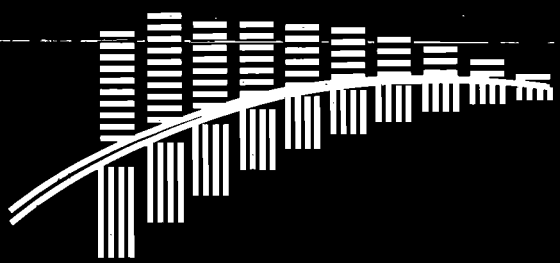
THE NEW ZEALAND BUILDING CODE HANDBOOK



BUILDING INDUSTRY AUTHORITY

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The New Zealand Building Code Handbook and Approved Documents have been prepared and will be maintained by the Building Industry Authority which is a statutory body established by the Building Act 1991.

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STANDARDS NEW ZEALAND

The New Zealand Building Code Handbook and Approved Documents are published by Standards New Zealand on behalf of the Building Industry Authority. Copies of all the Code documents are available from the address below and from selected booksellers.

Sales enquiries should be directed to:

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NEW ZEALAND BUILDING CODE HANDBOOK

ISBN 0-477-01606-5

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PREFACE

1.0 INTRODUCTION

1.0.1 This preface is provided only as a convenient user reference. It gives simple answers to questions frequently asked about the building code and associated legislation. Legal interpretation must however, be based on the actual wording of the Act and Regulations themselves.

1.1 The Act

1.1.1 The Building Act 1991 establishes a national, uniform, building control system which covers:

Act s.5 * All buildings including Crown buildings, except for certain defence works.

Act s.3 * All components of each building including plumbing, electrical and mechanical installations.

1.1.2 The Act applies to:

* Building construction, including alteration and demolition.

* Maintenance of building systems or features such as lifts and fire protection installations.

1.1.3 The Act does not cover:

* Planning and resource management, and other aspects of a building's relationship to the surrounding neighbourhood.

* Occupational safety and health, and other aspects of managing people.

Act s.6 **1.1.4** The building control system regulates only those matters essential for ensuring that buildings perform in a way which:

* Safeguards people from injury and illness.

* Safeguards people, particularly those with disabilities, from loss of amenity.

* Protects other property from damage.

* Facilitates efficient use of energy.

1.1.5 The controls do not provide for regulatory intervention in the owner's choice on other matters such as aesthetics or non-essential building features provided solely for the comfort or convenience of users. Nor do they protect an owner's economic interests in terms of ensuring value for money, or through losses due to lack of care or competence.

1.1.6 No person shall be required to achieve performance criteria additional to or more restrictive than those specified in the building code, except as may be provided for in any other Act. Act s.7

1.2 The New Zealand Building Code

1.2.1 The New Zealand Building Code (NZBC) is a schedule to the Regulations authorised by the Act. It contains the mandatory provisions for meeting the purposes of the Act, and is performance-based. That means it says only what is to be done, not how to do it. Act s.48

1.3 The Building Industry Authority

1.3.1 The Building Industry Authority (BIA) is a Crown agency established under the Act as the sole regulatory authority for building controls in New Zealand. Act s.10

1.4 Territorial authorities

1.4.1 Territorial authorities are responsible within their districts for the day-to-day administration of the building control legislation. Act s.24

2.0 SPECIAL TERMS

2.1 Building certifier

Act Part VII **2.1.1** A building certifier is a person approved by the Building Industry Authority to issue building certificates with respect to specific provisions of the New Zealand Building Code. A building certifier may be employed by a building owner as an alternative to using the territorial authority for checking technical proposals and performing inspections.

2.2 Building certificate

Act s.50(1)(a) **2.1.1** A building certificate is a formal confirmation by a building certifier that specific aspects of a building comply with the New Zealand Building Code. A territorial authority is obliged to accept such a certificate.

2.3 Project information memorandum

Act s.30 **2.3.1** A territorial authority is required, either on request or when a building consent is issued, to provide the owner with a project information memorandum. The memorandum shall contain all information known to the territorial authority about physical site conditions, and requirements under any legislation, which could be of relevance to an owner initiating a building project.

2.3.2 This requirement is intended to avoid an owner being committed to expensive redesign costs on a project as a result of not being supplied with details of requirements in advance of doing the work.

2.4 Building consent

Act s.32 **2.4.1** The building consent is the formal authorisation by the territorial authority that a proposed building work may proceed. The consent may contain conditions, and will confirm inspection requirements necessary to ensure that the finished work complies with the New Zealand Building Code.

2.5 Waivers and modifications

Act s.34(4) **2.5.1** A territorial authority may grant waivers and modifications to provisions of the New Zealand Building Code.

