.1 AS 2890: Part 1 as modified by Paragraph 10.2 is an acceptable solution for car parking areas and circulation routes. **COMMENT**: The width of an accessible car park is given in AS 2890.1 Figure 2.2 as 3.2 m, but it is noted in 2.4.1 (b) (ii) of the Standard that if there is an adjacent obstruction the width of all car parks should be increased by 300 mm. In the case of an accessible car park an obstruction would include a kerb or garden which would prevent the movement of a wheelchair.	**10.1.1** AS/NZS 2890 Part 1 is an Acceptable Solution for car parking areas and circulation routes. **COMMENT:** NZS 4121 in section 5 covers the provision of accessible car parking and the number of accessible parks to be provided. **Explanation**: This parking Standard is now a joint Standard. It has specific New Zealand requirements but does not include accessible car parking spaces.
	Delete Paragraph 10.2
10.2 Modifications to AS 2890 **10.2.1** AS 2890: Part 1 is modified as follows: Clause 4.7 Lighting: After final sentence add a new sentence – "These lighting provisions may exceed the performance criteria of NZBC D1 and G8."	

Current Text	Proposed Changes
Appendix C: Delete and replace with: "Accessible car parking spaces shall be provided on the scale of: 1 for up to 10 total spaces provided 2 for up to 100 total spaces provided plus 1 more for every additional 50 spaces when car parks are provided in or associated with a building which is accessible."	**Explanation**: Not required if AS 2890 is replaced by AS/NZS 2890.1
11.0 Other Acceptable Solutions **11.0.1** Accessible routes – The access provisions of NZS 4121 are an acceptable solution for accessible routes, but may exceed the requirements of NZBC D1. **11.0.2** Commercial vehicles – AS 2890: Part 2 is an acceptable solution for loading spaces and circulation routes for commercial vehicles, but may exceed the requirements of NZBC D1. **11.0.3** Access routes for service and maintenance personnel – NZS/AS 1657 is an acceptable solution for fixed platforms, walkways, stairways, and ladders, but provisions may exceed the requirements of NZBC D1.	Replace Paragraph 11 with the following **11.0 Access routes for service and maintenance personnel** **11.0.1** AS 1657 is an Acceptable Solution for stairs, ladders, platforms and walkways for service and maintenance personnel. **COMMENT** Barriers (guard railings) are covered by Clause F4 'Safety from Falling'. Note that the minimum height for horizontal barriers in F4/AS1 Table 1 is 1000 mm and that Paragraph 1.2.2 refers to barriers in maintenance access situations. **11.0.2 AS 2980 Part 2** is an acceptable solution for loading spaces and circulation routes for commercial vehicles. **Explanation**: AS 1657 refers to barriers but it is not an acceptable solution for Clause F4, only those items noted in 11.0.1
12.0.1 For the purposes of determining whether a lift must be provided for *people with disabilities* to access upper floors, the design occupancy shall be determined using C/AS1 Paragraph 2.3.7 and Table 2.2. **Comment**:	Replace Paragraph 12.0.1 with the following and delete the Comment **12.0.1** For the purposes of determining whether a lift must be provided for *people with disabilities* to access upper floors, the design occupancy of a floor shall be calculated using Paragraph 1.4 of C/AS2 though to C/AS6 as appropriate or Paragraph 3.1 of C/VM2.'

Current Text	Proposed Changes
Alternative design occupancies being less than derived from Table 2.2, must be justified with clear supporting information. Table 2.2 already takes account of effective floor area reductions for normal furnishings associated with a given activity, such as desks or workstations in offices. However, in a factory situation with fixed machinery, actual operator numbers may be acceptable as the *occupant load*.	**Explanation**: To update the reference to C/AS1 to align with the current version of the Fire Documents
	Add a Comment after Paragraph 12.0.2 **COMMENT** Gross floor area is a defined term in NZS 4121. **Explanation**: clarification of definition of "gross floor area"

Question D1 – 4	**Do you agree with the proposed changes to Acceptable Solution D1/AS1?**

D1 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question D1 – 5	**Do you agree with the proposed D1 transitional arrangements?**

D2: Mechanical installations for access

Proposed updates

MBIE proposes to amend the Acceptable Solution D2/AS1 to:

- Replace with existing referenced Standards with BS EN 81-20:2014 subject to modifications.

D2 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards subject to modifications. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question D2 – 1 Do you have any comments on the D2 options?

D2 References

Current Text	Proposed Changes
EN 81 Part 1:1998: Safety rules for the construction and installation of lifts - Electric lifts **EN 81 Part 2:1998:** Safety rules for the construction and installation of lifts - Hydraulic lifts	**BS EN 81-20:2014** Safety rules for the construction and installation of lifts. Lifts for the transport of persons and goods. Passenger and goods passenger lifts **Explanation**: Introduce new referenced Standard in D2/AS1 to replace and remove EN 81 Part 1:1998 and EN 81 Part 2:1998

Question D2 – 2 Do you agree with the proposed changes to the D2 references?

Changes to Acceptable Solution D2/AS1

Current Text	Proposed Changes
	Replace paragraph 1.0.1 b), c) with the following
1.0.1 NZS 4332 is an acceptable solution subject to the following modifications: b) Where this Standard requires approval, verification or the like, then this must be to the satisfaction of the *territorial authority*. c) The structural design of the *building*, its elements and the fixings supporting the lift installation, shall comply with Clause B1 "Structure" and is outside the scope of this Standard as an acceptable solution. Structural design of parts of the lift installation where described in this Standard shall be undertaken by a suitably qualified designer and shall be to the approval of the *territorial authority*. d) In Clause 70.2 replace the words "1400 mm deep x 1350 mm wide" with "1400 mm x 1400 mm".	**1.0.1** NZS 4332 is an acceptable solution subject to the following modifications: b) Where this Standard requires approval, verification or the like, then this must be to the satisfaction of the *building consent authority* c) The structural design of the *building*, its elements and the fixings supporting the lift installation, shall comply with Clause B1 "Structure" and is outside the scope of this Standard as an acceptable solution. Structural design of parts of the lift installation where described in this Standard shall be undertaken by a suitably qualified designer and shall be to the approval of the *building consent authority*.
	Explanation: Editorial and correct reference to *building consent authority*
	Delete Paragraph 1.0.1 d)
	Explanation: correction- NZS 4332 already refers to the lift car being 1400mm x 1400mm
	Delete Paragraphs 2.0, 2.1, 2.2 and 2.3, and replace with the following to reference new Standard BS EN 81-20
2.0 Reference Document EN 81 Parts 1 and 2 **2.0.1** EN 81: Part 1 (EN 81-1) is an acceptable solution for electric lifts subject to the amendments given in Paragraphs 2.1 and 2.2 below. **2.0.2** EN 81: Part 2 (EN 81-2) is an acceptable solution for hydraulic lifts subject to the amendments given in Paragraphs 2.1 and 2.3 below.	**2.0 BS EN 81-20** Safety rules for the construction and installation of lifts. Lifts for the transport of persons and goods. Passenger and goods passenger lifts

Current Text	Proposed Changes
2.1 Amendments to both EN 81-1 and EN 81-2 The amendments comprise additions (given in Paragraph 2.1.1 below) and modifications (given in Paragraph 2.1.2 below). **2.1.1** Add the following new clauses to EN 81-1 and EN 81-2:	**2.1** BS EN 81-20 is an acceptable solution for electric and hydraulic passenger lifts subject to the following modifications.
Clause 1.5 to read:	Add a new Clause 1.5 to read:
"**1.5** The Standard does not cover the following:	"**1.5** The Standard does not cover the following:
1.5.1 Structural Design (NZBC Clause B1)	**1.5.1 Structural Design (NZBC Clause B1)**
The structural designs of the lift installation including its various components and of the building housing the installation are outside of the scope of this Standard. NOTE Although this Standard provides some design criteria and information on the loads resulting from the operation and use of the lift installation, it does not fully account for all loadings that must be taken into consideration, e.g. earthquake. The overall structural design of the lift installation and of its components is therefore outside of the scope of this Standard. Designs need to be undertaken by a suitably qualified designer with proposals approved by the *territorial authority* as part of the *building consent* process. The structural design of the *building* to withstand the loads imposed on it by the lift installation is also outside of the scope of this Standard. Design proposals here also need to be approved by the *territorial authority* as part of the *building consent* process.	The structural design of the lift installation including its various components and the building housing the installation are outside of the scope of this Standard. Designs need to be undertaken by a suitably qualified designer with proposals approved by the building consent authority as part of the building consent process. NOTE: Although this Standard provides some design criteria and information on the loads resulting from the operation and use of the lift installation, it does not fully account for all loadings that must be taken into consideration, e.g. earthquake. The overall structural design of the lift installation and of its components is therefore outside of the scope of this Standard.
1.5.2 Durability (NZBC Clause B2) The design of the lift installation with respect to durability is outside of the scope of this Standard. NOTE This Standard does not specifically address the durability of all components of the lift installation. As part of the *building consent process* the *territorial authority* may require evidence that the various components of the lift installation will meet	**1.5.2 Durability (NZBC Clause B2)** The design of the lift installation with respect to durability is outside of the scope of this Standard. NOTE This Standard does not specifically address the durability of all components of the lift installation. As part of the building consent process the building consent authority may require evidence that the various components of the lift installation will meet the building code's durability provisions.
	1.5.3 Protection from Fire (NZBC Clauses C1-C6) The design of the lift installation with respect to protection from fire is outside of the scope of this Standard. Designs need to be undertaken by a suitably qualified designer

Current Text	Proposed Changes
the *building code's* durability provisions. **1.5.3 Fire (NZBC Clauses C2, C3 and C4)** The design of the lift installation with respect to *fire* is outside of the scope of this Standard. NOTE The Standard provides some limited information however any *fire* design cannot look at the lift installation in isolation and needs to consider the *building* as a whole before determining requirements. This Acceptable Solution, by reference to Clause 25.6 of NZS 4332, aims to ensure lifts are not used during a firecall in the *building*. Lifts specifically designed to be used during a *fire* require special engineering consideration and are outside of the scope of this Acceptable Solution and NZS 4332."	with proposals approved by the building consent authority as part of the building consent process. The appropriateness of any information in this Standard that relates to fire safety needs to be considered as part of that design. NOTE 1 The Standard provides some limited information however any fire design cannot look at the lift installation in isolation and needs to consider the building as a whole before determining requirements. NOTE 2 This Acceptable Solution, by reference to Clause 25.6 of NZS 4332, aims to ensure lifts are not used during a firecall in the building. Lifts specifically designed to be used during a fire require special engineering consideration and are outside of the scope of this Acceptable Solution and NZS 4332.
Clause 1.6 to read: "**1.6 Requirements from NZS 4332** The lift installation shall meet the requirements of the following clauses from NZS 4332. If there is conflict between these clauses and provisions in EN 81, these clauses shall take precedence: **Clause 2.5** Maintenance and inspection **Clause 7.9** Hatches in machine rooms **Clause 7.15** Protection of machine rooms against weather **Clause 7.17** Ventilation of machine rooms **Clause 7.18** Machine room lifting beams **Clause 11.3** Pit maintenance **Clause 11.4** Guards between adjacent pits **Clause 11.5.3** Access from bottom landing doors **Clause 11.9** Dryness of pits **Clause 22.20.2** Internal lighting **Clause 23.6** Passenger protective device – horizontal doors (see Note) **Clause 24.10** Lift circuit drawing in machine room **Clause 25.6** Operation of lifts under fire or	**Add a new Clause 1.6** to read: "**1.6 Requirements from NZS 4332** The lift installation shall meet the requirements of the following clauses from NZS 4332. If there is conflict between these clauses and provisions in BS EN 81-20, these clauses shall take precedence: **Clause 2.5** Maintenance and inspection **Clause 7.9** Hatches in machine rooms **Clause 7.15** Protection of machine rooms against weather **Clause 7.17** Ventilation of machine rooms **Clause 7.18** Machine room lifting beams **Clause 11.3** Pit maintenance **Clause 11.5.3** Access from bottom landing doors **Clause 11.9** Dryness of pits **Clause 22.20.2** Internal lighting. The Clause shall be modified by adding the words "Where batteries provide the emergency lighting source, the batteries shall be secured in such a manner that they cannot be displaced or the contents spilled by the operation of the safety gear or by earthquake." **Clause 24.10** Lift circuit drawing in machine

