MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Dear Customer

Please find enclosed Amendment 4, effective 14 February 2014, to the Acceptable Solution and Verification Method for Clause F8 Signs of the New Zealand Building Code. THe previous amendment (Amendment 3, Second Edition) was in February 2014.

Section	**Old F8**	**January 2017 Amendment 4**
Title pages	Remove title page and document history page 1–2B	Replace with new title page and document history pages 1–2B
References	Remove page 7/8	Replace with new page 7/8
F8/AS1	Remove pages 17-22	Replace with new pages 17-22
Appendix A	Remove page 27/28	Replace with new pages 27/28

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Acceptable Solutions and Verification Methods

For New Zealand Building Code Clause
F8 Signs

F8
BUILDING CODE

Status of Verification Methods and Acceptable Solutions

Verification Methods and Acceptable Solutions are prepared by the Ministry of Business, Innovation and Employment in accordance with section 22 of the Building Act 2004. Verification Methods and Acceptable Solutions are for use in establishing compliance with the New Zealand Building Code.

A person who complies with a Verification Method or Acceptable Solution will be treated as having complied with the provisions of the Building Code to which the Verification Method or Acceptable Solution relates. However, using a Verification Method or Acceptable Solution is only one method of complying with the Building Code. There may be alternative ways to comply.

Users should make themselves familiar with the preface to the New Zealand Building Code Handbook, which describes the status of Verification Methods and Acceptable Solutions and explains alternative methods of achieving compliance.

Defined words (italicised in the text) and classified uses are explained in Clauses A1 and A2 of the Building Code and in the Definitions at the start of this document.

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Verification Methods and Acceptable Solutions are available from www.building.govt.nz

New Zealand Government

Document Status

The most recent version of this document (Amendment 4), as detailed in the Document History, is approved by the Chief Executive of the Ministry of Business, Innovation and Employment. It is effective from 1 January 2017 and supersedes all previous versions of this document.

The previous version of this document (Amendment 3) will cease to have effect on 30 May 2017.

People using this document should check for amendments on a regular basis. The Ministry of Business, Innovation and Employment may amend any part of any Verification Method or Acceptable Solution at any time. Up-to-date versions of Verification Methods and Acceptable Solutions are available from www.building.govt.nz

F8: Document History			
	Date	**Alterations**	
First published	July 1992		
Amendment 1	Effective from September 1993 until 10 July 2012	p. v, Contents p. vi, References p. 4, Table 2 p. 11, 6.4.2 a)	p. 12, 6.4.3, Figures 11, 12, 13, 14, 6.5.1 p. 13, 6.6.3, 6.7.1, Figures 15, 16 pp. 15-16 Index
Second edition (Amendment 2)	Effective from 10 April 2012 until 14 August 2014	Document revised 2nd Edition issued	
Amendment 3	Effective 14 February 2014 until 30 May 2017	p. 2A, Document history, Status	p. 7 References p. 9 Definitions
Amendment 4	Effective 1 January 2017	p. 7 References p. 18 F8/AS1 4.5.1 p. 19 F8/AS1 4.5.4	p. 21 F8/AS1 5.4 p. 27 F8/AS1 Appendix A
Note: Page numbers relate to the document at the time of Amendment and may not match page numbers in current document.			

References

For the purposes of New Zealand Building Code compliance, the Standards and documents referred in this Acceptable Solution (primary reference documents), which in turn may also refer to other Standards or documents, and so on (lower order reference documents) must be the editions, along with their specific amendments, listed below. Where the primary reference documents refer to other Standards or other documents, (secondary reference documents), then the version in effect at the date this Acceptable Solution was published must be used.