2.5.2 In doing so, the territorial authority must have due regard to matters described in section 47 of the Act. These include the physical characteristics of the building, its location, use and intended life, and any special historical, cultural or traditional considerations. The Building Industry Authority must be notified of any waivers or modifications approved by a territorial authority. Act s.47

2.5.3 Waivers and modifications to New Zealand Building Code provisions, are not to be confused with site changes to a design or variations to an acceptable solution, which still comply with the New Zealand Building Code . In effect such changes are an alternative solution and may be authorised at any time by a building certifier or territorial authority.

2.6 Accreditation certificate

2.6.1 Building Industry Authority may issue an accreditation certificate for materials, components and construction methods used in building. Accreditations may be based on an assessment of appraisals given by recognised independent specialists, or on type endorsements confirming that a particular material, component or construction method conforms with one already acceptable under the New Zealand Building Code. Act Part VIII

2.6.2 Any materials or methods for which the Building Industry Authority has issued an accreditation certificate must be accepted by a territorial authority or building certifier as satisfying relevant New Zealand Building Code provisions. Act s.50 (1)(c)

2.7 Determination

2.7.1 A determination is a decision by the Building Industry Authority on whether a material, component or method complies with the New Zealand Building Code. Act s.17(2)

2.7.2 An application for a determination is made to resolve a disagreement between a building owner and a territorial authority or building certifier. A determination applies only to a particular building and is binding on all parties concerned.

2.7.3 The Building Industry Authority will publish those determinations of significance, as a guide to future decisions by territorial authorities and building certifiers.

2.8 Notice to rectify

2.8.1 A territorial authority may issue to the owner Act s.42

or owner's agent a notice to rectify, requiring any building work not complying with the Act or New Zealand Building Code to be rectified.

2.9 Code compliance certificate

Act s.43 **2.9.1** A territorial authority or building certifier will, on the satisfactory completion of building work, issue a code compliance certificate indicating that all necessary provisions of the New Zealand Building Code have been satisfied.

2.9.2 Separate code compliance certificates may be issued for different parts of a staged building construction.

2.10 Compliance schedule

Act s.44 **2.10.1** A compliance schedule specifies inspection, maintenance and reporting procedures for systems whose continued operation is essential for ongoing New Zealand Building Code compliance.

2.10.2 Such systems include automatic fire protection equipment, lifts, signs, emergency lighting and ventilation plant.

2.11 Building warrant of fitness

Act s.45 **2.11.1** An annual building warrant of fitness is a building owner's confirmation that essential features of the building, as listed in the compliance schedule, have been properly maintained.

3.0 MEANS OF CODE COMPLIANCE

3.1 Owner's choice

3.1.1 An owner is free to use any materials, components or construction methods which comply with relevant performance criteria of the New Zealand Building Code. The absence of prescriptive requirements is expected to encourage innovation and the use of new technology.

3.1.2 For those people who prefer specific guidance, Approved Documents issued by Building Industry Authority provide detailed methods for establishing New Zealand Building Code compliance.

3.2 Approved Documents

3.2.1 Approved Documents authorised under the Act, contain acceptable solutions and verification methods. Act s.49

3.2.2 A territorial authority or building certifier must accept that compliance with an Approved Document, is a means of establishing compliance with those provisions of the New Zealand Building Code to which that document refers. Act s.50(1)(d)

3.3 Acceptable solutions

3.3.1 Acceptable solutions given in Approved Documents are examples of materials, components and construction methods which, if used, will result in compliance with the New Zealand Building Code. They serve also as guide-lines for alternative solutions.

3.4 Alternative solutions

3.4.1 There is no obligation to adopt any particular solution. Materials, components and construction methods which differ in whole or in part from those described in Approved Documents may be used, if they comply with the New Zealand Building Code. The owner may be required to demonstrate that any such method does in fact comply, when seeking a consent from the territorial authority under section 33 of the Act, or a determination from Building Industry Authority under section 17 of the Act. Act s.33 Act s.17

3.5 Verification methods

3.5.1 New Zealand Building Code compliance of an alternative solution may be verified by any of the following methods:

a) Calculations - using recognised analytical methods and mathematical models.

b) Laboratory tests - using tests (sometimes to destruction) on prototype components and systems.

c) Tests in-situ - which may involve examination of plans and verification by inspection, where compliance with specified numbers (e.g. fittings), dimensions or locations is required. Non-destructive tests (e.g. pipe pressure tests), are also included.

3.5.2 Where specific test methods are known, and practicable, they are listed in Approved Documents.

3.6 Producer statements

Act s.33(5) **3.6.1** A territorial authority may, at its discretion, accept a producer statement establishing compliance with the New Zealand Building Code.