Current Text	Proposed Changes
other emergency conditions (excluding earthquakes) **Clause 25.7** Detection of fire in machine rooms (including sheave rooms and governor rooms containing electronic equipment) and liftwells **Clause 25.8** Operation of lifts under earthquake conditions **Clause 28.2.1** Emergency audible alarm **Clause 70** Requirements for lifts on access routes for people with disabilities NOTE See also Paragraph 2.1.2 below for amendments to Clauses 7.5.2.1.1.3 and 8.7.2.1.1.3."	room **Clause 25.6** Operation of lifts under fire or other emergency conditions (excluding earthquakes) **Clause 25.7** Detection of fire in machine rooms (including sheave rooms and governor rooms containing electronic equipment) and liftwells **Clause 25.8** Operation of lifts under earthquake conditions **Clause 28.2.1** Emergency audible alarm **Clause 70** Requirements for lifts on access routes for people with disabilities NOTE NZS 4332 does not provide for the use of touch screens for calling or controlling lifts. Further, touch screens by themselves do not comply with Building Code Clause D2.3.5 as, among other things, they do not provide tactile interaction. Touch screens need to be supplemented with tactile activation linked to audible notifications to ensure ease of use by people with visual impairments (see Codewords 71 article 'Compliant lifts are easy to use for everyone')."
Clause 1.7 to read: "**1.7 Interpretation** Where this Standard has provisions that are in non-specific or unquantified terms (such as where provisions are required to be suitable, special, adequate, appropriate, equivalent, satisfactory, acceptable, applicable or the like) then proposals to meet those provisions must be to the satisfaction of the *territorial authority*. Where the Standard requires that manufacturer's advice be followed, the adequacy of that advice shall be to the satisfaction of the *territorial authority*. Where this Standard requires approval, verification or the like, then this must be to the satisfaction of the *territorial authority*. Where *territorial authority* is mentioned in this Acceptable Solution, it shall be taken to include a *building certifier* acting within the scope of its approval. The word "shall" identifies a mandatory	Add a new Clause 1.7 to read: "**1.7 Interpretation** Where this Standard has provisions that are in non-specific or unquantified terms (such as where provisions are required to be suitable, special, adequate, appropriate, equivalent, 'within easy reach' or the like) then proposals to meet those provisions must be to the satisfaction of the building consent authority. Where the Standard requires that manufacturer's advice be followed, the adequacy of that advice shall be to the satisfaction of the building consent authority. Where this Standard requires approval, verification or the like, this shall be to the satisfaction of the building consent authority. The word "shall" identifies a mandatory requirement for compliance with this Standard. The word "should" refers to practices which are advised or recommended. The word "normative" identifies a mandatory

Current Text	Proposed Changes
requirement for compliance with this Standard. The word “should” refers to practices which are advised or recommended. The word “normative” identifies a mandatory requirement for compliance with this Standard. The words “NOTE” and “informative” identify commentary material. Such material is given for the purposes of general information and does not form part of the mandatory requirements of this Standard.”	requirement for compliance with this Standard. The words “NOTE” and “informative” identify commentary material. Such material is given for the purposes of general information and explanation and does not form part of the mandatory requirements of this Standard.”
2.1.2 Modify the following clauses in EN 81-1 and EN 81-2 as noted: **Clause 0** Clause 0 shall be read as informative. **Clause 1.4** Delete. **Clause 2** Amend the words “Normative references” in both the heading and the text to read “References”. **Clause 5.2.1.1(c) and (d)** Delete. **Clause 5.2.3** Delete. **Clause 6.3.1.2** Replace the words “corrugated iron” with the words “chequer plate”. **Clause 6.3.5** Delete the words “Should the well be ventilated through the machine room, this has to be taken into account.” **Clause 6.3.7** Reword to read: “**6.3.7 Handling of equipment** Beams, or supports or hooks attached to them, provided for the purpose of lifting machine parts shall have a notice advising the maximum permissible load that can be carried.” **Clause 6.4.1.2** Replace the words “corrugated iron” with the words “chequer plate”. **Clause 7.2.3.6** Reword to read: “**7.2.3.6** To avoid dragging of children’s hands, automatic power operated horizontally sliding doors made of glass of dimensions greater than stated in 7.6.2 shall	**Text deleted**

Current Text	Proposed Changes
comprise opaque glass up to a height of 1.10 m." **Clause 7.4.2.1** Add the words "Proposals for guide design shall be to the satisfaction of the territorial authority." **Clause 7.5.2.1.1.3** Make the following changes: i) In the first paragraph delete the words "being struck, or". ii) Add a new paragraph at the end saying: "The protective device shall comply with: Clause 23.6 of NZS 4332 except that Clauses 23.6.1 (c), 23.6.2 and 23.6.3 may be modified as follows: a) the kinetic energy limitation of 3.4 J may be increased to 4 J, and b) the requirement for an audible warning to be sounded may be ignored." **Clause 8.6.7.5** Reword to read: "**8.6.7.5** To avoid dragging of children's hands, automatic power operated horizontally sliding doors made of glass of dimensions greater than stated in 7.6.2 shall comprise opaque glass up to a height of 1.10 m." **Clause 8.7.2.1.1.3** Make the following changes: i) Delete the words "being struck, or". ii) Add a new paragraph at the end saying: "The protective device shall comply with Clause 23.6 of NZS 4332 except that Clauses 23.6.1 (c), 23.6.2 and 23.6.3 may be modified as follows: a) the kinetic energy limitation of 3.4 J may be increased to 4 J, and b) the requirement for an audible warning to be sounded may be ignored." **Clause 8.17.1** Reword to read: "**8.17.1** Lift car lighting shall comply with Clauses 22.20.2.1 to 22.20.2.6 inclusive of NZS 4332." **Clause 8.17.2** Delete. **Clause 8.17.4** Reword to read: "8.17.4 Lift cars shall be provided with	

Current Text	Proposed Changes
emergency lighting complying with Clause 22.20.2.7 of NZS 4332. Where batteries provide the emergency lighting source, the batteries shall be secured in such a manner that they cannot be displaced or the contents spilled by the operation of the safety gear or by earthquake." **Clause 10.1.1** Delete the Note and add the words: "Guide rails shall be designed in accordance with Annex G. Annex G accounts for loading actions as a result of lift operation only. Other loadings, such as earthquake, also need to be checked but are outside the scope of EN 81. Refer to Clause 1.5.1." **Clause 14.2.3.2** Delete the word "Note". **Clause 16** Amend heading to read "Lift Particulars – Tests – Maintenance". **Clause 16.1** Amend heading to read: "**16.1 Drawings and tests**" **Clause 16.1.1** Amend clause to read: "**16.1.1** Drawings and particulars of the lift installation shall be supplied in accordance with Annex C. The details submitted shall show that the constituent parts are correctly designed and the proposed installation is in conformity with this Standard." **Clause 16.2** Delete. **Clause 16.3.2** Amend to read: "**16.3.2 Maintenance and inspection** Maintenance and inspection shall comply with the requirements of Clause 2.5 of NZS 4332." **Clause 16.3.3** Delete. **Annex D** **Clause D.1** Amend (a) to read: "Comparison of the as-built installation with the drawings and particulars supplied under Clause 16.1.1. Variations from the plans and specifications on which the *building consent* was granted need to be approved by the *territorial authority*."	

Current Text	Proposed Changes
Clause D.2 (c) Replace the words "register or file [16.2.a)]" with the words "drawings and particulars of the lift installation [(16.1.1)]". **Annex E** Delete. **Annex G** In the heading replace the word "informative" with the word "normative".	
2.2 Amendments to EN 81-1 Modify the following clauses of EN 81-1 as noted. These amendments must be made in addition to those required in Paragraph 2.1 (i.e. Paragraphs 2.1.1 and 2.1.2) above. **Clause 5.7.3.2** Amend last sentence of last paragraph to read: "This shall not project into the clear running space of the lift equipment and shall comply with Clause 11.5.3 of NZS 4332." **Clause 8.3.2.2** Replace the words "0.90 m and 1.10 m" with the words "0.95 m and 1.05 m". **Clause 9.3** Add the words "Demonstration of acceptable rope traction shall be to the satisfaction of the *territorial authority*." **Clause 12.4.1.3** Add new clause which reads: "**12.4.1.3** Demonstration of an acceptable braking system, which meets the requirements of 12.4, shall be to the satisfaction of the *territorial authority*." **Clause 12.8.6** Add new clause which reads: "**12.8.6** The demonstration of the acceptability of these devices to meet the requirements of 12.8 shall be to the satisfaction of the *territorial authority*." **Clause 16.1.2** Delete Note. **Clause 16.1.3** Delete. **Annex C** Make the following changes: i) In the heading amend the words "Annex C (informative) Technical dossier" to read "Annex C (normative) Drawings and Particulars". ii) Amend Clause C.1 to read: "**C.1 Introduction**	**Text deleted**

Current Text	Proposed Changes
The drawings and particulars shall include all of the information and documents required by this Annex." iii) In the second paragraph of Clause C.3 replace the words "do not have to give details of construction but they should" with the word "shall". iv) Amend the first paragraph of Clause C.5 to read: "Copies of type examination certificates for: a) landing door locking devices (7.7.3.3); b) safety gear (9.8.1.3); c) overspeed governors (9.9.12); d) energy dissipation type buffers, energy accumulation type buffers with buffered return movement and/or non-linear characteristics (10.3.6); e) safety circuits containing electronic components (14.1.2.3.3); and f) ascending car overspeed protection means (9.10.11)." v) In the second paragraph of Clause C.5 replace the words "ropes, chains" with the words "ropes and chains and their terminations".	
2.3 Amendments to EN 81-2 Modify the following clauses of EN 81-2 as noted. These amendments must be made in addition to those required in Paragraph 2.1 (i.e. Paragraphs 2.1.1 and 2.1.2) above. **Clause 5.7.2.2** Amend last sentence of last paragraph to read: "This shall not project into the clear running space of the lift equipment and shall comply with Clause 11.5.3 of NZS 4332." **Clause 5.7.3** Add new Clause 5.7.3 to read: "**5.7.3 Devices to hold car above the lowest floor** For direct-acting electrohydraulic lifts, suitable devices shall be provided to hold the	**Text deleted**

Current Text	Proposed Changes
car above the lowest floor. Such devices shall support the car as necessary during all testing and maintenance without impinging on the clearances required by this Standard. If the device is not permanently fixed in place it shall remain on the site in an area exclusively for the use of the lift installation. If stored in the pit it shall not interfere with the lift installation nor with any clearance required by this Standard. Proposals for the device, demonstrating compliance with the requirements of this Clause, shall be to the satisfaction of the *territorial authority*." **Clause 8.3.2.1 Fourth paragraph** Replace the words "0.90 m and 1.10 m" with the words "0.95 m and 1.05 m". **Clause 9.1** Add the words: "Demonstration of an acceptable means of suspension shall be to the satisfaction of the *territorial authority*." **Clause 9.10.5.1** Reword lead-in paragraph to read: "Where tripping of the safety gear or clamping device is by rope the following shall apply:" **Clause 9.10.5.2** Reword lead-in paragraph to read: "Where tripping of the safety gear or clamping device is by lever the following shall apply:" **Clause 12.3.3.4** Add the words: "The acceptability of the bend to carry the required pressures shall be demonstrated to the satisfaction of the *territorial authority*." **Clause 16.1.2** Delete the second paragraph and the Note. **Annex C** Make the following changes: i) In the heading amend the words "Annex C (informative) Technical dossier" to read "Annex C (normative) Drawings and Particulars". ii) Amend Clause C.1 to read: "**C.1 Introduction** The drawings and particulars shall	

Current Text	Proposed Changes
include all of the information and documents required by this Annex." iii) In the second paragraph of Clause C.3 replace the words "do not have to give details of construction but they should" with the word "shall". iv) Amend the first paragraph of Clause C.5 to read: "Copies of type examination certificates for: a) landing door locking devices (7.7.3.3); b) safety gear (9.8.9); c) overspeed governors (9.10.2.11); d) energy dissipation type buffers, energy accumulation type buffers with buffered return movement and/ or non-linear characteristics (10.3.8); e) safety circuits containing electronic components (14.1.2.3.2.6); f) rupture valve (12.5.5.7); and g) one-way restrictor with mechanical moving parts (12.5.6.6)." v) In the second paragraph of Clause C.5 replace the words "ropes, chains" with the words "ropes and chains and their terminations".	**Add the following to Clause 5.2.1.4.1** "d) at least 50 lux maintained vertical illumination at landing door headers." **Amend Clause 5.2.2.5** to read: "**5.2.2.5** A safe access for persons to machinery spaces and pulley rooms shall be provided. For preference this should be effected entirely by way of stairs. If it is not possible to install stairs, ladders satisfying the following requirements shall be used: a) The access to the machinery spaces and pulley rooms shall not be situated more than 1.5m above the level accessible by stairs; b) Ladders shall be permanently fastened to the access;

Current Text	Proposed Changes
	c) The clear width of the ladder shall be at least 0.28 m, the depth of the steps shall not be less than 25 mm and in the case of vertical ladders the distance between the steps and the wall behind the ladder shall not be less than 0.15 m. The steps shall be designed for a load not less than 1500 N; d) Adjacent to the top end of the ladder there shall be at least one handhold within easy reach." **Delete 5.2.5.2.2.1c)** **Add new clause 5.2.5.8.3** to read: "**5.2.5.8.3 Devices to hold car above the lowest floor** For direct-acting electrohydraulic lifts, suitable devices shall be provided to hold the car above the lowest floor. Such devices shall support the car as necessary during all testing and maintenance without impinging on the clearances required by this Standard. If the device is not permanently fixed in place it shall remain on the site in an area exclusively for the use of the lift installation. If stored in the pit it shall not interfere with the lift installation nor with any clearance required by this Standard. Proposals for the device, demonstrating compliance with the requirements of this Clause, shall be to the satisfaction of the building consent authority. " **Amend Clause 5.4.3.3** to read: "**5.4.3.3** Car walls with glass placed lower than 1.10 m from the floor shall have a support rail at a height between 0.95 m and 1.05 m. This support rail shall be fastened independently from the glass. " **Amend Clause 5.4.9.2** to read: "**5.4.9.2** The effective area of ventilation apertures situated in the upper part of the car shall be at least 5% of the available car area, and the same also applies for the apertures in

