

Dear Customer

Please find enclosed Amendment 6, effective 14 February 2014, to the Acceptable Solutions and Verification Methods for Clause D2 Mechanical Installations for Access of the New Zealand Building Code. The previous amendment to D2 was Amendment 5 (second edition), January 2002.

Section	Old D2	February 2014 Amendments to D2
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Code Clause D2	Remove pages 3/4	Replace with new pages 3/4
Contents	Remove page 7/8	Replace with new page 7/8
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MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Acceptable Solutions and Verification Methods

For New Zealand Building Code Clause
**D2 Mechanical Installations
for Access**

Second Edition



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.dbh.govt.nz**

New Zealand Government

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Document Status

The most recent version of this document (Amendment 6), as detailed in the Document History, is approved by the Chief Executive of the Ministry of Business, Innovation and Employment. It is effective from 14 February 2014 and supersedes all previous versions of this document.

The previous version of this document (Amendment 5) will cease to have effect on 14 August 2014.

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.dbh.govt.nz

D2: Document History			
	Date	Alterations	
First published	July 1992		
Amendment 1	September 1993	p. vii, NZS 3109 p. 5, Rule 17.5	p. 7, Rules, 25.7.1, 28.3.4 26.1.21
Amendment 2	19 August 1994	pp. i and ii, Document History p. vii, Contents p. viii, References p. 3, 1.0.1, 1.0.3, Rule 2.2 p. 5, Rule 14.5 p. 6, 24.18	p. 7, Rules 25.5, 25.6.1, 25.6.2 b) c), 25.7 25.7.1, 25.7.2 a) b) c) d) g) p. 8, Rule 34.2.3.3 a) p. 8A, 3.0.1 Rule 71.5.4, Figure 1
Reprinted incorporating Amendments 1 and 2	October 1994		
Amendment 3	1 December 1995	p. ii, Document History p. vii, Contents	p. 3, 1.0.1, 1.0.2, 1.0.3 deleted, 2.0 completely revised pp. 4 to 8A deleted
Reprinted incorporating Amendments 1, 2 and 3	April 1996		
Amendment 4	28 February 1998	p. vii, References	p. 3, 1.0.1 revised, 1.0.2 and 2.0 deleted
Second Edition (Amendment 5)	Effective from 6 January 2002 until 14 August 2014		
Amendment 6	14 February 2014	p. 2A, Document History, Status p. 3, Code Clause D2 p. 7, Contents p. 9, References	p. 11, Definitions p. 21, D2/VM2 p. 23, D2/AS2 p. 27, D2/AS3
Note: Page numbers relate to the document at the time of Amendment and may not match page numbers in current document.			

New Zealand Building Code Clause D2 Mechanical Installations for Access

The mandatory provisions for building work are contained in the New Zealand Building Code (NZBC), which comprises the First Schedule to the Building Regulations 1992. The relevant NZBC clause for Mechanical Installations for Access is D2.

FIRST SCHEDULE—continued	
Clause D2—MECHANICAL INSTALLATIONS FOR ACCESS	
Provisions	Limits on application
<p>OBJECTIVE D2.1 The objective of this provision is to:</p> <ul style="list-style-type: none"> (a) Safeguard people from injury and loss of amenity while using mechanical installations for movement into, within and out of <i>buildings</i>, (b) Safeguard maintenance personnel from injury while servicing mechanical installations for access, and (c) Ensure that <i>people with disabilities</i> are able to carry out normal activities and processes within <i>buildings</i>. <p>FUNCTIONAL REQUIREMENT D2.2 Mechanical installations for access into, within and out of <i>buildings</i> shall provide for the safe and easy movement of people, and for the safety of maintenance personnel.</p> <p>PERFORMANCE D2.3.1 Mechanical installations for access shall:</p> <ul style="list-style-type: none"> (a) Move people safely, and stop and hold as required for the normal use of the installation, for all loads up to and including 25% in excess of the rated load, (b) Not produce excessive acceleration or deceleration, (c) Be constructed to avoid the likelihood of people falling, tripping, becoming caught, being able to touch or be struck by moving parts, sharp edges or projections, under both normal and reasonably foreseeable abnormal conditions of use, 	<p>Objective D2.1(c) shall apply only to those <i>buildings</i> to which section 47A of the Act applies.</p>

See Note

NOTE:

Section 47A is in the Building Act 1991. The equivalent section in the Building Act 2004 is section 118.