Act s.56(2) **3.6.2** A building certifier may also accept a producer statement if satisfied on reasonable grounds that the product or design complies with the New Zealand Building Code.

3.6.3 The acceptance of a producer statement does not absolve the territorial authority or building certifier from responsibility.

3.7 Status of other publications

Act s.49(5) **3.7.1** Publications issued by organisations other than the Building Industry Authority are referred to in Approved Documents. Those publications (subject to any stated deletions or modifications), are methods of compliance with the New Zealand Building Code, to the extent that they relate to provisions specifically stated in the purpose of each New Zealand Building Code clause.

3.7.2 It should be noted in using reference publications that:

a) Provisions in the reference may exceed New Zealand Building Code provisions.

b) For purposes of the New Zealand Building Code, reference content may be separated into two parts comprising either verification methods or acceptable solutions.

Act s.49(3)(a) c) Content on good practice, while being desirable is not essential for satisfying New Zealand Building Code performance.

Act s.49(3)(b) d) Approvals, waivers and modifications under the New Zealand Building Code may be granted only by the territorial authority, or the Building Industry Authority as the outcome of a referral. This does not preclude the site supervisor making (within the limits of his/her technical competence) minor practical construction changes to facilitate New Zealand Building Code compliance.

e) As it is the responsibility of building owners or their agents to demonstrate that alternative solutions comply with the New Zealand Building Code, phrases such as "to the approval of the engineer", used in referenced publications, are not applicable to the New Zealand Building Code.

3.7.3 Referenced publications are specific to the dated edition quoted, and include any amendments issued prior to the date shown at the foot of the page on which they are listed in each Approved Document.

4.0 INTERPRETATION

4.1 Building Code

4.1.1 This schedule to the Building Act 1991 is divided under eight main categories into a total of 37 clauses of which the first two are general provisions, and the remainder specifically applicable to different aspects of building construction.

4.1.2 Clause references are identified by letters and numerals, with the letter indicating the category.

4.1.3 First order numerals (either 1, 2 or 3) indicate primary subdivisions of each clause where:

1 is the **Objective**
2 is the **Functional Requirement**
3 is the **Performance**

4.1.4 Second order numerals identify a specific **Functional Requirement** or **Performance**.

For example in Clause F4.3.2:

F indicates the main category, **"Safety of Users"**.

4 indicates specific application to, **"Safety from falling"**.

3 indicates a **Performance**.

2 indicates the second performance of the Clause.

4.1.5 Throughout the New Zealand Building Code and Approved Documents, except in headings, comments and tables, defined words and classified uses are indicated by italics.

4.1.6 Defined words of the New Zealand Building Code are listed in Clause A2. Approved Documents each contain a list of definitions relevant to the document. A full list of definitions is contained in this Handbook.

4.1.7 Where an **Objective**, **Functional Requirement** or **Performance** has limited application, the exceptions are identified immediately beside the Clause to which they refer.

4.2 Approved Documents

4.2.1 Approved Documents may contain acceptable solutions and verification methods. In cases where a verification method or acceptable solution has not been adopted, this is stated. Over time additional verification methods and acceptable solutions may be issued by the Building Industry Authority.

4.2.2 Each acceptable solution and verification method is identified according to topic and whether it is an acceptable solution or verification method at the top of each page.

For example:

C2/AS1 Indicates that the topic is C2, Means of Escape, and the document is acceptable solution number 1.

E1/VM1 Indicates that the topic is E1, Surface Water, and the document is verification method number 1.

4.2.3 Approved Documents each include copies of the appropriate New Zealand Building Code Clause and a list of references and definitions relevant to the document, but do not contain explanations of classified uses. These apply to all Approved Documents and are available separately in Clause A1 and the New Zealand Building Code, reproduced in this Handbook.

4.2.4 Advisory comment

Where Approved Documents contain information that is general advice, such comments are identified and in italicised smaller print immediately following the paragraph to which they refer.

PUBLICATIONS REFERENCED IN APPROVED DOCUMENTS

Referenced documents shall be deemed to include any amendments issued prior to the date displayed and the foot of the page on which they appear in this list.

Approved Documents in which the specific references are quoted are identified by the relevant New Zealand Building Code Clause and the number of the verification method or acceptable solution.

For example: **B1**/VM1/AS3 indicates that the reference occurs in Verification Method 1, and Acceptable Solution 3 of the Approved Document for Clause B1 Structure.

Places where the reference documents are quoted, are more specifically identified by paragraph or table, in the reference list contained in each Approved Document.