		Where quoted
	Standards Australia	
	AS 2293: 2005 Emergency escape lighting and exit signs for buildings	
	Part 1: System design, installation and operation	AS1 4.5.5
Amend 3 Feb 2014	Part 3: Emergency escape luminaires and exit signs *Amend: 1*	AS1 2.4, 4.5.3 a) i), 4.5.5, Appendix A
Amend 4 Jan 2017	AS/NZS 2293.2: 1995 Emergency escape lighting and exit signs for buildings – Inspection and maintenance, incorporating Amendment No. 1, 2 and 3	AS1 4.5.5
Amend 4 Jan 2017	NZS 4541:2013 Automatic fire sprinkler systems	AS1 5.4
	British Standards Institution	
	BS 5252: 1976 Framework for colour co-ordination for building purposes *Amend: 1*	AS1 Table 2
	International Organization for Standardization	
	ISO 3864: 2002 Safety colours and safety signs	
	Part 1: Design principles for safety signs in workplaces and public areas	AS1 2.4
	ISO 7000: 2004 Graphic symbols for use on equipment	AS1 2.4
	ISO 7010: 2003 Graphical symbols – safety colours and safety signs – Safety signs used in workplaces and public areas	AS1 2.4, 3.2.4
	German Institute for Standardisation	
	DIN 5381: 1985 Identification colours	AS1 Table 2
	DIN 6164: 1980 DIN colour chart	
	Part 2: Specification of colour samples	AS1 Table 2
	Chemical Industry Council Incorporated	
	HSNO Code of Practice 2-1 09-04 Signage for premises storing hazardous substances and dangerous goods	AS1 2.4, 7.1
	Royal New Zealand Foundation of the Blind	
	Accessible Signage Guidelines: 2010	AS1 2.3

Comment:
The rapid identification of the nearest *escape routes* is particularly important in *buildings* such as shopping malls and supermarkets, where occupants tend automatically to escape via the familiar route used for entry.

4.1.2 Where exit signs are provided to identify a door on an *escape route*, the sign shall be positioned on the leaf at or above handle height, or on a vertical surface within 600 mm of the door. The sign shall be positioned where it is least likely to be obscured from view and where it cannot be obscured when the door is open.

4.2 Wording for exit signs

Where exit signs contain text they shall comply with Paragraphs 4.2.1 to 4.2.3.

4.2.1 Exit signs shall be *safety signs* complying with Tables 2 and 3 and shall display the word(s) '**Exit**' or '**Emergency Exit**' plus a direction arrow if necessary, to identify the *escape route*, or use another language plus English. (Refer to Paragraph 2.1.)

4.2.2 Where a direction arrow is incorporated as part of the exit sign, a clearance of at least 25 mm shall be provided between the word(s) and the arrow.

4.2.3 In addition the following signs shall be provided:

a) Where any door leads to an upper or lower level from an *exitway* and not to a *final exit*, that door shall be identified by a sign reading '**No Exit**'. (Refer to Paragraph 4.4.2.)

b) Where any door in a *safe path* is a *smoke control door* and that door leads to an alternative *exitway*, it shall be identified by signs on both sides reading '**Exit**'.

c) Where delayed action unlocking devices are fitted to an exit door, a sign describing the method of operation shall be installed adjacent to the door lock. The sign shall read 'There is a (x) second time delay on this door before it unlocks except when activated by the fire alarm'.

4.3 Sign details

4.3.1 Height of lettering

Sign lettering heights shall comply with Table 4, except that no lettering shall be less than 100 mm high on signs located in the following areas:

a) *Theatres*, cinemas and public halls

b) Shopping spaces that have an *occupant load* of more than 100 people.

Table 4 **Height of lettering**
Paragraph 4.3.1

Maximum viewing distance (m)	Minimum letter height 'h' (mm)
16	75
24	100
32	150

'h' is the letter height shown in Table 1.

For photoluminescent signs, the minimum height dimension shall be multiplied by 1.3 and the maximum viewing distance shall be 24 m.

For viewing distances greater than 32 m, the minimum letter height shall be determined in accordance with the following equation:

Minimum letter height, h, mm =
Maximum viewing distance, mm ÷ 210
and rounded up to the nearest 50 mm.

4.3.2 Pictogram elements including directional arrows

The minimum height of pictogram elements for exit signs shall be determined by the maximum viewing distance. The minimum element height shall be as given in Table 5.

Table 5 **Pictogram height**
Paragraph 4.3.2

Maximum viewing distance (m)	Minimum pictogram element height (mm)
16	100
24	150
32	200

Element height is as shown in Figures 1, 2 and 3.

For photoluminescent signs, the minimum height dimension shall be multiplied by 1.3 and the maximum viewing distance shall be 24 m.

For viewing distances greater than 32 m, the minimum element height shall be determined in accordance with the following equation:

Minimum element height, mm = Maximum viewing distance, mm ÷ 160 and rounded up to the nearest 50 mm.

4.3.3 Background

The background shall extend at least 15 mm beyond the words (and pictorial element if incorporated) displayed on the sign.

4.4 Colour

4.4.1 Except for photoluminescent signs and signs described in Paragraphs 4.4.2 and 4.4.3, the text and/or pictogram of an exit sign, and the direction arrow where incorporated, shall be white on a *safety green* background.