Current Text	Proposed Changes
	the lower part of the car. " **Amend Clause 5.4.10.2** to read: "**5.4.10.2** Lift cars shall have a minimum of two lights, one to be connected to the lift supply and one to be connected to some other part of the electrical installation of the building in which the lift is located or to some other source of supply." **Amend Clause 5.4.10.4** to read: "**5.4.10.4** There shall be an automatically rechargeable emergency supply, which is capable of ensuring at least a lighting intensity of 10 lux for 2 hours at the alarm initiation device and in the centre of the car one metre above the floor. This lighting shall come on automatically upon failure of the normal lighting supply. At least two lamps of approximately equal wattage shall be used. The recovery rate of the emergency supply after 2 hours continuous use shall be such that a further 2 hours illumination can be maintained after not more than 16 hours recharging. " **Amend Clause 5.9.3.2.5.1** to read: "**5.9.3.2.5.1** Any hole bored in the ground to house a hydraulic jack shall be lined with a waterproof caisson. The inner diameter of the caisson shall be at least 100 mm greater than the outer diameter of the hydraulic jack. There shall be a minimum of 100 mm clearance between the caisson bottom and the bottom of the jack. The caisson shall extend at least 150 mm above the floor of the pit. The lift shall not impose any load on the caisson. If the jack itself is weatherproof then subject to demonstration of adequate performance the caisson can be open-ended so as to act as a drain with its upper end finishing flush with the pit floor. NOTE: The caisson performs the two functions of preventing collapse of the bored hole and protecting the jack from damage and deterioration caused by contact with water. An example of a jack that may be weatherproof could be a water

Current Text	Proposed Changes
	hydraulic jack.“ **Explanation**: Modifications made to the referencing of the standard to ensure requirements meet the performance requirements of D2

Question D2 – 3	**Do you agree with the proposed changes to Acceptable Solution D2/AS1?**

D2 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question D2 – 4	**Do you agree with the proposed D2 transitional arrangements?**

E1: Surface water

Proposed updates

MBIE proposes to amend the Verification Method E1/VM1 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments for clarity

E1 Options

Option One: Status Quo

MBIE could leave the Verification Method unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Verification Method would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Verification Method would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Verification Method to include referencing the latest version of Standards and industry documents that are available, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Verification Method. There would be no confusion as to which Standard to apply.
- The Verification Method would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question E1 – 1 Do you have any comments on the E1 options?

E1 References

Current Text	Proposed Changes
AS/NZS 1254: 2010 PVC pipes and fittings for stormwater and surface water applications. Amend: 1 (2011)	AS/NZS 1254: 2010 PVC-U pipes and fittings for stormwater and surface water applications. Amend: 1, 2 **Explanation**: Standard updated to include amendment 2
AS/NZS 1260: 2009 PVC-U Pipes and fittings for drain, waste and vent application. Amend: 1 (2011)	AS/NZS 1260: 2009 PVC-U Pipes and fittings for drain, waste and vent application. Amend: 1, 2

Current Text	Proposed Changes
	Explanation: Standard updated to include amendment 2
AS/NZS 2280: 2012 Ductile iron pipes and fittings	AS/NZS 2280: 2014 Ductile iron pipes and fittings. Amend 1
	Explanation: Standard updated to latest version (2014)
AS/NZS 2566 Buried Flexible pipelines - Part 2: 2002 Installation	AS/NZS 2566.2:2002 Buried flexible pipelines: Installation. Amend: 1
	Explanation: Standard updated to include amendment 1
AS/NZS 4130: 2009 Polyethylene (PE) pipes for pressure applications	AS/NZS 4130: 2009 Polyethylene (PE) pipes for pressure applications. Amend: 1
	Explanation: Standard updated to include amendment 1
NZS 4229: 1999 Concrete masonry buildings not requiring specific design. Amend: 1	NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
	Explanation: Standard updated to latest version (2013)

Question E1 – 2 **Do you agree with the proposed changes to the E1 references?**

Changes to Verification Method E1/VM1

Current Text	Proposed Changes
	In Table 1 replace "pasture and scrub cover" with "pasture and grass cover" (occurs twice)
pasture and scrub cover	pasture and grass cover
	Explanation: Correction to surface descriptions

Question E1 – 3 **Do you agree with the proposed changes to Verification Method E1/VM1?**

E1 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question E1 – 4	**Do you agree with the proposed E1 transitional arrangements?**

E2: External Moisture

Proposed updates

MBIE proposes to introduce the new Acceptable Solution E2/AS4 to:

- Update or replace with the latest versions of referenced Standards
- Introduce a new Acceptable Solution E2/AS4, that references the Waterproof Membrane Association "*Code of Practice for Torch-on Membrane Systems for Roofs and Decks" 2nd Edition September 2015*"

E2 Options

Option One: Status Quo

MBIE could not introduce the Acceptable Solution or update referenced Standards.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available, and introduce a new Acceptable Solution. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question E2 – 1 **Do you have any comments on the E2 options?**

E2 References

Current Text	Proposed Changes
Cement & Concrete Association of New Zealand CCANZ – CP01: 2014 Code of Practice for weathertight concrete and concrete masonry construction	**Cement & Concrete Association of New Zealand** CCANZ – CP01: 2014 Code of Practice for weathertight concrete and concrete masonry construction, incorporating errata 1, January 2015
	Explanation: Reference updated to include the latest errata 1 (Jan 2015) of the Code of Practice Document can be viewed at www.ccanz.org.nz

Current Text	Proposed Changes
	Waterproof Membrane Association Code of Practice for Torch-on Membrane Systems for Roofs and Decks, 2nd Edition September 2015 **Explanation**: New reference to align with the proposed new Acceptable Solution E2/AS4 Document viewed at http://www.membrane.org.nz/publications/

Question E2 – 2 Do you agree with the proposed changes to the E2 references?

New Acceptable Solution E2/AS4

Current Text	Proposed Changes
	Insert new Acceptable Solution E2/AS4 after E2/AS3, with the following format **1.0 Torch-on Membrane Systems for Roofs and Decks.** The Waterproof Membrane Association's Code of Practice for Torch-on Membrane Systems for Roofs and Decks, for building work within its scope, is an Acceptable Solution for NZBC clause E2 **Explanation**: Cite Code of Practice for torch on membrane systems for roofs and decks as a means of compliance with the performance requirements of NZBC clause E2. Applies to building work within the scope of the code of practice.

Question E2 – 3 Do you agree with the proposed new Acceptable Solution E2/AS4?

E2 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question E2 – 4	**Do you agree with the proposed E2 transitional arrangements?**

E3: Internal Moisture

Proposed updates

MBIE proposes to introduce the new Acceptable Solution E3/AS2 to:

- Update or replace with the latest versions of referenced Standards
- Introduce a new Acceptable Solution E3/AS2, that references the Waterproof Membrane Association's "*Code of Practice for Internal Wet Area Membranes, 2nd Edition September 2015"*
- Include editorial and technical amendments for clarity

E3 Options

Option One: Status Quo

MBIE could not introduce the Acceptable Solution or update referenced standards.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available, and introduce a new Acceptable Solution, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question E3 – 1 Do you have any comments on the E3 options?

E3 References

Current Text	Proposed Changes
	Waterproof Membrane Association Code of Practice for Internal Wet Area Membranes, 2nd Edition September 2015".

Current Text	Proposed Changes
	Explanation: New reference to align with the proposed new Acceptable Solution E3/AS2 Document viewed at http://www.membrane.org.nz/publications/

Question E3 – 2 **Do you agree with the proposed changes to the E3 references?**

Changes to Acceptable Solution E3/AS1

Current Text	Proposed Changes
	Under paragraph 1.1.4, replace Comment 3 i) with the following
1.1.4 For the *construction* to be acceptable:	**1.1.4** For the *construction* to be acceptable:
COMMENT: 3. Thermal breaks should be specifically designed for steel framed *buildings* that are not covered by Building Code Clause E3 Internal Moisture. That is where: i) the *building* use is Housing or Communal Residential, and	**COMMENT:** 3. Thermal breaks should be specifically designed for steel framed *buildings* that are not covered by Building Code Clause E3 Internal Moisture. That is where: i) the *building* use is not *Housing* or *Communal Residential*, and
	Explanation: Clarify the comment to correct the application to buildings which are not Housing or Communal Residential

Question E3 – 3 **Do you agree with the proposed changes to Acceptable Solution E3/AS1?**

New Acceptable Solution E3/AS2

Current Text	Proposed Changes
	Insert new Acceptable Solution E3/AS2 after E3/AS1, with the following format
	1.0 Internal Wet Area Membranes.

Current Text	Proposed Changes
	The Waterproof Membrane Association's Code of Practice for Internal Wet Area Membranes, for building work within its scope, is an Acceptable Solution for NZBC clause E3 **Explanation**: Cite Code of Practice for Internal Wet Area Membranes as a means of compliance with the performance requirements of NZBC clause E3. Applies to building work within the scope of the code of practice.

Question E3 – 4 **Do you agree with the proposed new Acceptable Solution E3/AS2?**

E3 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question E3 – 5 **Do you agree with the proposed E3 transitional arrangements?**

F2: Hazardous Building Materials

Proposed updates

MBIE proposes to amend the Acceptable Solution F2/AS1 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments to account for new version of Standard NZS 4223.3:2016, and clarify requirements for asbestos due to the introduction of Health and Safety at Work (Asbestos) Regulations 2016.

F2 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question F2 – 1 Do you have any comments on the F2 options?

F2 References

Current Text	Proposed Changes
NZS 4223: Part 3: 1999 Glazing in buildings - Human impact safety requirements	**NZS 4223.3:2016** Glazing in buildings – Part 3: Human impact safety requirements **Explanation**: Update reference to include latest version (2016)

Question F2 – 2 Do you agree with the proposed changes to the F2 references?

Changes to Acceptable Solution F2/AS1

Current Text	Proposed Changes
	Replace Paragraph 1.1 with the following:
1.1.1 Glazing likely to be subject to human impact shall comply with NZS 4223: Part 3 as modified by Paragraph 1.2. Requirements for wind loading might exceed those for human impact.	**1.1.1** Glazing likely to be subject to human impact shall comply with NZS 4223: Part 3. **COMMENT:** 1. NZS 4223: Part 3: 2016 now requires manifestation for shopfronts whereas previously they were exempt. . Transoms or rails with a face width not less than 20 mm and with their centreline between 800 mm and 1200 mm from the finished floor level can also provide manifestation. 2. F4/AS1 Paragraph 2.1 gives safety from falling requirements for opening windows.
	Explanation: Paragraph amended to reflect the adoption of the NZS 4223.3:2016. Comments added provide commentary on some changes in the 2016 version of the Standard. The change was made because a 'shopfront' cannot be defined in a practical way and because of the potential hazard should there be a change of use and the shop fittings are removed. However, shop fittings and displays can be effective in preventing people walking into glass in particular situations provided that they remain in place
	Delete Paragraph 1.2
1.2 Modifications to NZS 4223: Part 3 **1.2.1** NZS 4223: Part 3 is modified as follows: **Clause 301.1** Delete the second sentence and replace with: "Only glazing within 2000 mm of the floor level is normally likely to be subject to human impact. Part 3 of this Standard therefore is concerned only with glazing in this zone." **Clause 303.5** Add the words:	

<table>
<tr><th>Current Text</th><th>Proposed Changes</th></tr>
<tr><td>
"Alternatively, safety glazing material may be used in accordance with the relevant tables for Grade A and B safety glazing."

Clause 308.1(a) Add the word "and" after "bath enclosures;"

Clause 308.1(b) Substitute the words:

"All glazing less than 1500 mm above the abutting finished floor level or standing area of a bath or shower in bathrooms and enclosures containing spa pools, except where a vanity unit or a bench of a minimum height of 760 mm and a minimum width of 300 mm is located in front of the glazing."

Figure 3.D4 Delete Figure 3.D4.