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STANDARDS ASSOCIATION OF NEW ZEALAND

		Where quoted
NZS/BS 21:1985	Specification for pipe threads for tubes and fittings where pressure-tight joints are made on the threads (metric dimensions).	**G10**/AS1, **G14**/VM1
NZS/BS 143 and 1256:1986	Specification for malleable cast iron and cast copper alloy threaded pipe fittings.	**G10**/AS1, **G14**/VM1
NZS 202:1966	Specification for steel pipes and joints for hydraulic purposes.	**G14**/VM1
NZS 380:1968	Specification for flameproof electric lighting fittings.	**F6**/AS1
NZS 899:1968	Specification for n-Butanol.	**E1**/AS1

		Where quoted
NZS/BS 970:-	Specification for wrought steels for mechanical and allied engineering purposes.	
Part 1:1983	General inspection and testing procedures and specific requirements for carbon, carbon manganese, alloy and stainless steels.	**E1**/AS1
NZS/BS 1387:1985	Specification for screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or for screwing to BS 21 pipe threads.	**G10**/AS1, **G12**/AS1, **G14**/VM1
NZS/BS 1560:-	Circular flanges for pipes, valves and fittings (Class designated).	
Part 2:1970	Specification for steel pipe flanges, (nominal sizes 1/2 to 24 in). Metric dimensions.	**E1**/AS1, **G10**/AS1, **G14**/VM1
Part 3:-	Steel, cast iron and copper alloy flanges.	**E1**/AS1
Section 3.1:1989	Specification for steel flanges.	
NZS/AS 1650:1989	Hot-dipped galvanised coatings on ferrous articles.	**B1**/AS2/AS3
NZS/AS 1657:1985	Fixed platforms, walkways, stairways and ladders - Design, construction and installation (known as the SAA Code for Fixed Platforms, Walkways, Stairways, and Ladders).	**D1**/AS1
NZS 1900 :-	Model building bylaw.	
Ch 5:1988	Fire resisting construction and means of egress.	**C3**/AS1
Ch 11.2:1985	Special structures. Division 11.2 Farm buildings.	**B1**/VM1
NZS/AS 2033:1980	Installation of polyethylene pipe systems.	**E1**/AS1, **G14**/VM1
NZS 2038:1966	Stainless steel urinals and flushing apparatus.	**G1**/AS1
NZS 2271:1969	Specification for copper and copper alloy traps.	**G13**/AS1
NZS 2295:1988	Building papers (breather type).	**E2**/AS1
NZS/BS 2494:1990	Specification for elastomeric seals for joints in pipework and pipelines.	**E1**/AS1, **G13**/AS2, **G14**/VM1
NZS/BS 2654:1989	Specification for manufacture of vertical steel welded non-refrigerated storage tanks with butt-welded shells for the petroleum industry.	**G14**/VM1
NZS/BS 2971:1977	Specification for Class II arc welding of carbon steel pipework for carrying fluids.	**G10**/AS1, **G14**/VM1
NZS 3101:-	The design of concrete structures.	
Part 1:1982	Code of practice for the design of concrete structures.	**B1**/VM1
Part 2:1982	Commentary on the design of concrete structures.	**B1**/VM1
NZS 3106:1986	Code of practice for concrete structures for the storage of liquids.	**B1**/VM1, **G14**/VM1
NZS 3107:1978	Specification for precast concrete drainage and pressure pipes.	**B1**/VM1, **E1**/AS1, **G13**/AS2, **G14**/VM1
NZS 3109:1987	Specification for concrete construction.	**B1**/AS1/AS3, **D2**/AS1

		Where quoted
NZS 3112:-	Methods of test for concrete.	
Part 2:1986	Tests relating to the determination of strength of concrete.	**B1**/VM1/AS3
Part 4:1986	Tests relating to grout.	**B1**/VM1
NZS 3114:1987	Specification for concrete surface finishes.	**G15**/AS1
NZS 3124:1987	Specification for concrete construction for minor works.	**B1**/AS1, **E1**/AS1
NZS 3302:1983	Specification for ceramic pipes, fittings and joints.	**E1**/AS1, **G13**/AS2, **G14**/VM1
NZS 3331:1972	Specification for quality of vitreous china sanitary appliances.	**G1**/AS1
NZS 3402:1989	Steel bars for the reinforcement of concrete.	**B1**/AS3
NZS 3403:1978	Specification for hot-dip galvanized corrugated steel sheet for building purposes.	**E1**/AS1, **E2**/AS1
NZS 3404:-	The steel structures code.	
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Part 1:1991	Limit state steel structures code.	**C4**/AS1
NZS 3421:1975	Specification for hard drawn mild steel wire for concrete reinforcement.	**B1**/AS3
NZS 3422:1975	Specification for welded fabric of drawn steel wire for concrete reinforcement.	**B1**/AS3
NZS 3441:1978	Specification for hot-dipped zinc-coated steel coil and cut lengths.	**B1**/AS2/AS3, **E2**/AS1
NZS 3501:1976	Specification for copper tubes for water, gas, and sanitation.	**G10**/AS1, **G12**/AS1,
NZS 3502:1976	Specification for copper and copper alloy tubes for general engineering purposes.	**G10**/AS1
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NZS 3604:1990	Code of practice for light timber frame buildings not requiring specific design.	**B1**/AS1/AS3/AS4, **E1**/AS1,
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NZS 3614:1971	Specification for the manufacture of construction plywood.	**E2**/AS1
NZS 3615:1981	Specification for strength properties and design methods for construction plywood.	**B1**/VM1
NZS 3617:1979	Specification for profiles of weatherboards, fascia boards, and flooring.	**E2**/AS1
NZS 3631:1988	New Zealand national timber grading rules.	**B1**/AS2/AS5

