Compliance Document for New Zealand Building Code Clause G5 Interior Environment

Prepared by the Department of Building and Housing

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

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

G5: Document History

	Date	Alterations
First published	July 1992	
Amendment 1	1 July 2001	p. 2, Document History, Status p. 3, NZBC p. 7, References p. 9, Definitions

Note: Page numbers relate to the document at the time of Amendment and may not match page numbers in current document.

Document Status

The most recent version of this document, as detailed in the Document History, is approved by the Chief Executive of the Department of Building and Housing. It is effective from 1 July 2001 and supersedes all previous versions of this document.

People using this Compliance Document should check for amendments on a regular basis. The Department of Building and Housing may amend any part of any Compliance Document at any time. Up-to-date versions of Compliance Documents are available from www.dbh.govt.nz

New Zealand Building Code Clause G5 Interior Environment

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 Interior Environment is G5. Note that section 25 of the Disabled Persons Community Welfare Act 1975 has been replaced by section 47A of the Building Act 1991.

Amend 1
Jul 2001

FIRST SCHEDULE–*continued*

Clause G5–INTERIOR ENVIRONMENT

Provisions	Limits on application
OBJECTIVE	
G5.1 The objective of this provision is to:	
(a) Safeguard people from illness caused by low air temperature,	
(b) Safeguard people from injury or loss of *amenity* caused by inadequate activity space,	
(c) Safeguard people from injury caused by unsafe installations, and	
(d) Ensure that *people with disabilities* are able to carry out normal activities and processes within *buildings*.	Objective G5.1 (d) shall apply to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
G5.2.1 *Buildings* shall be *constructed* to provide:	
(a) An *adequate*, controlled interior temperature,	Requirement G5.2.1 (a) shall apply only to *habitable spaces*, bathrooms and recreation rooms in old people's homes and early childhood centres.
(b) *Adequate* activity space for the *intended use*, and	Requirement G5.2.1 (b) shall apply only to old people's homes.
(c) *Accessible* spaces and facilities.	Requirement G5.2.1 (c) shall apply only to *Communal Residential*, *Communal Non-residential*, and *Commercial buildings*.
G5.2.2 Heating appliances in *buildings* shall be installed in a way that reduces the likelihood of injury.	
PERFORMANCE	
G5.3.1 *Habitable spaces*, bathrooms and recreation rooms shall have the provision for maintaining the internal temperature at no less that 16°C measured at 750 mm above floor level, while the space is *adequately* ventilated.	Performance G5.3.1 shall apply only to old people's homes and early childhood centres.

FIRST SCHEDULE–*continued*

Provisions	Limits on application
G5.3.2 Heating appliances, and any attached cables, pipes or other fittings shall be securely fixed in place.	Performance G5.3.2 shall apply only to old people's homes and early childhood centres.
G5.3.3 *Habitable spaces* shall have sufficient space for activity, furniture, and sanitary and mobility aids.	Performance G5.3.3 shall apply only to old people's homes.
G5.3.4 Where reception counters or desks are provided for public use, at least one counter or desk shall be *accessible*.	Performance G5.3.4 applies only to *Communal Residential*, *Communal Non-Residential*, and *Commercial buildings*.
G5.3.5 *Buildings* shall be provided with listening systems which enable enhanced hearing by people with hearing aids.	Performance G5.3.5 applies only to: (a) *Communal Non-residential* assembly spaces occupied by more than 250 people, and (b) Any theatre, cinema, or public hall, and (c) Assembly spaces in old people's homes occupied by more than 20 people.
G5.3.6 Enhanced listening systems shall be identified by signs complying the Clause F8 "Signs".	

Contents

References

Amend 1 Jul 2001

For the purposes of New Zealand Building Code compliance, acceptable reference documents include only the quoted edition and specific amendments as listed below.

		Where quoted
Standards Association of New Zealand		
Amend 1 Jul 2001 NZS 4121: 2001	Design for access and mobility – Buildings and associated facilities	AS1 3.0.1
NZS 4214: 1977	Methods of determining the total thermal resistance of parts of buildings	Definitions

Definitions

This is an abbreviated list of definitions for words or terms particularly relevant to this Approved Document. 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*.

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 ascribed to it by the Building Act 1991.

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.

Fixture An article intended to remain permanently attached to and form part of a *building*.

Habitable space A space used for activities normally associated with domestic living, but excludes any bathroom, laundry, water-closet, pantry, walk-in wardrobe, corridor, hallway, lobby, clothes-drying room, or other space of a specialised nature occupied neither frequently nor for extended periods.