Table 3.D4 Replace this Table with the following:

Table 3.D4 Human Impact Safety Requirements for Glazed Panels and Windows in Bathrooms
<table>
<tr><th>Panel details</th><th>Human impact safety requirements</th></tr>
<tr><td>Framed shower screen and bath enclosures</td><td>Grade A safety glazing material in accordance with Table 3.1 (308.1(a))</td></tr>
<tr><td>Panels and doors with one unframed edge</td><td>Toughened safety glass minimum thickness 5 mm (308.2)</td></tr>
<tr><td>Frameless pivot or hinge doors</td><td>Toughened safety glass minimum thickness 6 mm (308.4</td></tr>
<tr><td>Glazing within 1500 mm above the abutting finished floor level or standing area of a bath or shower</td><td>Grade A safety glazing material in accordance with Table 3.1 (308.1(b))</td></tr>
<tr><td>Glazing greater than 1500 mm above the abutting finished floor level or standing area of a bath or shower</td><td>Annealed glass to NZS 4223:Part 4</td></tr>
</table>
</td><td>Explanation: The listed modifications to NZS 4223:1999 are not relevant to latest version of the Standard NZS 4223.3:2016</td></tr>
<tr><td>2.0.1 Asbestos or materials containing asbestos are acceptable when the asbestos</td><td>Delete Paragraph 2.0.1</td></tr>
</table>

Current Text	Proposed Changes
is bonded in a matrix, or encapsulated with an appropriate coating to ensure that no free particles can escape.	**Explanation**: The importation of most types of raw asbestos has been prohibited since 1983. The handling and storage of asbestos-containing materials is covered by the Health and Safety at Work (Asbestos) Regulations 2016. These Regulations require the licensing of asbestos removalists and asbestos assessors. Work involving asbestos, in the context of buildings, relates mainly to demolition work on older buildings that incorporate asbestos-containing materials, rather than new materials or products. The paragraph is removed for the above reasons.
2.0 Asbestos **COMMENT:** Procedures for encapsulation can be obtained from the Occupational Safety and Health section of the Department of Labour, who can also advise on the special legislation covering asbestos and the handling of products containing asbestos.	Under Paragraph 2.0, replace the Comment with the following **2.0 Asbestos** **COMMENT:** New building materials can be expected to be free of asbestos but many buildings constructed before about 1985 do include materials that contain asbestos. Therefore, for alterations to buildings built prior to 1985, Clause F1 'Hazardous Agents on Site' may be relevant because an existing building can be considered as part of a site. The handling of asbestos-containing materials is covered by the Health and Safety at Work (Asbestos) Regulations 2016. These Regulations require the Licensing of asbestos removalists and asbestos assessors. Refer to the WorkSafe New Zealand website http://www.business.govt.nz/worksafe/information-guidance/guidance-by-hazard-type/asbestos/working-with-asbestos **Explanation**: Comment amended due to the deletion of Paragraph of 2.0.1. This provides clarification on handling of asbestos in existing buildings.

Question F2 – 3 **Do you agree with the proposed changes to Acceptable Solution F2/AS1?**

F2 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question F2 – 4	**Do you agree with the proposed F2 transitional arrangements?**

F4: Safety from Falling

Proposed updates

MBIE proposes to amend the Acceptable Solution F4/AS1 to:

- Include editorial and technical amendments for clarity

F4 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question F4 – 1 Do you have any comments on the F4 options?

Changes to Acceptable Solution F4/AS1

Current Text	Proposed Changes
	Under Paragraph 1.2.2, add the following Comment **COMMENT:** 4. See WorkSafe New Zealand guidance for working at heights: www.business.govt.nz/worksafe/information-guidance/all-guidance-items/best-practice-guidelines-for-working-at-height-in-new-zealand/working-height.pdf/view **Explanation**: Clause F4 provides the minimum requirement for barriers on construction sites where the height of fall is 3 m or more. Other legislation covers general workplace safety and falls from any height. Reference to WorkSafe New Zealand for guidance information

Current Text	Proposed Changes
	Replace Paragraph 2.1 with the following and insert comment.
2.1 Paragraphs 2.1.1 to 2.1.4 apply where the possible height of fall from an open window is more than 1000 mm. The height of fall shall be measured from the inside floor level adjacent to the window. If a fixed window seat is provided, the sill height shall be measured from the seat.	**2.1** Paragraphs 2.1.1 to 2.1.4 apply where the possible height of fall from an open window is more than 1000 mm. The height of fall shall be measured from the inside floor level adjacent to the window. **Comment:** The height of the lower edge of the window opening above the floor usually determines the safety of the window for small children. However, the presence of a window seat or toilet pan means children can more easily gain access to the window opening. If a fixed window seat is provided, the lower edge of the opening shall be measured from the seat. Where a toilet pan is within 500 mm horizontally of a window, the lower edge of the opening shall be measured vertically from the pan.
	Explanation: Clarification of a common situation, fixed seat and toilet pan require the same performance. Change of term to lower edge of the opening, as some windows have fixed glazing above the sill height but below the opening.
	Under Paragraph 2.1.1 add the following additional Comment
	COMMENT: 1. When a window opening width is less than 1000 mm a sill height of 760 mm is considered sufficient to protect older children and adults from falling through the opening. When the opening is wider than 1000 mm the opening needs to be treated in the same way if it were a balcony and the Table 1 barrier heights used, as in paragraph 2.1.2. 2. The requirement for solid construction in Paragraph 2.1.1 c) means that there can be no projections or ledges below the opening that would assist a child in climbing.
	Explanation: Addition of comment provides clarification on how to apply the requirement.
	Replace Paragraph 2.1.3 b) and add Paragraph 2.1.3 c)
2.1.3 In areas of *buildings* not likely to be frequented by children under 6 years of age,	**2.1.3** In areas of *buildings* not likely to be frequented by children under 6 years of age, a

Current Text	Proposed Changes
a window with an opening width of less than 1000 mm shall have either: b) a restrictor fitted to limit the maximum dimension of the opening to 460 mm.	window with an opening width of less than 1000 mm shall have either: b) a restrictor fitted to limit the maximum dimension of the opening in at least one direction to 460 mm, or c) a 760 mm high barrier protecting the opening complying with Paragraph 1.2.2. **Explanation**: Amendment and addition of requirements provide clarification on how to apply the requirement.
2.1.4 In areas of buildings not likely to be frequented by children under 6 years of age, a window with an opening width of more than 1000 mm shall have either: b) a 1100 mm high barrier protecting the opening complying with Paragraph 1.2.2,	Add Paragraph 2.1.4 c) after Paragraph 2.1.4 b) as follows **2.1.4** In areas of buildings not likely to be frequented by children under 6 years of age, a window with an opening width of more than 1000 mm shall have either: b) a 1100 mm high barrier protecting the opening complying with Paragraph 1.2.2, or c) a restrictor fitted to limit the maximum dimension of the opening in at least one direction to 460 mm. **Explanation**: Amendment and addition of requirements provide clarification on how to apply the requirement.
	Add a new Comment after Paragraph 2.1.4 **COMMENT:** Paragraphs 2.1.3 and 2.1.4 are not applicable to *housing*, see Table 1. **Explanation**: Addition of comment identifies that the requirements are not applicable to *housing*.

Question F4 – 2 **Do you agree with the proposed changes to Acceptable Solution F4/AS1?**

F4 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question F4 – 3	**Do you agree with the proposed F4 transitional arrangements?**

F6: Visibility in Escape Routes

Proposed updates

MBIE proposes to amend the Acceptable Solution F6/AS1 to:

- Include editorial and technical amendments for clarity

F6 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question F6 – 1 Do you have any comments on the F6 options?

Changes to Acceptable Solution F6/AS1

Current Text	Proposed Changes
	Replace Comment 2, under Paragraph 1.2 with the following;
COMMENT: 2. Paragraph 1.2 (b) applies to stairs, steps, ramps etc.	**COMMENT:** 2. Paragraph 1.2 (b) applies to stairs, steps, ramps etc. A ramp shall have a gradient steeper than 1 in 20.
	Explanation: Clarification – Paragraph 1.2(b) along with Comment 2 under the same paragraph did not clarify what slope of ramp qualified as a change of level. Comment is altered to clarify ramp gradient. The qualification of 'steeper than 1 in 20' is referenced from the definition of ramp in NZS 4121: 2001.

Current Text	Proposed Changes
	Replace paragraph 1.2 (c) with the following Insert the flowing comment after paragraph 1.2 (c)
1.2 Location Emergency lighting must be provided in all of the following: (c) in an escape route from the point where the initial open path travel distance exceeds 20 metres,	**1.2 Location** Emergency lighting must be provided in all of the following: (c) if the exemptions noted in the Limits on Application to Performance F6.3.1 apply, in an escape route from the point where the initial open path travel distance exceeds 20 metres. If the Limits of Application do not apply, emergency lighting must be provided within the initial 20 m of the escape route. **COMMENT:** F6.3.1 does not apply to *specified features* within the first 20 metres of an *escape route*, if the risk of injury or impediment to movement of people, due to the *specified features* not being visible is low. The Limits of Application provides an example of when the situation might be considered low. **Explanation**: Clarification – The current text in the F6/AS1 Paragraph 1.2(c) could result in a building which does not meet the performance requirement F6.3.1. Amendments are made to clarify the Limits of Application to performance requirement F6.3.1. F6.3.1 does not apply to *specified features* within the first 20 metres of an escape route, IF the risk of injury or impediment to movement of people, due to the specified features not being visible is low. The Limits of Application provides an example of when the situation might be considered low.
	Replace Comment 1 from paragraph 1.2 as follows
1. To determine the occupant load refer to Definitions and Table 2.2 Occupant Densities of C/AS1 reproduced in Appendix A of F6/AS1.	1. To determine the occupant load refer to paragraph 1.4 of C/AS2, C/AS3, C/AS4, C/AS5, C/AS6 or Table 3.1 of C/VM2 as appropriate. **Explanation**: References updated to reflect changes to code clauses C1-C6 and Acceptable Solutions and Verification Methods.

Question F6 – 2	**Do you agree with the proposed changes to Acceptable Solution F6/AS1?**

F6 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question F6 – 3	**Do you agree with the proposed F6 transitional arrangements?**

F8: Signs

MBIE proposes to amend the Acceptable Solution F8/AS1 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments for clarity

F8 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solution to ensure the system operates efficiently

Question F8 – 1 Do you have any comments on the F8 options?

F8 References

Current Text	Proposed Changes
AS/NZS 2293:1995 Emergency escape lighting and exit signs for buildings - Part 2: Inspection and maintenance	AS/NZS 2293.2:1995 Emergency escape lighting and exit signs for buildings - Inspection and maintenance, incorporating Amendment No. 1, 2 and 3 **Explanation**: Citation update – Reference to include amendments 1, 2 and 3
	NZS 4541:2013 Automatic fire sprinkler systems **Explanation**: Reference to Standard included as is proposed to be referenced in F8/AS1 paragraph 5.4 below

Question F8 – 2 **Do you agree with the proposed changes to the F8 references?**

Changes to Acceptable Solution F8/AS1

Current Text	Proposed Changes
	Replace 4.1.1 a) with the following
4.1.1 *Escape routes* shall be identified by exit signs which are *clearly visible* and shall be located: a) At each point in the *open path* where a door giving access to a *final exit* or an *exitway* is not visible in normal use	**4.1.1** *Escape routes* shall be identified by exit signs which are *clearly visible* and shall be located: a) To clearly identify the route of travel at each point in the open path where a door, giving access to a final exit or an exitway, is not visible in normal use
	Explanation: Editorial changes to paragraph are made. The current Paragraph was not clear that signs are to be provided along the route to a door, being a final exit or exitway, if the doors location is not immediately clear.
	Replace Paragraph 4.5.1 with the following
4.5.1 Exit signs in escape routes shall be illuminated in buildings required to have emergency lighting systems for providing visibility in escape routes as required by NZBC Clause F6. The sign lighting shall be external or internal, or the sign may be photoluminescent.	**4.5.1** Exit signs in escape routes shall be illuminated in buildings required to have emergency lighting systems for providing visibility in escape routes as required by NZBC Clause F6. The sign illumination shall be by external or internal lighting, or the sign may be photoluminescent.
	Explanation: Clarify the illumination of signs.
	Replace paragraph 4.5.4 as follows
4.5.4 Photoluminescent signs Photoluminescent signs shall, in the event of a power failure, continue to provide a minimum luminance of 30 mcd/m^2 for the duration prescribed in NZBC Clause F6 whenever the building is occupied. Photoluminescent signs shall be maintained in a charged state such that in the event of an emergency when the building is occupied, the exit signs will be at full operational charge and will continue to operate at the prescribed level and for the prescribed time (refer to NZBC Clause F6). Illumination for charging the photoluminescent signage shall be not	**4.5.4** Photoluminescent signs Photoluminescent signs shall, in the event of a power failure, continue to provide a minimum luminance of 30 mcd/m^2 for the duration prescribed in NZBC Clause F6 whenever the building is occupied. Photoluminescent signs shall be maintained in a charged state such that in the event of an emergency when the building is occupied, the exit signs will be at full operational charge and will continue to operate at the prescribed level and for the prescribed time (refer to NZBC Clause F6). Illumination for charging the photoluminescent signage shall be not

Current Text	Proposed Changes
less than 100 lux and suitable for charging photoluminescent material. Charging requirements and circuits and maintenance requirements shall be specified on the plans and specifications submitted for building consent application. LED lighting shall not be used for charging photoluminescent material.	less than 100 lux and suitable for charging photoluminescent material. Charging requirements and circuits and maintenance requirements shall be specified on the plans and specifications submitted for building consent application. **Explanation**: Last sentence of the Paragraph is deleted. The last sentence of the second Paragraph notes the requirements for the illumination and clarifies the source shall be suitable for charging photoluminescent material. For this reason, the deletion of the paragraph does not change the current performance of photoluminescent material.
5.4 Sprinklered buildings d) The sign shall comprise lettering, arrows and 45° lines in *safety red* on a white background and be sized as shown in Figure 5.	Replace 5.4 (d) with the following **5.4 Sprinklered buildings** d) The sign shall comprise i) lettering, arrows and 45° lines in *safety red* on a white background and be sized as shown in Figure 5, or ii) storage height limitation indicators described in section 408.2.1 of NZS 4541. **Explanation**: Paragraph is amended to include the option of storage height indicator sign specified in NZS 4541, to align with requirements in the Standard. The Standard is proposed to be referenced above.
'Electromagnetic compatibility (EMC) requirements are specified by Radio Spectrum Management, Ministry of Economic Development.'	Update Appendix A 'Electromagnetic compatibility (EMC) requirements are specified by Radio Spectrum Management, Ministry of Business Innovation & Employment.' **Explanation**: Radio Spectrum Management is now part of the Ministry of Business Innovation & Employment.