		Where quoted
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NZS 4214:1977	Methods of determining the total thermal resistance of parts of buildings.	**E3**/AS1, **G5**/AS1, **H1**/VM1
NZS 4217:-	Pressed metal tile roofs.	
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Part 2:1980	Code of practice for preparation of the structure and the laying and fixing of metal roofing tiles.	**E2**/AS1
NZS 4218P:1977	Minimum thermal insulation requirements for residential buildings.	**E3**/AS1, **H1**/VM1/AS1
NZS 4219:1983	Specification for seismic resistance of engineering systems in buildings.	**B1**/VM1, **G10**/AS1, **G14**/VM1
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NZS 4452:1986	Code of practice for the construction of underground pipe sewers and drains.	**B1**/AS1, **E1**/AS1 **G13**/AS2, **G14**/VM1
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NZS 5807:-	Code of practice for industrial identification by colour, wording or other coding.	
Part 1:1980	Identification of signs, safety colours and fire extinguishers.	**C3**/AS1
Part 2:1980	Identification of contents of piping, conduit and ducts.	**G10**/AS1, **G12**/AS1
NZS 5841:-	Code of practice for the reduction of slip hazards.	
Part 1:1988	Guidelines for the selection, installation, care and maintenance of flooring and other surfaces.	**D1**/AS1
NZS 6104:1981	Specification for emergency electrical supply in buildings.	**C3**/AS1
NZS 6214:1988	Thermostats and thermal cutouts for domestic thermal storage electric water heaters (alternating current only).	**G12**/AS1
NZS 6315/AS 3313:1989	Approval and test specification - Particular requirements for appliances for heating liquids.	**G12**/AS1
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NZS 6401:1973	Specification for PVC-insulated cables for electric power and lighting.	**G12**/AS1
NZS 6703:1984	Code of practice for interior lighting design.	**F6**/VM1, **G7**/AS1/VM1, **G8**/VM1
NZS 6742:1971	Code of practice for emergency lighting in buildings.	**F6**/AS1, **F8**/AS1
NZS 7401:1985	Specification for solid fuel burning domestic appliances.	**B1**/AS3, **C1**/VM1/AS1

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NZS 7601:1978	Specification for polyethylene pipe (Type 3) for cold water services.	**G12**/AS1, **G14**/VM1
NZS 7602:1977	Specification for polyethylene pipe (Type 5) for cold water services.	**G12**/AS1, **G14**/VM1
NZS 7604:1981	Specification for high density polyethylene drain and sewer pipe and fittings.	**E1**/AS1, **G13**/AS2, **G14**/VM1
NZS 7609:-	Acrylonitrile butadiene styrene (ABS) pipes and fittings for pressure applications.	
Part 1:1990	Pipes.	**E1**/AS1, **G13**/AS2 **G14**/VM1
Part 2:1990	Solvent cement fittings.	**E1**/AS1, **G13**/AS2 **G14**/VM1
NZS 7610:1991	Blue polyethylene pipes up to nominal size 63 for below ground use for potable water.	**G12**/AS1, **G14**/VM1
NZS 7641:1978	Specification for unplasticized PVC waste and ventilating pipe, fittings and accessories. 32 mm, 40 mm and 50 mm.	**G13**/AS1, **G14**/VM1
NZS 7642:1971	Specification for unplasticized PVC soil and ventilating pipe, fittings and accessories.	**G13**/AS1, **G14**/VM1
NZS 7643:1979	Code of practice for the installation of unplasticized PVC pipe systems.	**B1**/AS1, **E1**/AS1, **G12**/AS1, **G13**/AS1/AS2, **G14**/VM1
NZS 7646:1978	Specification for polyethylene pipes and fittings for gas reticulation.	**G10**/AS1
NZS 7648:1987	Unplasticized PVC pipe and fittings for pressure applications.	**G12**/AS1, **G14**/VM1
NZS 7649:1988	Unplasticized PVC sewer and drain pipe and fittings.	**E1**/AS1, **G13**/AS2, **G14**/VM1
NZS 7652:1976	Specification for plastics waste traps.	**G13**/AS1, **G14**/VM1
BRITISH STANDARDS INSTITUTION		
BS 10:1962	Specification for flanges and bolting for pipes, valves and fittings.	**G10**/AS1
BSCP 143:-	Code of practice for sheet roof and wall coverings.	
Part 5:1964	Zinc.	**E2**/AS1
Part 12:1970	Copper. Metric units.	**E2**/AS1
Part 15:1973	Aluminium. Metric units.	**E2**/AS1
BSDD 175:1988	Code of practice for the identification of potentially contaminated land and its investigation.	**F1**/VM1
BS 437:1978	Specification for cast iron spigot and socket drain pipes and fittings.	**G13**/AS2
BS 476:-	Fire tests on building materials and structures.	**C1**/AS1, **C3**/AS1, **F3**/AS1
Part 4:1970	Non-combustibility test for materials.	
Part 20:1987	Method for determination of the fire resistance of elements of construction (general principles).	**C3**/AS1