Text or pictograms in photoluminescent signs shall be in *safety green* and the rest of the sign shall be photoluminescent.

4.4.2 The sign described in Paragraph 4.2.3 a) (No Exit) shall comprise white text on a *safety red* background.

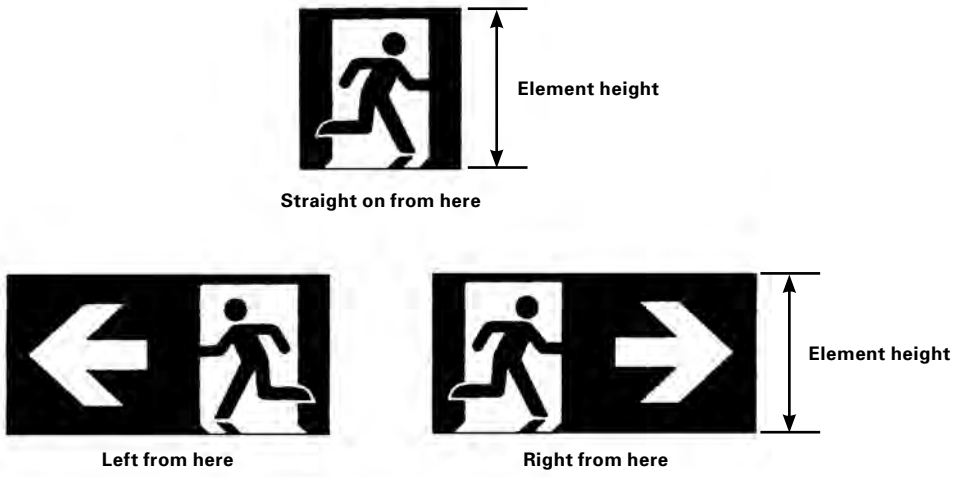
4.4.3 Where an exit sign is internally illuminated and normally viewed in low illuminance areas, such as in *theatres* and auditoriums, the text or pictogram of the sign and direction arrow, if any, may be *safety green* on a black (opaque) background. In the case of signs described in Paragraph 4.2.3 a), these may have text or a pictogram in *safety red* on a black (opaque) background.

4.5 Exit sign illumination

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.

Amend 4
Jan 2017

Figure 3 Formats and meanings of pictogram elements



The words under these pictograms indicate the meaning of the pictogram and are not part of the pictogram.
Arrows are aligned to reflect the direction to be followed.

4.5.2 Externally illuminated exit signs

Signs which rely for their visibility on illumination from an exterior source shall have:

a) An *illuminance* of no less than 200 lux provided at the face of the sign

b) A variation of *illuminance* of no greater than 3:1 across the face of the sign

c) Luminaires positioned so that the clarity of the sign message is not reduced at the required viewing positions by reflections on the sign face

d) The light source used to illuminate the sign not more than 1.5 m from the face of the sign, and

e) The light source screened from the view of people passing through the areas to avoid glare.

4.5.3 Internally illuminated exit signs

Signs which rely for their visibility on internal illumination shall comply with the following requirements:

a) For exit signs with a white text or pictogram and *safety green* background:

   i) the *luminance* of the background within 25 mm of the text or pictogram shall be no less than 8 cd/m^2 when measured in accordance with AS 2293: Part 3 Clause 3.4.2, and

   ii) the ratio of the *luminance* of the text to that of the background shall be no less than 4:1, and

   iii) the variation in *luminance* within the text and within the background shall be no more than 5:1.

b) For low *illuminance* area exit signs with a *safety green* legend and a black (opaque) background:

   i) the *luminance* of the text shall lie within the range 2cd/m^2 to 25 cd/m^2, and

   ii) the variation in *luminance* within the text shall be no more than 5:1.

Comment:
Internally illuminated signs are preferred to externally illuminated ones as they are self-contained units and are more easily seen in smoke conditions.

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 less than 100 lux and suitable for charging photoluminescent material.

Comment:
If a LED lamp is used for charging a photoluminescent sign, the colour temperature and distance between the lamp and the sign should be a key consideration. A colour temperature of 4000k or greater is generally sufficient to charge a photoluminescent material.

Amend 4 Jan 2017

Charging requirements and circuits and maintenance requirements shall be specified on the plans and specifications submitted for *building consent* application.