Intended use of a *building* includes:

a) Any reasonably foreseeable occasional other use that is not incompatible with the *intended use;* and

b) Normal maintenance; and

c) Activities taken in response to *fire* or any other reasonably foreseeable emergency – but does not include any other maintenance and repairs or rebuilding.

People with disabilities means any *person* who suffers from physical or mental disability to such a degree that he or she is seriously limited in the extent to which he or she can engage in the activities, pursuits, and the processes of everyday life.

Amend 1 Jul 2001

R-value The common abbreviation for describing the values of both *thermal resistance* and *total thermal resistance.*

Thermal resistance The resistance to heat flow of a given component of a *building element*. It is equal to the temperature difference (°C) needed to produce unit heat flux (W/m^2) through unit area (m^2) under steady conditions. The units are $°Cm^2/W$.

Total thermal resistance The overall air-to-air *thermal resistance* across all components of a *building element* such as a wall, roof or floor. (This includes the surface resistances which may vary with environmental changes e.g. temperature and humidity, but for most purposes can be regarded as having standard values as given in NZS 4214.)

Verification Method G5/VM1

No specific methods have been adopted for verifying compliance with the Performance of NZBC G5.

Acceptable Solution G5/AS1

1.0 Temperature Control

1.0.1 Heating to provide acceptable temperature control shall take account of:

a) Local climate,

b) Size of the heated space,

c) *Thermal resistance (R-value)* of the *building elements* enclosing the space to be heated, and

d) Whether the walls of the heated space are internal or external.

1.0.2 Indicative *R-values* for different types of *construction* are given in E3/AS1.

1.0.3 Tables 1 and 2 provide a method of determining the heating requirements for the *habitable spaces,* bathrooms and recreation rooms of smaller old people's homes and early childhood centres (up to 10 residents), of single storey *construction*. The heating requirements of larger and multi-storey *buildings* shall be specifically calculated.

Table 1: **Acceptable Heating Output for Spaces of up to 10 m² Floor Area** (See note 1)
Paragraph 1.0.3

		Heating wattage (W) for a space which has			
Locality	**Average R-value** (the average total thermal resistance of floor, walls and roof/ceiling of the space to be heated)	**Four external walls**	**Three external walls**	**Two external walls**	**One external wall**
North Island	1.5	720	650	580	510
(see note 2)	0.7	1250	1100	950	800
South Island	1.5	1040	940	840	740
	0.7	1650	1410	1170	930

Notes:

1. For floor areas exceeding 10 m² use factors given in Table 2.
2. North Island localities more than 500 m above sea level shall meet South Island requirements.

Table 2: **Multiplying Factors for Determining Acceptable Wattage in Spaces Exceeding 10 m² Floor Area**
Paragraph 1.0.3 and Table 1

Floor area (m²)	10	20	40	80	160
Multiplying factor	1.0	1.4	2.0	2.8	4.0

Note:
Interpolation for different floor areas is permitted.

1.0.4 Example of use of Tables 1 and 2:

For a space (South Island) of 20 m² and an average *R-value* of 1.5, with 2 external walls, the necessary heating power is:

840 (Table 1) x 1.4 (Table 2) = 1176 W

The average *R-value* for example may be

$$\frac{0.4\ (\text{floor}) + 2.0\ (\text{walls}) + 3.0\ (\text{roof})}{3} = \frac{5.4}{3} = 1.8$$

In this case the wattage is read from the 1.5 Average *R-value* line, in Table 1.

2.0 Space

2.0.1 Each old people's home shall have spaces for living, dining and sleeping.

2.0.2 Spaces for living and dining may be combined provided that the total space can, if necessary, be divided into separate living and dining areas each satisfying their respective requirements for width and floor area.

2.0.3 Spaces provided shall have dimensions of no less than those given in Table 3.

3.0 People with Disabilities

3.0.1 Acceptable activity space shall comply with NZS 4121.

Table 3: **Space Provision for Old People's Homes**
Paragraph 2.0.3

	Minimum dimensions	
Type of space	**Width** (m)	**Floor area** (m²)
Living room	2.75	10 + 1 for each resident over 3 in number
Dining room	2.75	8 + 1 for each resident over 3 in number
Bedroom	2.2	6 for each resident (see note 1)

Note:
1. Floor area for bedrooms shall exclude built-in wardrobes. In the absence of a built-in wardrobe, an additional 0.75 m² shall be provided for each resident.

Index G5/VM1 & AS1

All references to Verification Methods and Acceptable Solutions are preceded by **VM** or **AS** respectively.