		Where quoted
Part 21:1987	Methods for determination of the fire resistance of loadbearing elements of construction.	**C3**/AS1
Part 22:1987	Methods for determination of the fire resistance of non-loadbearing elements of construction.	**C3**/AS1
BS 1470:1987	Specification for wrought aluminium and aluminium alloys for general engineering purposes: plate, sheet and strip.	**E1**/AS1
BS 1521:1972	Specification for waterproof building papers.	**E2**/AS1
BS 1600:-	Specification for dimensions of steel pipe for the petroleum industry.	
Part 2:1983	Metric units.	**G14**/VM1
BS 1640:-	Specification for steel butt-welding pipe fittings for the petroleum industry.	
Part 3:1968	Wrought carbon and ferritic alloy steel fittings. Metric units.	**G10**/AS1, **G14**/VM1
Part 4:1968	Wrought and cast austenitic chromium-nickel steel fittings. Metric units.	**G10**/AS1, **G14**/VM1
BS 1723:-	Brazing.	
Part 1:1986	Specification for brazing.	**G10**/AS1, **G12**/AS1
BS 1740:-	Specification for wrought steel pipe fittings (screwed BS 21 R-series thread).	
Part 1:1971	Metric units.	**G10**/AS1, **G14**/VM1
BS 1845:1984	Specification for filler metals for brazing.	**G10**/AS1, **G12**/AS1
BS 1965:-	Specification for butt-welding pipe fittings for pressure purposes.	
Part 1:1963	Carbon steel.	**G14**/VM1
BS 2594:1975	Specification for carbon steel welded horizontal cylindrical storage tanks.	**G14**/VM1
BS 2598:-	Glass plant, pipeline and fittings.	
Part 1:1980	Specification for properties of borosilicate glass 3.3.	**G14**/VM1
Part 2:1980	Specification for testing, handling and use.	**G14**/VM1
Part 3:1980	Specification for pipeline and fittings of nominal bore 15 to 150 mm: compatibility and interchangeability.	**G14**/VM1
Part 4:1980	Specification for glass plant components.	**G14**/VM1
BS 2640:1982	Specification for Class II oxy-acetylene welding of carbon steel pipework for carrying fluids.	**G10**/AS1, **G14**/VM1
BS 2870:1980	Specification for rolled copper and copper alloys : sheet, strip and foil.	**E1**/AS1
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BS 4741:1971	Specification for vertical cylindrical welded steel storage tanks for low-temperature service: single wall tanks for temperatures down to – 50°C.	**G10**/AS1, **G14**/VM1
BS 4790:1987	Method for determination of the effects of a small source of ignition on textile floor coverings (hot metal nut method).	**C3**/AS1
BS 4991:1974	Specification for propylene copolymer pressure pipe.	**G14**/VM1