Question F8 – 3 **Do you agree with the proposed changes to Acceptable Solution F8/AS1?**

F8 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question F8 – 4	**Do you agree with the proposed F8 transitional arrangements?**

G2: Laundering

Proposed updates

MBIE proposes to amend the Acceptable Solution G2/AS1 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments to clarify the requirements between laundries and accessible laundries

G2 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G2 – 1 Do you have any comments on the G2 options?

G2 References

Current Text	Proposed Changes
AS 1229: 2002 Laundry troughs	AS/NZS 1229:2002 Laundry troughs and tubs
	Explanation: Citation update – Correct standard reference, the Standard is actually a AS/NZS standard

Question G2 – 2 Do you agree with the proposed changes to the G2 references?

Changes to Acceptable Solution G2/AS1

Current Text	Proposed Changes
1.0.3 Another Acceptable Solution Laundry tubs complying with AS 1229 are acceptable, but exceed the requirements given in Paragraph 1.0.2.	Replace paragraph 1.0.3 with the following **1.0.3 Another Acceptable Solution** Laundry tubs complying with AS/NZS 1229 are acceptable, but exceed the requirements given in Paragraph 1.0.2. **Explanation**: Editorial – Change reference to standard to incorporate its correct title to AS/NZS 1229
1.2 Accessibility	Replace the heading for paragraph 1.2 with the following **1.2 Minimum space** **Explanation**: Editorial – Revise heading title to prevent confusion with requirements relating to access and facilities for persons with disabilities. The intention of the heading/section relates to minimum dimensions and manoeuvring spaces for all laundries, not accessible laundries.
1.2.2 Where laundry facilities are intended for ***people with disabilities***, space to allow a turning circle of 1500 mm shall be provided in front of the laundry tub or washing machine, as shown in Figure 2.	Replace paragraph 1.2.2 with the following **1.2.2** Where laundry facilities are intended for *people with disabilities*, space to allow a turning circle of 1500 mm shall be provided in front of the laundry tub or washing machine, as shown in Figure 2. **Explanation**: Editorial – Correct formatting, remove the 'bold' format from the term people with disabilities
Figure 1 Minimum Dimensions for Laundry Accessibility Paragraph 1.2	Replace the title for Figure 1 with the following **Figure 1 Minimum Dimensions for Laundries** Paragraph 1.2.1 **Explanation**: Editorial – Revise figure title due to change of heading of section 1.2, for the same reasons. Correct paragraph reference
Figure 2 Minimum Dimensions for Laundry Accessibility for People with Disabilities	Replace the title for Figure 2 with the following **Figure 1 Minimum Dimensions for Laundries for People with Disabilities**

Current Text	Proposed Changes
Paragraph 1.2.2	Paragraph 1.2.2 **Explanation**: Editorial – Revise figure title to clarify what the figure applies to, to incorporate changes made above to paragraph 1.2, and to align title with defined term

Question G2 – 3 **Do you agree with the proposed changes to Acceptable Solution G2/AS1?**

G2 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G2 – 4 **Do you agree with the proposed G2 transitional arrangements?**

G3: Food Preparation and Prevention of Contamination

Proposed updates

MBIE proposes to amend the Acceptable Solution G3/AS1 to:

- Amend Figure 1
- Clarify requirement of the height of kitchen work surfaces for people with disabilities

G3 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Some technical content would remain unedited or unclear. The Acceptable Solution would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

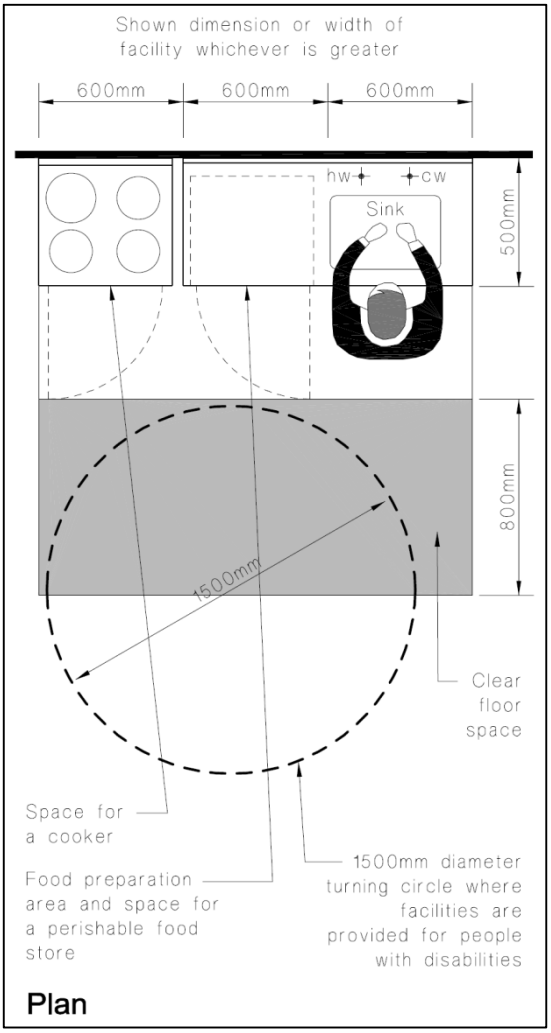
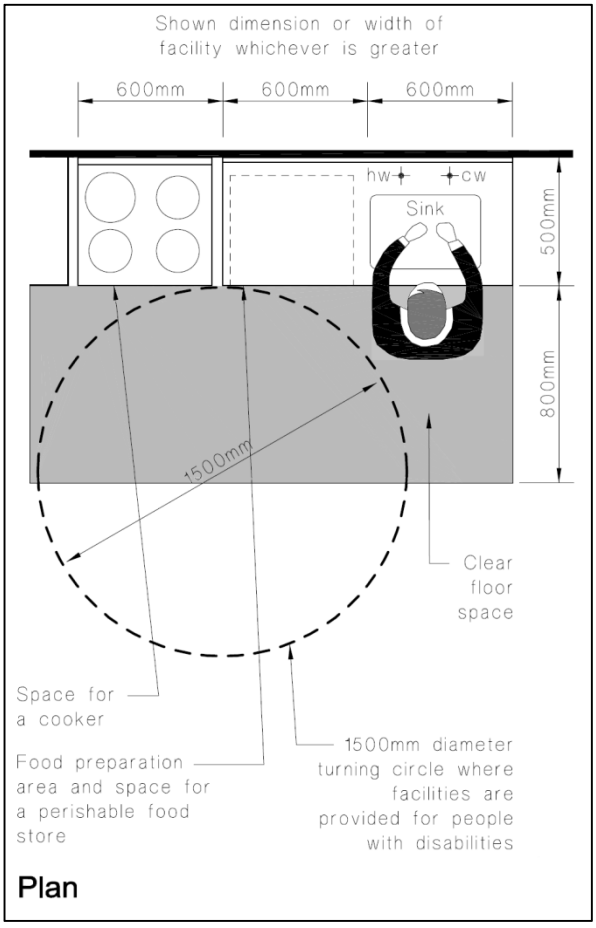
The preferred option is to amend the Acceptable Solution to undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- The Acceptable Solutions would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G3 – 1 Do you have any comments on the G3 options?

Changes to Acceptable Solution G3/AS1

Current Text	Proposed Changes
	Modify Figure 1 as shown below

Current Text	Proposed Changes
	 **Explanation**: The clear floor space and turning circle where facilities are provided for people with disabilities is modified to be measured from the edge of sinks and preparation surfaces
1.5.2 Where facilities are provided for *people with disabilities*, space to allow a turning circle of 1500 mm shall be provided in front of those facilities.	Replace paragraph 1.5.2 and add a Comment as follows: **1.5.2** Where facilities are provided for people with disabilities, a) space to allow a turning circle of 1500 mm shall be provided in front of those facilities, and b) work surfaces shall be a maximum height of 900 mm above the floor. **COMMENT:** Guidance on the design of accessible kitchens is given at: http://www.building.govt.nz/building-code-compliance/g-services-and-facilities/g3-food-preparation-and-prevention-of-contamination/public-accommodation-access/ **Explanation**: Editorial – Clarify requirements due to changes above, and provide additional specification of work surfaces for people with disabilities. 900 mm

Current Text	Proposed Changes
	high is selected based on previous guidance – DBH 'Accessible reception and service counters' Jan 2007 and DBH 'Codewords – Access for people with disabilities in buildings that provide public accommodation' Issue 031, Sept 2008

Question G3 – 2 **Do you agree with the proposed changes to Acceptable Solution G3/AS1?**

G3 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G3 – 3 **Do you agree with the proposed G3 transitional arrangements?**

G4: Ventilation

Proposed updates

MBIE proposes to amend the Acceptable Solution G4/AS1 and Verification Method G4/VM1 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments for clarity

G4 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution and Verification Method unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution and Verification Method would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution and Verification Method would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution and Verification Method to include referencing the latest version of Standards and industry documents that are available, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution and Verification Method. There would be no confusion as to which Standard to apply.
- The Acceptable Solution and Verification Method would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G4 – 1 Do you have any comments on the G4 options?

G4 References

Current Text	Proposed Changes
AS/NZS 5601:- Gas installations - Part 1: 2010 General installations. Amend 1	AS/NZS 5601:- Gas installations - Part 1: 2013 General installations. Amend 1, 2
	Explanation: Citation update – Reference to include latest version (2013) and amendment 1 and 2

Current Text	Proposed Changes
Workplace Exposure Standards and Biological Exposure Indices for New Zealand 1992	Workplace Exposure Standards and Biological Exposure Indices 7th Edition
	Explanation: Citation update – Reference to latest industry document

Question G4 – 2 **Do you agree with the proposed changes to the G4 references?**

Changes to Acceptable Solution G4/AS1

Current Text	Proposed Changes
	Replace paragraphs 2.4.1(c) with the following
c) *Flues* which terminate on the wall of a *building* located clear of inlets for outside air in accordance with the minimum clearances specified in AS/NZS 5601.1, section 6.9 and Figure 2.	c) *Flues* which terminate on the wall of a *building* located clear of inlets for outside air in accordance with the minimum clearances specified in AS/NZS 5601.1, section 6.9 and Figure 6.2.
	Explanation: Update the reference to Figure 6.2 in AS/NZS 5601.1
	Replace paragraphs 3.0.1 with the following
3.0.1 AS/NZS 5601.1 Sections 1, 3, 4, 5 and 6 Appendices A to K is an Acceptable Solution, but may exceed the performance criteria of NZBC G4.	**3.0.1** AS/NZS 5601.1 Sections 1, 3, 4, 5 and 6 and Appendices A – M and O - R is an Acceptable Solution, but may exceed the performance criteria of NZBC G4.
	Explanation: Update the reference to the Appendices in AS/NZS 5601.1 due to changes made to the 2013 version

Question G4 – 3 **Do you agree with the proposed changes to Acceptable Solution G4/AS1?**

Changes to Verification Method G4/VM1

Current Text	Proposed Changes
	Replace paragraph 2.0.1 with the following
2.0.1 The acceptability of indoor air purity for workplaces may be verified by demonstrating that contaminant levels do not exceed the limits recommended in "Workplace Exposure Standards and Biological Exposure Indices for New Zealand 1992".	**2.0.1** The acceptability of indoor air purity for workplaces may be verified by demonstrating that contaminant levels do not exceed the limits recommended in "Workplace Exposure Standards and Biological Exposure Indices 7th Edition".
	Explanation: Update the reference to current version.

Question G4 – 4 **Do you agree with the proposed changes to Verification Method G4/VM1?**

G4 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G4 – 5 **Do you agree with the proposed G4 transitional arrangements?**

G10: Piped services

Proposed updates

MBIE proposes to amend the Acceptable Solution G10/AS1 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial amendments to accommodate the referencing of new versions of Standards

G10 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solution would not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available, and undertake editorial amendments to update requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G10 – 1 Do you have any comments on the G10 options?