FIRST SCHEDULE—*continued*

Provisions

- (d) Be constructed to prevent collision between components, or between components and the *building*,
- (e) Have a control system that ensures safe abnormal operation in the event of overloading or failure of any single component, and
- (f) Be capable of being isolated for inspection, testing and maintenance.

D2.3.2 Mechanical installations for access shall be provided with:

- (a) *Adequate* control over normal use, to ensure people's safety throughout any operation involving starting, stopping or changing the direction of travel,
- (b) Notification of position, where people are fully enclosed and the installation serves more than two levels,
- (c) *Adequate* lighting and ventilation for both normal and emergency use, and
- (d) Signs as required by Clause F8 "Signs",

D2.3.3 Mechanical installations for access shall, for emergency purposes, be provided with a means of:

- (a) Calling outside help,
- (b) Releasing people safely,
- (c) Safeguarding people from exposure to *hazardous* situations, and
- (d) Allowing authorised personnel to override the normal running procedure and take exclusive control of the installation.

D2.3.4 Potentially dangerous equipment shall be located in spaces which:

Limits on application

Performance D2.3.3(d) shall not apply to installations travelling less than 15 m vertically.

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References

For the purposes of New Zealand Building Code (NZBC) compliance, the Standards and documents referenced in these Verification Methods and Acceptable Solutions (primary reference documents) must be the editions, along with their specific amendments, listed below. Where these primary reference documents refer to other Standards or documents (secondary reference documents), which in turn may also refer to other Standards or documents, and so on (lower-order reference documents), then the version in effect at the date of publication of these Verification Methods and Acceptable Solutions must be used.

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Standards New Zealand

		Where quoted	
Amend 6 Feb 2014	NZS 4223:- Part 3: 1999	Glazing in buildings Human impact safety requirements	AS3 1.0.1 g)
	NZS 4332: 1997	Non-domestic passenger and goods lifts	AS1 1.0.1
Amend 6 Feb 2014	NZS 4334: 2012	Platform lifts and low-speed lifts	AS2 1.0

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The European Committee for Standardisation, Brussels

Amend 6 Feb 2014	EN 81:- Part 1: 1998	Safety rules for the construction and installation of lifts Electric lifts	AS1 2.0
	Part 2: 1998	Hydraulic lifts	AS1 2.0
	EN 115:- Part 1: 2008	Safety of escalators and moving walks Construction and installation	AS3 1.0.1
		<i>Amend: A1</i>	

Definitions

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This is an abbreviated list of definitions for words or terms particularly relevant to these Verification Methods and Acceptable Solutions. The definitions for any other italicised words may be found in the New Zealand Building Code Handbook.

Accessible Having features to permit use by *people with disabilities*.

Accessible route An *access route* usable by *people with disabilities*. It shall be a continuous route that can be negotiated unaided by a wheelchair user. The route shall extend from street boundary or car parking area to those spaces within the *building* required to be *accessible* to enable *people with disabilities* to carry out normal activities and processes within the *building*.

Adequate *Adequate* to achieve the objectives of the *Building Code*.

Amenity An attribute of a *building* which contributes to the health, physical independence, and well being of the *building's* users but which is not associated with disease or a specific illness.

Building has the meaning given to it by sections 8 and 9 of the Building Act 2004.

Building consent authority (BCA) means a person whose name is entered in the register referred to in section 273(1)(a) of the Building Act 2004.

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Building element Any structural and non-structural component or assembly incorporated into or associated with a *building*. Included are *fixtures*, services, *drains*, permanent mechanical installations for access, glazing, partitions, ceilings and temporary supports.

Compliance schedule means a compliance schedule required under section 100 of the Building Act 2004.

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Handrail A rail to provide support to, or assist with the movement of a *person*.

Hazardous Creating an unreasonable risk to people of bodily injury or deterioration of health.

Owner, in relation to land and any *buildings* on the land,—

(a) means the *person* who—

- (i) is entitled to the rack rent from the land; or
- (ii) would be so entitled if the land were let to a tenant at a rack rent; and

(b) includes—

- (i) the *owner* of the fee simple of the land; and
- (ii) any *person* who has agreed in writing, whether conditionally or unconditionally, to purchase the land or any leasehold estate or interest in the land or to take a lease of the land and who is bound by the agreement because the agreement is still in force.