		Where quoted
BS 4994:1987	Specification for design and construction of vessels and tanks in reinforced plastics.	**G14**/VM1
BS 5252:1976	Framework for colour co-ordination for building purposes.	**F8**/AS1
BS 5378:-	Safety signs and colours	
Part 1:1980	Specification for colour and design.	**F8**/AS1
BS 5410:-	Code of practice for oil firing.	
Part 1:1977	Installations up to 44 kW output capacity for space heating and hot water supply purposes.	**C1**/AS1
Part 2:1978	Installations of 44 kW and above output capacity for space heating, hot water and steam supply purposes.	**C1**/AS1
Part 3:1976	Installations for furnaces, kilns, ovens and other industrial purposes.	**C1**/AS1
BS 5572:1978	Code of practice for sanitary pipework.	**G13**/VM1
BS 5839:-	Code of practice for system design, installation and servicing.	
Part 1:1988	Fire detection and alarm systems for buildings.	**C3**/AS1
BS 6283:-	Safety devices for use with hot water systems.	
Part 1:1982	Specification for expansion valves for pressures up to and including 10 bar.	**G12**/AS1
Part 2:1982	Specification for temperature relief valves for pressures up to and including 10 bar.	**G12**/AS1
Part 3:1982	Specification for combined temperature and pressure relief valves for pressures up to and including 10 bar.	**G12**/AS1
Part 4:1982	Specification for drop-tight pressure reducing valves of nominal size up to and including DN 54 for supply for pressures up to and including 12 bar.	**G12**/AS1
BS 6374:-	Lining of equipment with polymeric materials for the process industries.	
Part 1:1985	Specification for lining with sheet thermoplastics.	**G14**/VM1
Part 2:1984	Specification for lining with non-sheet applied thermoplastics.	**G14**/VM1
Part 3:1984	Specification for lining with stoved thermosetting resins.	**G14**/VM1
Part 4:1984	Specification for lining with cold curing thermosetting resins.	**G14**/VM1
Part 5:1985	Specification for lining with rubbers.	**G14**/VM1
BS 6464:1984	Specification for reinforced plastics pipes, fittings and joints for process plants.	**G14**/VM1
BS 6561:1985	Specification for zinc alloy sheet and strip for building.	**E1**/AS1
BS 6915:1988	Specification for design and construction of fully supported lead sheet roof and wall coverings.	**E2**/AS1
BS 6920:-	Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.	
Part 1:1990	Specification.	**G12**/AS1
Part 2:1990	Methods of tests.	**G12**/AS1
Part 3:1990	High temperature tests.	**G12**/AS1
BS 6925:1988	Specification for mastic asphalt for building and civil engineering (limestone aggregate).	**E2**/AS1
BS 7159:1989	Code of practice for design and construction of glass-reinforced plastics (GRP) piping systems for individual plants or sites.	**G14**/VM1

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AS 1159:1988	Polyethylene pipes for pressure applications.	**G12**/AS1, **G13**/AS2, **G14**/VM1
AS 1167:-	Welding and brazing - Filler metals.	
Part 1:1984	Filler metal for brazing and braze welding.	**G10**/AS1, **G12**/AS1
AS 1229:1989	Laundry troughs.	**G2**/AS1
AS 1250:1981	The use of steel in structures (known as the SAA Steel Structures Code) (incorporating Amdt 1).	**G10**/AS1 **B1**/VM1
AS 1254:1991	Unplasticised PVC (UPVC) pipes and fittings for storm and surface water applications.	**E2**/AS1
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AS 1357:-	Water valves for use with unvented water heaters.	
Part 1:1988	Protection valves.	**G12**/AS1
Part 2:1988	Control valves.	**G12**/AS1
AS 1432:1990	Copper tubes for plumbing, gasfitting and drainage applications.	**G10**/AS1
AS 1449:1980	Wrought alloy steels - Stainless and heat-resisting steel plate, sheet and strip.	**G1**/AS1
AS 1460:-	Fittings for use with polyethylene pipes	
Part 1:1989	Mechanical jointing fittings.	**G12**/AS1, **G14**/VM1
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AS 1530:-	Methods for fire tests on building materials, components and structures.	
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Part 3:1989	Simultaneous determination of ignitiability, flame propagation, heat release and smoke release.	**C3**/AS1
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AS 2280:1991	Ductile iron pressure pipes and fittings.	**E1**/AS1, **G13**/AS2
AS 2642:-	Polybutylene pipe systems.	
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AS 3500:-	National Plumbing and Drainage Code.	
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DEFINITIONS

DEFINITIONS

Unless the context otherwise requires, words used in the New Zealand Building Code and Approved Documents shall have the meaning given under this section of the Handbook.

Access chamber A chamber with working space at *drain* level through which the *drain* passes either as an open channel or as a pipe incorporating an *inspection point.*

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

Access point A place where access may be made to a *drain* for inspection, cleaning or maintenance; and may include an *inspection point, rodding point, inspection chamber*, or *access chamber.*

Access route A continuous route that permits people and goods to move between the apron or *construction* edge of the *building* to spaces within a *building*, and between spaces within a *building.*

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 carparking 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.*

Accreditation certificate means an *accreditation certificate* issued under Part VIII of the Act.