G10 References

Current Text	Proposed Changes
NZS/BS 1387: Specification for screwed and socketed steel tubes 1985 (1990) and tubulars and for plain end steel tubes suitable for welding or screwing to BS 21 pipe threads. Amend: 1	NZS/BS 1387:1985 Specification for screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or screwing to BS 21 pipe threads. Amend: 1, 2
	Explanation: Citation update – Reference to include amendment 2

Current Text	Proposed Changes
AS/NZS 5601:- Gas installations - Part 1: 2010 General installations. Amend 1	AS/NZS 5601.1:2013 Gas installations - Part 1 General installations. Amend 1, 2
	Explanation: Citation update – Reference to include latest version (2013) and amendment 1 and 2

Question G10 – 2 **Do you agree with the proposed changes to the G10 references?**

Changes to Acceptable Solution G10/AS1

Current Text	Proposed Changes
	Replace paragraphs 5.0.1 with the following
5.0.1 AS/NZS 5601.1 Sections 1, 3, 4, 5 and 6 and Appendices A - M is another Acceptable Solution for Paragraphs 1.0 to 4.0.	**5.0.1** AS/NZS 5601.1 Sections 1, 3, 4, 5 and 6 and Appendices A - M and O – R is another Acceptable Solution.
	Explanation: Update the reference to the Appendices in AS/NZS 5601.1 due to changes made to the 2013 version

Question G10 – 3 **Do you agree with the proposed changes to Acceptable Solution G10/AS1?**

G10 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G10 – 4 **Do you agree with the proposed G10 transitional arrangements?**

G11: Gas as an energy source

Proposed updates

MBIE proposes to amend the Acceptable Solution and Verification Method document to:

- Update or replace with the latest versions of referenced Standards

G11 Options

Option One: Status Quo

MBIE could not reference the latest versions of Standards.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G11 – 1 Do you have any comments on the G11 options?

G11 References

Current Text	Proposed Changes
AS/NZS 5601:- Gas installations - Part 1: 2010 General installations. Amend 1	AS/NZS 5601.1:2013 Gas installations - Part 1 General installations. Amend 1, 2
	Explanation: Citation update – Reference to include latest version (2013) and amendment 1 and 2

Question G11 – 2 Do you agree with the proposed changes to the G11 references?

G11 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G11 – 3 Do you agree with the proposed G11 transitional arrangements?

G12: Water supplies

Proposed updates

MBIE proposes to amend the Acceptable Solutions G12/AS1 and G12/AS2 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments for clarity

G12 Options

Option One: Status Quo

MBIE could leave the Acceptable Solutions unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solutions would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solutions would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solutions to include referencing the latest version of Standards and industry documents that are available, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solutions. There would be no confusion as to which Standard to apply.
- The Acceptable Solutions would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G12 – 1 Do you have any comments on the G12 options?

G12 References

Current Text	Proposed Changes
AS/NZS 1170.1:2002 Structural Design Actions - Part 1 Permanent, imposed and other actions. Amend: 1	AS/NZS 1170.1:2002 Structural Design Actions - Part 1: Permanent, imposed and other actions. Amend: 1, 2
	Explanation: Standard updated to include amendment 2
AS/NZS 1170.2:2002 Structural Design Actions - Part 2 Wind actions. Amend: 1	AS/NZS 1170.2:2011 Structural Design Actions - Part 2: Wind actions. Amend: 1, 2, 3

Current Text	Proposed Changes
	Explanation: Standard updated to latest version (2011), including amendment 1, 2 and 3
AS/NZS 2712: 2007 Solar and heat pump water heaters – design and construction. Amend: 1, 2	AS/NZS 2712: 2007 Solar and heat pump water heaters – Design and construction. Amend: 1, 2, 3
	Explanation: Standard updated to include amendment 3
AS/NZS 2845.1: 2010 Water supply - Part 1 Materials, design and performance requirements	AS/NZS 2845.1:2010 Water supply – Backflow prevention devices - Part 1: Materials, design and performance requirements. Amend 1
	Explanation: Standard updated to include amendment 1
AS/NZS 60335.2.35: 2004 Safety of household and similar electrical appliances – Particular requirements – Instantaneous water heaters. Amends: 1, 2	AS/NZS 60335.2.35: 2013 Household and similar electrical appliances. Safety – Part 2.35 Particular requirements for Instantaneous water heaters
	Explanation: Standard updated to latest version (2013)
AS/NZS 3500: Plumbing and drainage Part 1: 2003 Water services. Amend: 1, 2	AS/NZS 3500.1: 2015 Plumbing and drainage. Part 1 Water services
	Explanation: Citation update – Reference to include latest version (2015)
AS/NZS 3500: Plumbing and drainage Part 4: 2003 Heated water services. Amend: 1, 2	AS/NZS 3500.4: 2015 Plumbing and drainage. Part 4 Heated water services
	Explanation: Citation update – Reference to include latest version (2015)
AS/NZS 4129: 2008 Fittings for polyethylene (PE) pipes for pressure applications	AS/NZS 4129: 2008 Fittings for polyethylene (PE) pipes for pressure applications. Amend 1
	Explanation: Standard updated to include amendment 1
	BS EN 1567:1999 Building valves. Water pressure reducing valves and combination water reducing valves. Requirements and tests
	Explanation: Reference new standard. See below changes to G12/AS1 Table 6

Question G12 – 2 Do you agree with the proposed changes to the G12 references?

Changes to Acceptable Solution G12/AS1

Current Text	Proposed Changes
2.2.1 Pipe materials shall comply with Table 1.	Replace paragraph 2.2.1 with the following **2.2.1** Pipe and pipe fitting materials shall comply with Table 1. **Explanation**: Fittings are to also have the same material requirements of pipes
Table 1: Pipe Materials for Hot and Cold Water	Replace heading of Table 1 with the following Table 1: Materials for Hot and Cold Water **Explanation**: Delete the word 'pipe', to align table heading with change to paragraph 2.2.1, which proposes to include both pipe and fittings materials
2.2.2 All pipes and pipe fittings used for the piping of water shall be: …. c) Where installed in an exposed situation, resistant to UV light. Note: Where fire hose reels are served by the above ground cold water supply system the pipe system shall comply with NZS 4503 as referenced in C/AS1 Table 4.1.	Delete Note under 2.2.2 c) **2.2.2** All pipes and pipe fittings used for the piping of water shall be: …. c) Where installed in an exposed situation, resistant to UV light. **Explanation**: Delete Note – Requirement c) still requires UV resistance performance of pipes and pipe fittings, however as fire hose reels are no longer a requirement in C/AS1-7, and no longer specified systems, there is limited value in retaining the comment. NZS 4503:2005 is still a current standard, therefore if fire hose reels are installed their installation shall be in accordance with the Standard, and as per Building Act 2004 section 17 requires consideration of other Building Code clause performance requirements including G12 and B2
3.2.1 The water supply system shall be installed so that there is no likelihood of cross	Replace G13.3.4 (d) with the following **3.2.1** The water supply system shall be installed so that there is no likelihood of cross connection between:

Current Text	Proposed Changes
connection between: … d) A ***p****otable water supply system* and pipes, *fixtures* or equipment (including boilers and pumps) containing chemicals, liquids, gases or other non-*potable* substances.	… d) A *potable water supply system* and pipes, *fixtures* or equipment (including boilers and pumps) containing chemicals, liquids, gases or other non-*potable* substances. **Explanation**: Editorial - Correct format of letter 'p' in 'potable'
3.6.2 Manufacture *Backflow prevention devices* shall be manufactured as follows: a) Reduced pressure zone devices to AS/NZS 2845.1 Section 11 (see Figure 2 (a))…	Replace 3.6.2 (a) with the following **3.6.2** *Backflow prevention devices* shall be manufactured as follows: a) Reduced pressure zone devices to AS/NZS 2845.1 Section 12 (see Figure 2 (a))… **Explanation**: Citation update – Section 11 referenced in error. Should be Section 12
3.7.4 *Backflow prevention devices* shall be tested after installation or repair. Before testing the strainer shall be cleaned, the pipework flushed and the system commissioned. **COMMENT:** Testing is also required annually in accordance with Compliance Schedule CS 7, except for devices installed in single residential dwellings.	Replace COMMENT under 3.7.4 with the following **3.7.4** *Backflow prevention devices* shall be tested after installation or repair. Before testing the strainer shall be cleaned, the pipework flushed and the system commissioned. **COMMENT:** Testing is also required annually in accordance with Specified System SS 7, except for devices installed in single residential dwellings. **Explanation**: Editorial – Change in referencing of system, now known as 'Specified System', or 'SS'
Table 6 Pressure reducing valves and pressure limiting valves: NZS 4608 BS 6283: Part 4 AS 1357: Part 2	Replace Table 6, Standards for 'Pressure reducing valves and pressure limiting valves' to **Table 6** Pressure reducing valves and pressure limiting valves: NZS 4608 BS EN 1567 AS 1357: Part 2 **Explanation**: Citation update – Replace BS 6283 with BS EN 1567, as the standard has been superseded, withdrawn and replaced by BS EN 1567:1999. This standard is already included in the references section

Current Text	Proposed Changes
5.2.3 Safe trays Performance E3.3.2 requires water to be prevented from penetrating another household unit within the same building. An acceptable method of preventing water damage is to locate a safe tray below the water tank (see Figure 4). The safe tray shall incorporate an overflow pipe with a minimum diameter of 40 mm. Where the tank overflow discharges into the safe tray the diameter of the drain shall be greater than the overflow pipe from the tank and comply with Paragraph 5.2.2.	Replace 5.2.3 with the following **5.2.3** Performance E3.3.2: states that; Free water from accidental overflow from *sanitary fixtures* or *sanitary appliances* must be disposed of in a way that avoids loss of *amenity* or damage to *household units* or *other property***.** An acceptable method of preventing water damage is to locate a safe tray below the water tank (see Figure 4). The safe tray shall incorporate a drain with a minimum diameter of 40 mm. Where the tank overflow discharges into the safe tray, the diameter of the safe tray drain shall be greater than the overflow pipe from the tank and comply with Paragraph 5.2.2. **Explanation**: Clarification – Clarify the application of the referenced performance E3.3.2, and clarify safe tray drain requirements. The existing wording focuses only on the protection of other property which is not consistent with E3.3.2
6.11.3 Storage water heaters shall have: a) Safe trays complying with Paragraph 5.2.3 where water could penetrate another household unit within the same building.	Replace 6.11.3 a) with the following **6.11.3** *Storage water heaters* shall have: a) Safe trays complying with Paragraph 5.2.3. **Explanation**: Simplify safe tray requirements by limiting duplication of requirements and by referring to single paragraph 5.2.3. The existing wording focuses only on the protection of other property which is not consistent with E3.3.2

Question G12 – 3 **Do you agree with the proposed changes to Acceptable Solution G12/AS1?**

Changes to Acceptable Solution G12/AS2

Current Text	Proposed Changes
1.1.1 c) ii) 450 litres when installed in accordance with AS/NZS 3500 Part 4: 2003 Section 5, and	Replace paragraph 1.1.1 c) ii) with the following **1.1.1** c) ii) 450 litres when installed in accordance with AS/NZS 3500 Part 4 Section 5, and

Current Text	Proposed Changes
	Explanation: Citation update – Remove the 2003 date/issue of standard as there is now a 2015 version. Reference section is updated to cite latest version.
4.2.2 COMMENT: The solar altitude may be determined using a commercial "sun locator" or a simple solar altitude sight may be constructed using the diagrams given in Appendix I of AS/NZS 3500.4: 2003.	Replace last paragraph of COMMENT under section 4.2.2 with the following **4.2.2 COMMENT:** The solar altitude may be determined using a commercial "sun locator" or a simple solar altitude sight may be constructed using the diagrams given in Appendix I of AS/NZS 3500.4. **Explanation**: Citation update – Remove the 2003 date/issue of standard as there is now a 2015 version. Reference section is updated to cite latest version.
5.0.1 Solar *water heaters* must be installed in accordance with the requirements of AS/NZS 3500 Part 4: 2003, unless modified by this Acceptable Solution	Replace paragraph 5.0.1 with the following: **5.0.1** Solar *water heaters* must be installed in accordance with the requirements of AS/NZS 3500 Part 4, unless modified by this Acceptable Solution **Explanation**: Citation update – Remove the 2003 date/issue of standard as there is now a 2015 version. Reference section is updated to cite latest version.

Question G12 – 4 **Do you agree with the proposed changes to Acceptable Solution G12/AS2?**

G12 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G12 – 5 **Do you agree with the proposed G12 transitional arrangements?**

G13: Foul Water

Proposed updates

MBIE proposes to amend the Acceptable Solutions G13/AS1, G13/AS2 and G13/AS3 to:

- Update or replace with the latest versions of referenced Standards
- Include editorial and technical amendments for clarity, including air admittance valves

G13 Options

Option One: Status Quo

MBIE could leave the Acceptable Solutions unchanged.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solutions would not reflect current knowledge or changes to construction techniques and practice.