Amend 4 Jan 2017

4.5.5 Lighting supply

The lighting installation providing illumination to exit signs shall comply with NZBC Clause G9. Alternative supplies providing energy for the illumination of exit signs during interruption of the normal lighting supply shall comply with AS 2293: Parts 1 and 3 and AS/NZS 2293: Part 2 and maintain energy supply for the duration required by NZBC Clause F6.

For exit signs that are not continuously powered on (non-maintained), the emergency condition power supply shall be connected to both the loss of normal supply sensor and to the smoke detection circuit, if present, to ensure that the signs are provided with emergency power when either the normal power supply is tripped off or smoke activates the smoke detector circuit.

Where there are no hardwired smoke detectors installed, the exit sign shall be continuously powered (maintained).

Comment:
Often the normal power supply is not tripped until well after smoke development is significant and if non-maintained signs are not connected to the smoke detector circuit they may not be switched on.

5.0 Fire related safety features

5.1 Call points

Signs as shown in Figure 4 shall be provided on, or adjacent to, each call point. The method of operation and the appropriate emergency telephone number, including any outside line access number, shall be inserted in the spaces provided. The sign colours must be white and *safety red*.

Figure 4 **Call point sign**
Paragraph 5.1

5.2 Fire and smoke control doors

5.2.1 *Fire doors* and *smoke control doors* required by NZBC Clause C Protection from Fire shall have a sign fixed to both sides of the door leaf adjacent to the handle or push plate, stating '**Fire Door, keep closed**' or '**Smoke Control Door, keep closed**', except that door leaves fitted with *hold-open devices* shall have a sign stating only '**Fire Door**' or '**Smoke Control Door**'.

5.2.2 *Fire doors* and *smoke control doors* that have an automatic door closer shall have a sign fixed to the exposed side of the door stating '**Fire Door (automatic closing) do not obstruct**' or '**Smoke Control Door (automatic closing) do not obstruct**' as appropriate.

5.2.3 Safe condition signs on *fire doors* and *smoke control doors* shall measure no less than 90 mm x 50 mm and shall be in white letters no less than 8 mm high on a *safety green* background. (Refer to Paragraph 3.2.3.)

5.3 Lifts

A sign shall be provided on, or adjacent to, each landing call button plate with letters at least 8 mm high reading 'In the event of fire use the stairs'. Signs shall be *safety red* on a white background.

5.4 Sprinklered buildings

a) Warning signs shall be provided to indicate the maximum height at which goods may be stacked in accordance with the *building consent*.

b) Signs shall be positioned so that the bottom of the sign is at the highest level to which storage is permitted.

c) Signs shall be visible from 90% of all locations within aisles.

d) The sign shall comprise

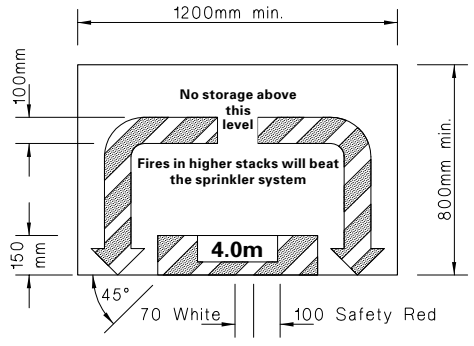
i) lettering, arrows and 45°lines in *safety red* on a white background and be sized as shown in Figure 5, or

ii) storage height limitation indicators described in section 408.2.1 of NZS 4541.

Amend 4 Jan 2017

Comment:
The height limitation of 4.0 m shown in Figure 5 is an example only.

Figure 5 **Storage height signs**
Paragraph 5.4



5.5 Signage in stairwells

a) Stairs shall be provided with signs to identify the floor level. The sign shall be *clearly visible* from each floor level landing.

b) Where fire hydrants are located in spaces containing a *stairway*, stair doors which give access to those hydrants shall be identified. This requirement applies only to those doors located on floors to which Fire Service personnel have direct access from the street and where more than one stair leads away from those floors. Signs shall be as shown in Figure 6.

c) Where fire hydrants are located in spaces containing scissor stairs, the *stairway* doors at each level providing direct access from the street for Fire Service personnel shall display a sign indicating the floor level location of hydrants which can be accessed from that particular door. Signs shall be as shown in Figure 7.

Comment:
In Figure 7, replace (xxxx) with 'odd' or 'even' as appropriate.

d) Signs required by this paragraph shall have lettering of no less than 25 mm in height. Signs required by sub-paragraphs (b) and (c) above shall comprise white lettering on a *safety red* background.