Person includes—

- (a) the Crown; and
- (b) a corporation sole; and
- (c) a body of persons (whether corporate or unincorporate)

Person with a disability means any *person* who has an impairment or combination of impairments that limits the extent to which the person can engage in the processes of everyday life, including, without limitation, any of the following:

- a) a physical, sensory or neurological impairment;
- b) a mental illness.

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Verification Method D2/VM2

Platform Lifts and Low-speed Lifts

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No specific test methods have been adopted for verifying compliance with the Performance of NZBC D2.

Acceptable Solution D2/AS2

Platform Lifts and Low-speed Lifts

1.0 Reference Document NZS 4334

1.0.1 NZS 4334 is an Acceptable Solution for platform lifts and low-speed lifts.

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Acceptable Solution D2/AS3

Escalators and Moving Walks

1.0 Reference Document EN 115

1.0.1 EN 115 is an Acceptable Solution subject to the following modifications:

- a) Where the Standard uses the word 'shall' this refers to requirements that are essential for compliance with the Standard; while the word 'should' refers to practices that are advised or recommended. A 'Normative' appendix is an integral part of the Standard and contains requirements; an 'Informative' appendix contains recommendations only.
- b) Where this Acceptable Solution does not nominate the specific details of what is required for an escalator or moving walk component or feature but instead describes the required performance or is otherwise non-specific (such as where provisions are required to be appropriate or suitable) the details of the component or feature, along with justification of its adequacy, shall be included on plans and specifications for consideration by the *building consent authority* as part of the normal *building consent* process.
- c) Where escalators or moving walks are provided an alternative *Building Code* compliant non-mechanical means of access, such as stairs or ramps, shall also be provided. Escalators and moving walks shall not comprise part of an *escape route*.
- d) Escalators shall not be used on *accessible routes*.
- e) Moving walks on *accessible routes* shall meet the following requirements:
 - i) the maximum slope shall be 1 in 10 (5.7 degrees)

Comment

A maximum slope of 1 in 14 (4.1 degrees) is recommended.

- ii) the width of the pallet or belt shall be no less than 900 mm and no greater than 1200 mm

- iii) the pallets or belt shall move horizontally for at least 1200 mm before entering the combs

- iv) the *handrails* shall extend 300 mm beyond the combs

- f) The structural adequacy of the escalator or moving walk, its supports and of the *building* supporting the escalator or moving walk, to withstand all likely loads including earthquake, shall be demonstrated by a suitably qualified structural designer. The person proposing to install the escalator or moving walk shall supply to the structural designer all necessary information to enable the design to be carried out, including weights of escalator or moving walk components and all working tolerances necessary for safe operation.

COMMENT

It is expected that evidence would be furnished to the *building consent authority (BCA)* with the *building consent* application showing that a competent structural designer, Chartered Professional Engineer (CPEng) or other, has designed or otherwise checked the proposed escalator or moving walk, and the *building* supporting it, and considers the proposals to be *adequate*. The evidence about the escalator or moving walk itself could, depending on circumstances, be either specific engineering calculation or it could be a consideration of a design carried out overseas by others. It is envisaged that most *BCAs* would accept the advice of a CPEng working within a known area of expertise.

- g) All glazing associated with the escalator or moving walk installation shall be Grade A safety glass complying with NZS 4223.3.
- h) The electrical requirements of the Standard are additional to the normal requirements for an electrical installation. All wiring shall comply with NZBC Clause G9 'Electricity'.
- i) Signs complying with F8/AS1 may be used instead of those required by the Standard.

Where moving walks are intended for transporting trolleys, safety signs describing safe and correct use shall be provided.

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- j) For *building consent* purposes the *person* proposing to install the escalator or moving walk shall supply the following information:
- i) drawings and specifications detailing the escalator or moving walk installation (including the circuit diagram) and its attachment to the *building*
 - ii) demonstration of structural adequacy – see f) above
 - iii) justification for components or features meeting performance or other unspecific requirements of the Standard – see b) above
 - iv) the specific data, test reports and certificates noted in Clause 6.2 of the Standard
 - v) details of inspections and tests to be performed on behalf of the *owner* during installation of the escalator or moving walk and on completion of the work
 - vi) requirements for inspection and routine maintenance for inclusion in the *building's compliance schedule*.

Comment

This information comprises 'plans and specifications' as defined in the Building Act. It is expected that the person proposing to install the escalator or moving walk will receive the above information from the escalator or moving walk manufacturer or supplier, the structural designer, and others.

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