Some technical content would remain unedited or unclear. The Acceptable Solutions would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solutions to include referencing the latest version of Standards and industry documents that are available, and undertake technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solutions. There would be no confusion as to which Standard to apply.
- The Acceptable Solutions would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G13 – 1 Do you have any comments on the G13 options?

G13 References

Current Text	Proposed Changes
AS/NZS 1260: 2009 PVC-U pipes and fittings for drain, waste and vent applications. Amend: 1	AS/NZS 1260: 2009 PVC-U pipes and fittings for drain, waste and vent applications. Amend: 1, 2
	Explanation: Citation update – Reference to include amendment 2
AS/NZS 2280: 2012 Ductile iron pipes and fittings	AS/NZS 2280: 2014 Ductile iron pipes and fittings. Amend 1

Current Text	Proposed Changes
	Explanation: Citation update – Reference to include latest version (2014) and amendment 1
AS/NZS 2566.2: 2002 Buried flexible pipelines installation	AS/NZS 2566.2: 2002 Buried flexible pipelines - installation. Amend 1
	Explanation: Citation update – Reference to include amendment 1
AS/NZS 3500.2: 2003 Plumbing and drainage - Part 2 Sanitary plumbing and drainage. Amend: 1, 2, 3, 4	AS/NZS 3500.2: 2015 Plumbing and drainage - Part 2: Sanitary plumbing and drainage.
	Explanation: Citation update – Reference to include latest version (2015)
AS/NZS 3518:2004 Acrylonitrile butadiene styrene (ABS) compounds, pipes and fittings for pressure applications. Amend: 1	AS/NZS 3518:2013 Acrylonitrile butadiene styrene (ABS) compounds, pipes and fittings for pressure applications.
	Explanation: Citation update – Reference to include latest version (2013)

Question G13 – 2 Do you agree with the proposed changes to the G13 references?

Changes to Acceptable Solution G13/AS1

Current Text	Proposed Changes
	Replace section 5.8.2 with the following:
5.8.2 *Air admittance valves* shall be manufactured to ASSE 1050, ASSE 1051 or EN 12380	**5.8.2** *Air admittance valves* shall be manufactured to ASSE 1050, ASSE 1051, EN 12380 or AS/NZS 4936
	Explanation: The inclusion of the AS/NZS Standard for AAVs. Standard is already cited in the reference section.
	Replace section 5.8.3 with the following:
5.8.3 Size of air admittance valves The *air admittance valve* shall be no smaller in *diameter* than the *vent pipe* that it serves	**5.8.3 Size of air admittance valves** The *air admittance valve* shall have a *diameter* no less than that given in Table 6, and be no smaller in *diameter* than the *vent pipe* that it serves
	Explanation: Reference to table 6, which specifies vent pipe sizes, to be the dominate specification

Current Text	Proposed Changes
	of diameter size, along with the requirement that the AAV be no smaller than the vent pipe

Question G13 – 3 **Do you agree with the proposed changes to Acceptable Solution G13/AS1?**

Changes to Acceptable Solution G13/AS2

Current Text	Proposed Changes
	In Table 1 replace Manufacturing Standards for Polyethylene, Polypropylene and Ductile iron with the following:
Polyethylene AS/NZS 4130, AS/NZS 2065 Polypropylene AS/NZS 2065 Ductile iron AS/NZS 2065	Polyethylene AS/NZS 4130, AS/NZS 5065 Polypropylene AS/NZS 5065 Ductile iron AS/NZS 2280
	Explanation: Editorial – Misprint error made in citing standard AS/NZS 2065. The proposed standards are the correct standards
	In Table 1 delete '*NZS/BS 2494 or*' from the Manufacturing Standards for Elastomeric rings to:
Elastomeric rings NZS/BS 2494 or AS 1646	Elastomeric rings AS 1646
	Explanation: Editorial - NZS/BS 2494 is a withdrawn standard and without replacement. The reference was deleted September 2011; however Table 1 was not updated.

Question G13 – 4 **Do you agree with the proposed changes to Acceptable Solution G13/AS2?**

Changes to Acceptable Solution G13/AS3

<table>
<tr><th>Current Text</th><th>Proposed Changes</th></tr>
<tr><td rowspan="3">1.0.2 AS/NZS 3500.2
AS/NZS 3500.2, Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 13, as modified by Paragraph 1.0.3, is an Acceptable Solution for plumbing and drainage.</td><td>Replace heading 1.0.2 AS/NZS 3500.2 and paragraph with the following:</td></tr>
<tr><td>2.0 AS/NZS 3500.2
2.0.1 AS/NZS 3500.2, Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 13, as modified by Paragraph 2.0.2, is an Acceptable Solution for plumbing and drainage.</td></tr>
<tr><td>Explanation: Editorial – Change numbering of sections and paragraph to match latest Standard.</td></tr>
<tr><td>1.0.3 Modifications to AS/NZS 3500.2
Clause 2.2 Delete and replace with “Materials and products shall comply with NZBC B2 and G13/AS1 Paragraph 2.0 Materials”.
Clause 2.8.7 Delete clause.
Clause 3.5.1 (d) Delete and replace with “Drains shall not be installed in water courses”.
Clause 3.16 Delete “(a) Mortar jointed vitrified clay pipes shall not be re-used”.
Section 3.19 Delete section.
Section 4.4 Replace “inspection shafts” with “access point” in this section.
Clause 4.6.6.1 This applies only to Housing.
Clause 4.8.3 Delete and replace with “Access and inspection chambers shall be as required by G13/AS2.”
Clause 5.6 Delete and replace with “Drains in other than stable ground shall be subject to specific design.”
Clause 11.2 Replace “AS 1428” with “NZBC G1 or NZS 4121”.
Clause 11.3.7 Replace “AS/NZS 3500.1” with “G12/AS1 or</td><td>Replace paragraph 1.0.3 with the following:
2.0.2 Modifications to AS/NZS 3500.2
Clause 2.2 Delete and replace with “Materials and products shall comply with NZBC B2 and G13/AS1 Paragraph 2.0 Materials”.
Section 3.19 Delete section.
Section 4.4 Replace “inspection shafts” with “access point” in this section.
Clause 4.6.6 This applies only to Housing.
Clause 5.6 Delete and replace with “Drains in other than stable ground shall be subject to specific design.”
Clause 11.2 Replace “AS 1428.1” with “NZBC G1 or NZS 4121”.
Clause 11.3.7 Replace “AS/NZS 3500.1” with “G12/AS1 or AS/NZS 3500.1”.
Explanation: Modifications require updating to reflect alterations to AS/NZS 3500.2 which have occurred from the 2015 version.
Numbering of paragraph updated to align with change to paragraph 2.0 above</td></tr>
</table>

Current Text	Proposed Changes
AS/NZS 3500.1".	

Question G13 – 5 **Do you agree with the proposed changes to Acceptable Solution G13/AS3?**

G13 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G13 – 6 **Do you agree with the proposed G13 transitional arrangements?**

G14: Industrial liquid waste

Proposed updates

MBIE proposes to amend the Acceptable Solution and Verification Method document to:

- Update or replace with the latest versions of referenced Standards

G14 Options

Option One: Status Quo

MBIE could not reference the latest versions of Standards.

Existing references to previous versions of Standards and industry documents would remain. This would mean that Acceptable Solution would not reflect current knowledge or changes to construction techniques and practice.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solution to include referencing the latest version of Standards and industry documents that are available. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution. There would be no confusion as to which Standard to apply.
- The Acceptable Solution would clearly specify requirements
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question G14 – 1 Do you have any comments on the G14 options?

G14 References

Current Text	Proposed Changes
AS/NZS 1260: 2009 PVC-U pipes and fittings for drain, waste and vent applications. Amend: 1	AS/NZS 1260: 2009 PVC-U pipes and fittings for drain, waste and vent applications. Amend: 1, 2
	Explanation: Citation update – Reference to include amendment 2
AS/NZS 2032: 2006 Installation of PVC pipe systems	AS/NZS 2032: 2006 Installation of PVC pipe systems. Amend 1
	Explanation: Citation update – Reference to include amendment 1
AS/NZS 3518: 2004 Acrylonitrile butadiene	AS/NZS 3518: 2013 Acrylonitrile butadiene

Current Text	Proposed Changes
styrene (ABS) compounds, pipes and fittings for pressure applications. Amend: 1	styrene (ABS) compounds, pipes and fittings for pressure applications. **Explanation**: Citation update – Reference to latest version (2013)
AS/NZS 4129: 2008 Fittings for polyethylene (PE) pipes for pressure applications	AS/NZS 4129: 2008 Fittings for polyethylene (PE) pipes for pressure applications. Amend 1 **Explanation**: Citation update – Reference to include amendment 1

Question G14 – 2 Do you agree with the proposed changes to the G14 references?

G14 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question G14 – 3 Do you agree with the proposed G14 transitional arrangements?

H1: Energy efficiency

Proposed updates

The Ministry proposes to amend the Acceptable Solution and Verification Method to:

- exclude foil insulation from Acceptable Solution H1/AS1
- reference the latest version (2009) of the Standard NZS 4218:2009
- make consequential amendments to the Acceptable Solution H1/AS1 and Verification Method H1/VM1 to remove modifications that are made to the 2004 version of NZS 4218
- in the Acceptable Solution H1/AS1, modify NZS 4218:2009 to allow the Calculation Method to be used for buildings with a glazed area up to 50% (note: NZS 4218:2009 limits the use of the Calculation Method to buildings with no more than 40% glazing)
- in the Acceptable Solution H1/AS1, modify NZS 4218:2009 to include the greater range of efficient recessed luminaires that are now available, and which are now required in new houses (refer Electricity (Safety) Regulations 2010 and AS/NZS 3000)

The proposal would not change the overall thermal performance required by the Acceptable Solution or the Verification Method but there are small changes to some definitions, exemptions, allowances and default values. Differences between the current Acceptable Solution and the proposed Acceptable Solution include,

- allowances and exemptions for skylights, decorative glazing (e.g. leadlight), louvres and doors
- default R-values for concrete slabs
- default R-values for skylights and glazing in 'reference building' calculations
- "high thermal mass" replaces the existing term "solid construction"
- deletion of foil insulation

H1 Options

Option One: Status Quo

MBIE could leave the Acceptable Solution and Verification Method unchanged.

Existing references to previous versions of Standards and industry documents would remain, including leaving the existing references to the 2004 version of NZS 4218. This would mean that Acceptable Solution and Verification Method would not reflect current knowledge or changes to construction techniques and practice and the Acceptable Solution and Verification Method would not be simplified to reference the 2009 version of NZS 4218, and the modifications made to NZS 4218:2004 in the Acceptable Solution and Verification Method would remain.

Some technical content would remain unedited or unclear. The Acceptable Solution and Verification Method would include errors, and not provide clear means of compliance.

Option Two: Amend Acceptable Solutions and Verification Methods

The preferred option is to amend the Acceptable Solutions and Verification Methods to include referencing the latest version of Standards and industry documents that are available, and undertake

technical and editorial amendments to update, correct and clarify requirements. The advantages of this option are that:

- Current knowledge and practices would be reflected in the Acceptable Solution and Verification Method. There would be no confusion as to which Standard to apply.
- The Acceptable Solution and Verification Method would clearly specify requirements
- There will be less modification of NZS 4218:2009 in the Acceptable Solution and Verification Method making NZS 4218:2009 easier to use for showing compliance with the Building Code
- Changes reflect continued maintenance of Acceptable Solutions and Verification Methods to ensure the system operates efficiently

Question H1 – 1 **Do you have any comments on the H1 options?**

H1 References

Current Text	Proposed Changes
NZS 4218:2004 Energy Efficiency – Small Building Envelope	**NZS 4218:2009** Thermal Insulation – Housing and Small Buildings
	Explanation: Citation update – Reference to latest version (2009).

Question H1 – 2 **Do you agree with the proposed changes to the H1 references?**

Changes to Acceptable Solution H1/AS1

Current Text	Proposed Changes
	After Paragraph 1.0.1, insert the following
	1.0.2 This Acceptable Solution does not include the use of foil insulation.
	Explanation: The reduction in the thermal performance of foil insulation when condensation forms or dust accumulates on its surface makes it an unsuitable form of insulation within the scope of H1/AS1. Its use in buildings with specific conditions that mitigate condensation and dust accumulation would be subject to specific design. The replacement tables used to modify NZS 4219:2004 in H1/VM1 and H1/AS1 reference foil insulation. These tables are to be deleted as noted below.