Figure 6 **Sign for door to stair with fire hydrants**
Paragraph 5.5 b)

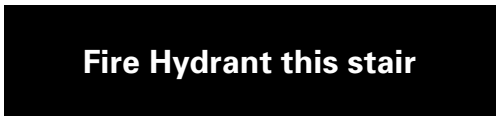
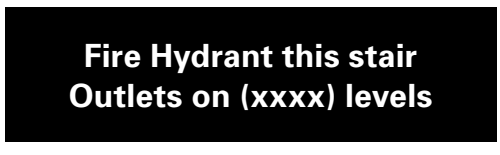


Figure 7 **Sign for door to scissor stairs with fire hydrants**
Paragraph 5.5 c)



6.0 Access and facilities for people with disabilities

6.1 Signs shall be provided to identify facilities provided specifically for *people with disabilities*. Such facilities are:

a) *Accessible* car parks

b) *Accessible* entrances

c) *Accessible routes* through the *building*

d) *Accessible* services available in the *building*.

6.2 All signs, except as required by Paragraph 6.3, shall:

a) Display the International Symbol of Access, include the direction of travel (if appropriate) and name of, or symbol for, the facility as shown in Figure 8

b) Use lettering and symbols in a colour that contrasts clearly with the sign background

c) Use the proportional layout of the International Symbol of Access as shown in Figure 9

d) Be positioned consistently throughout the *building* between 1400 mm and 1700 mm above floor level

e) For carparks, be ground marked with the International Symbol of Access and may have additional signage positioned as in d) above.

Figure 8 **Example of sign indicating facilities and direction**
Paragraph 6.2 a)

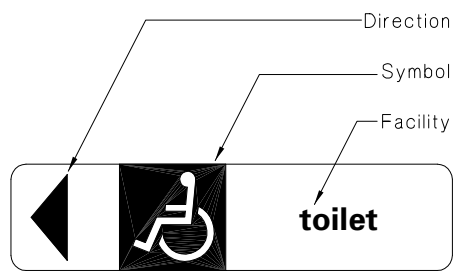
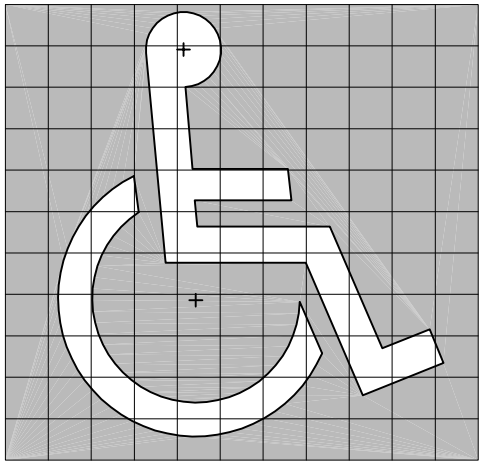
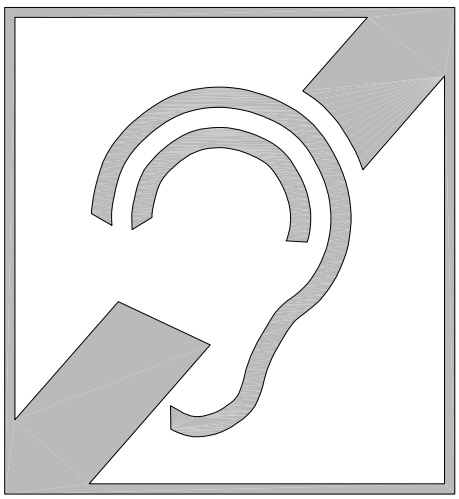


Figure 9 **International Symbol of Access**
Paragraph 6.2 c)



6.3 Where an assistive listening system is installed, a sign displaying the international symbol for deafness, as shown in Figure 10, shall be provided within 600 mm of the door(s) to the room in which the assistive listening system or device is located, and shall comply with Paragraph 6.2 b) and d).

Figure 10 **International symbol for deafness**
Paragraph 6.3



Appendix A

Amendments to AS 2293.3: 2005

1.5 Electromagnetic Compatibility

Replace sentence with:

'Electromagnetic compatibility (EMC) requirements are specified by Radio Spectrum Management, Ministry of Business Innovation & Employment.'

Amend 4
Jan 2017