Current Text	Proposed Changes
	Delete Paragraph 1.0.2 and replace with the following. Note new numbering to accommodate other changes.
1.0.2 For determining the insulation requirements of the *building* envelope, *buildings* other than *housing* are classified as being either small or large. A small *building* is any *building* with a net lettable area no greater than 300 m2. A large *building* is any *building* with a net lettable area greater than 300 m2. Note that NZBC H1.3.1(a) (temperature and humidity control) does not apply to assembly service *buildings*, industrial *buildings*, outbuildings, or ancillary buildings.	**1.0.3** For determining the insulation requirements of the *building* envelope, *buildings* other than housing are classified as being either small or large. A small *building* is any *building* with a net lettable area no greater than 300 m2. A large *building* is any *building* with a net lettable area greater than 300 m2.
	Explanation: Remove the note from the Paragraph, as the note repeats information from Building Code. This information is incorporated as a comment as proposed below
	Delete Paragraph 1.0.4
1.0.4 The NZBC requirements for artificial lighting apply to *commercial* and *communal non-residential buildings* with a net lettable area greater than 300 m2.	
	Explanation: The Paragraph repeats the Limits of Application noted for Performance Requirement H1.2 (c). This information is incorporated as a comment as proposed below
	Renumber Paragraph 1.03 to 1.0.4
1.0.3 In *buildings* containing both *industrial* and other classifications, the non-industrial portion shall be treated separately according to its classification. For example, in a *building* containing both *industrial* and *commercial* occupancies, the *commercial* area shall meet the NZBC energy efficiency requirements.	**1.0.4** In *buildings* containing both *industrial* and other classifications, the non-industrial portion shall be treated separately according to its classification. For example, in a *building* containing both *industrial* and *commercial* occupancies, the *commercial* area shall meet the NZBC energy efficiency requirements.
	Explanation: Consequential change to numbering from inserting a new Paragraph above
	After Paragraph 1.0.5, Insert Comment with the following

Current Text	Proposed Changes
Note that NZBC H1.3.1(a) (temperature and humidity control) does not apply to assembly service buildings, industrial buildings, outbuildings, or ancillary buildings. 1.0.4 The NZBC requirements for artificial lighting apply to commercial and communal non-residential buildings with a net lettable area greater than 300 m^2.	**COMMENT** Note that NZBC H1.3.1(a) (temperature and air-tightness) does not apply to *assembly service buildings*, *industrial buildings*, *outbuildings*, or *ancillary buildings*. NZBC H1.3.5 (artificial lighting) applies to *commercial* and *communal non-residential buildings* with a net lettable area greater than 300 m2. **Explanation**: Clarification that the paragraph are commentary, and not requirements of H1/AS1
	Replace paragraphs 2.1.1 and 2.1.2 with the following
2.1.1 *Construction* in accordance with NZS 4218 sections 3.1 or 3.2 (as modified by Paragraphs 2.1.3 and 2.1.4) satisfies NZBC H1.3.1(a) for HOUSING of any size and all *buildings* having a net lettable area no greater than 300 m^2. **2.1.2** *Construction* in accordance with NZS 4218 sections 3.1 or 3.2 (as modified by Paragraphs 2.1.3 and 2.1.4) satisfies NZBC H1.3.2E for HOUSING of any size, including the *external walls* of multi-unit dwellings. (Note that common walls between *household units* of multi-unit dwellings need not comply with NZS 4218.)	**2.1.1** *Construction* in accordance with NZS 4218 section 3 and section 4.1 or 4.2 (as modified by Paragraphs 2.1.3 to 2.1.5) satisfies NZBC H1.3.1(a) for *housing* of any size and all *buildings* having a net lettable area no greater than 300 m^2. **2.1.2** *Construction* in accordance with NZS 4218 sections 3 and section 4.1 or 4.2 (as modified by Paragraphs 2.1.3 to 2.1.5) satisfies NZBC H1.3.2E for *housing* of any size, including multi-unit dwellings. **Explanation**: The section numbering in NZS 4218, corresponding to the Schedule Method and Calculation Method, has changed. The note on common walls has been removed as it is no longer required.
	Delete paragraphs 2.1.3 and 2.1.4, and insert new paragraphs 2.1.3 and 2.1.4 as follows
2.1.3 The Tables 1, 2, 3 and 4 in NZS 4218 shall be replaced with the Tables that follow. **2.1.4 Clause 3.2.3 in NZS 4218 shall be replaced as follows:** "**3.2.3** $HL_{Reference}$ shall be calculated from equation 2 in clause 3.2.4 using the thermal resistance and conditions for roof, wall and floor from tables 1 or 2 as appropriate. The glazing and door thermal resistances for the calculation of $HL_{Reference}$ shall be those given in table 4. Where the area of glazing is less than or	**2.1.3** Clause 3.1.2(a) in NZS 4218 shall be replaced as follows: "(a) Recessed luminaires of Classes IC-F, IC, CA80 or CA135 shall be used, with no gaps in the insulation material to the sides of the light fitting; or" **2.1.4** Comment C3.1.2 shall be replaced with, "The BRANZ House Insulation Guide provides guidance on the reduction in thermal resistance from insulation clearances around recessed light fittings. Class IC-F, IC, CA80 and CA135 recessed

Current Text	Proposed Changes
equal to 30% of total wall area, the area of glazing of the reference building for use in equation 2 shall be set to 30%. The wall area of the reference building is therefore 70% of its total wall area." Note that Tables 1, 2, 3 and 4 from NZS 4218 are modified by Paragraph 1.1.2 of this Verification Method. **Note:** The Replacement Tables that are part of Paragraph 2.1.3 are not replicated in this consultation document.	luminaires are described in the BRANZ House Insulation Guide and are defined in the Standard AS/NZS 60598.2.2. Ceiling access hatches often form part of the thermal envelope and therefore should be insulated." **Explanation:** The Replacement Tables used to modify NZS 4219:2004 are deleted. The downlight requirements in NZS 4218:2009 clause 3.1.2(a) are modified to reflect the Electricity (Safety) Regulations 2010, which require Class IC-F, IC, CA80 or CA135 recessed luminaries.
	Insert paragraph 2.1.5 with the following **2.1.5** Clause 4.2.1 in NZS 4218 shall be replaced as follows: "The calculation method shall only be used where the glazing area is 50% or less of the total wall area." **Explanation:** The maximum glazed area that the calculation method in NZS 4218:2009 can be used for is increased to 50% to maintain a similar stringency to the current Acceptable Solution H1/AS1
	Insert paragraph 2.1.6 with the following **2.1.6** After the third sentence of Clause 4.2.7 in NZS 4218, insert a new sentence as follows: "If A_{Door} is greater than 6 m^2 and 6% of the total wall area, then in equation 1, A_{Door} shall be set to the difference between A_{Door} and the greater of 6 m^2 or 6% of the total wall area" **Explanation:** The Calculation method is modified to apply the maximum door allowance, of 6 m^2 or 6% of the total wall area, to buildings where the door area is greater than this maximum allowance.
2.2.1 *Construction* in accordance with: • NZS 4243.1 part 4.2 or • NZS 4243.1 part 4.3 or • NZS 4218 part 3.1 or	Replace Paragraph 2.2.1 with the following **2.2.1** *Construction* in accordance with: • NZS 4243.1 section 4.2 or • NZS 4243.1 section 4.3 or • NZS 4218 section 3 and 4.1 or

Current Text	Proposed Changes
• NZS 4218 part 3.2 satisfies the requirements of NZBC H1.3.1(a) for the *thermal resistance* of the *building* envelope in large *buildings* other than HOUSING having a net lettable area greater than 300 m^2.	• NZS 4218 section 3 and 4.2 satisfies the requirements of NZBC H1.3.1(a) for the *thermal resistance* of the *building* envelope in large *buildings* other than *housing* having a net lettable area greater than 300 m^2. **Explanation:** The section numbering in NZS 4218, corresponding to the Schedule Method and Calculation Method, has changed
COMMENT: 1. Section 3.2 "calculation method" of NZS 4218 compares the proposed building with the "reference building" which is insulated in accordance with Tables 1, 2 and 4 (as modified by Paragraphs 2.1.3 and 2.1.4). This method permits roof, wall, floor and glazing insulation combinations which differ from these Tables, but the building must still perform at least as well as the "reference building". 2. To satisfy the requirements of E3/AS1 for Internal Moisture, it may be necessary, depending on the method adopted, to provide more insulation (greater R-value) than that required to satisfy energy efficiency provisions alone. 3. Replacement Tables 2(a) and 2(b) allow buildings of solid construction to have lower R-values than buildings of non-solid construction, because of the benefits of appropriate use of thermal mass. To be beneficial thermal mass must be integrated into the building with sound passive solar design. Replacement Tables 2(a) and 2(b) assume thermal mass has been integrated with sound passive solar design. 4. "Solid construction" does not mean the full wall thickness must consist of the same material throughout. 5. NZS 4246: 2006 Energy Efficiency – Installing Insulation in Residential Buildings provides guidance to ensure that insulation is installed correctly and will perform as intended.	Replace Comments at the end of Paragraph 2.1 with the following **COMMENT:** 1. Section 4.2 "Calculation method" of NZS 4218 compares the proposed building with the "reference building" which is insulated in accordance with Tables 2, 3 or 4. This method permits roof, wall, floor and glazing insulation combinations which differ from these Tables, but the building must perform at least as well as the "reference building". 2. To satisfy the Building Code performance requirement E3.3.1 for internal moisture, it may be necessary, depending on the method adopted, to provide more insulation (greater R-value) than that required to satisfy energy efficiency provisions alone. 3. Tables 3 and 4 in NZS 4218 allow buildings with high thermal mass to have lower R-values than buildings with frame construction. This recognises benefits in the thermal performance when thermal mass is used appropriately. To be beneficial thermal mass must be integrated into the building with sound passive solar design. 4. NZS 4246 Energy Efficiency – Installing Insulation in Residential Buildings provides guidance to ensure that insulation is installed correctly and will perform as intended.

Question H1 – 3 **Do you agree with the proposed changes to Acceptable Solution H1/AS1?**

Changes to Verification Method H1/VM1

Current Text	Proposed Changes
	Replace Paragraph 1.1.1 and 1.1.2 with the following
1.1.1 The modelling method described in NZS 4218 section 3.3 (as modified by Paragraphs 1.1.2 and 1.1.3 below) is a Verification Method for NZBC Clause H1.3.1(a) for the following types of *buildings*: a) HOUSING, regardless of total *floor area* (the method is also a means of compliance with H1.3.2E, which applies only to HOUSING), and b) Small *buildings* other than HOUSING having a net lettable area no greater than 300 m^2. **1.1.2** Tables 1, 2, 3 and 4 in NZS 4218 shall be replaced with the Tables that follow.	**1.1.1** The modelling method described in NZS 4218 section 4.3 is a Verification Method for NZBC Clause H1.3.1(a) for the following types of *buildings*: a) *Housing*, regardless of total *floor area*, and b) Small *buildings* other than *housing* having a net lettable area no greater than 300 m^2. **1.1.2** The modelling method described in NZS 4218 section 4.3 is a Verification Method for NZBC Clause H1.3.2E. **Explanation:** The section numbering in NZS 4218, corresponding to the Modelling Method, has changed The Replacement Tables in H1/VM1, used to modify NZS 4219:2004, are deleted
1.1.3 Clause 3.2.3 in NZS 4218 shall be replaced as follows: "**3.2.3** $HL_{Reference}$ shall be calculated from equation 2 in clause 3.2.4 using the thermal resistance and conditions for roof, wall and floor from tables 1 or 2 as appropriate. The glazing and door thermal resistances for the calculation of $HL_{Reference}$ shall be those given in table 4. Where the area of glazing is less than or equal to 30% of total wall area, the area of glazing of the reference building for use in equation 2 shall be set to 30%. The wall area of the reference building is therefore 70% of its total wall area." Note that Tables 1, 2, 3 and 4 from NZS 4218 are modified by Paragraph 1.1.2 of this Verification Method.	Delete paragraph 1.1.3 **Explanation:** Modification of Standard no longer required as they do not apply to NZS 4218:2009
	Comment 2 of Paragraph 1.2 - Delete the sentence "See NZS 4218 clauses 1.3.3 and 3.2.6"

Current Text	Proposed Changes
COMMENT: (paragraph 1.2) 2. To satisfy the requirements of E3/AS1 for Internal Moisture, it may be necessary, depending on the method adopted, to provide more insulation (greater R-value) than that required to satisfy energy efficiency provisions alone. See NZS 4218 clauses 1.3.3 and 3.2.6.	**COMMENT (paragraph 1.2)** 2. To satisfy the Building Code performance requirement E3.3.1 for internal moisture, it may be necessary, depending on the method adopted, to provide more insulation (greater R-value) than that required to satisfy energy efficiency provisions alone. **Explanation:** Building Code clause is referenced rather than Acceptable Solution. Reference to NZS 4218 no longer required with new Standard.
COMMENT: (paragraph 1.4) 1. The BRANZ 'House Insulation Guide' Third Edition provides thermal resistances of common building elements and is based on calculations from NZS 4214.	Comment 1 of Paragraph 1.4 - Delete "Third Edition" **COMMENT: (paragraph 1.4)** 1. The BRANZ 'House Insulation Guide' provides thermal resistances of common building elements and is based on calculations from NZS 4214. **Explanation:** Remove reference to previous version

Question H1 – 4 **Do you agree with the proposed changes to Verification Method H1/VM1?**

H1 Transitional Arrangements

It is proposed that the changes will come into effect on 31 October 2016 (the proposed Effective Date). It is also proposed that the existing Acceptable Solutions and Verification Methods will remain in force, as if not amended, until 28 February 2017 (the proposed Cessation Date), a period of four months.

Question H1 – 5 **Do you agree with the proposed H1 transitional arrangements?**