Active conductor Any electrical conductor in which the electrical potential differs from that of a neutral conductor or earth.

Adequate *Adequate* to achieve the objectives of the *building code.*

Adjacent building A nearby *building*, including an adjoining *building*, whether or not erected on *other property.*

Air gap The vertical distance through air between the lowest point of the water supply outlet and the *flood level rim* of the equipment or the *fixture* into which the outlet discharges.

Alter in relation to a building, includes to rebuild, re-erect, repair, enlarge and extend; and **alteration** has a corresponding meaning.

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.

Appliance hearth A layer of *non-combustible* material under or near an appliance. It may be either part of the *building* structure or an overlay on a *combustible* floor.

Asbestos as defined by the Asbestos Regulations 1983 means:

a) Actinolite, amosite, chrysotile, crocidolite, fibrous anthophyllite, or tremolite; or
b) A mixture containing a mineral specified in paragraph (a) of this definition; or
c) A material that is composed wholly or partly of any such mineral; or
d) A material or article that is contaminated by any such material.

Atmospheric burner A burner system where all the air for combustion is induced by the inspirating effect of a gas injector and/or by natural draught in the combustion chamber without mechanical assistance.

Authority means the Building Industry Authority established under Part III of the Act.

Backflow A flowing back or reversal of the normal direction of the flow caused by *back pressure* and includes *back-siphonage.*

Backflow prevention device A device that prevents *backflow.*

Back pressure A condition where the downstream pressure is greater than the supply pressure.

Back-siphonage *Backflow* caused by the supply pressure being less than atmospheric pressure.

Baluster A post providing the support for the top and bottom rails of a barrier.

Balustrade The infill parts of a barrier (typically between floor and top rail).

Basement Any *firecell* or part of a *firecell* below the level of the lowest *final exit*.

Boundary joist A joist running along the outer ends of the floor joists.

Branch discharge pipe A *discharge pipe* which serves one or more *fixture discharge pipes* from any one floor and discharges to a *discharge stack*.

Branch vent pipe A *vent pipe* which serves two or more *fixture vent pipes* and is connected at its upper end to a *discharge vent stack*.

Building has the meaning ascribed to it by section 3 of the Act as follows: meaning of *building* -

(1) In this Act, unless the context otherwise requires, the term "*building*" means any temporary or permanent movable or immovable structure (including any structure intended for occupation by people, animals, machinery, or chattels); and includes any mechanical, electrical, or other systems, and any utility systems, attached to and forming part of the structure whose proper operation is necessary for compliance with the *building code*; but does not include:

(a) Systems owned or operated by a *network utility operator* for the purpose of reticulation of *other property*; or

(b) Cranes, including any cranes as defined in section 2 (1) of the Boilers, Lifts, and Cranes Act 1950, whether or not attached to any other structure; or

(c) Cablecars, cableways, ski tows, and other similar stand alone machinery systems, whether or not incorporated within any other structure; or

(d) Ships as defined in section 2 (1) of the Shipping and Seaman Act 1952, other than permanently moored houseboats; or

(e) Vehicles and motor vehicles (including vehicles and motor vehicles as defined in section 2 (1) of the Transport Act 1962 and section 2 (1) of the Transport (Vehicle and Driver Registration and Licensing) Act 1986), but not including vehicles and motor vehicles, whether movable or immovable, which are used exclusively for permanent or long-term residential purposes; or

(f) Containers as defined in section 2 of the Dangerous Goods Act 1974; or

(g) Magazines as defined in section 2 of the Explosives Act 1957; or

(h) *Scaffolding* used in the course of the *construction* process; or

(i) *Falsework* used in the course of the *construction* process.

(2) For the purposes of a *building consent*, a *code compliance certificate*, and a *compliance schedule* the term *building* also includes -

(a) Any part of a *building*; and

(b) Any 2 or more *buildings* which, on completion of any *building work*, are intended to be managed as 1 *building* with a common use and a common set of ownership arrangements.

(3) For the purposes of subsection (2) of this section, where any utility system or any part of any utility system -

(a) Is external to the *building*; and

(b) Is also connected to or is intended to be connected to -

(i) A network under the control of a *network utility operator*; or

(ii) Some other facility which is able to provide for the successful functioning of the utility system in accordance with its intended design - that utility system or that part of the utility system shall be deemed to be part of a *building*.

(4) Notwithstanding the provisions of subsection (3) of this section, where a septic tank is connected to a *building* utility system the septic tank shall be deemed to form part of that *building* utility system.

Building certifier means a person approved as a *building certifier* by the Authority under Part VII of the Act.

Building code means the *building code* made under Part VI of the Act.

Building consent means a consent to carry out *building work* granted by a *territorial authority* under Part V of the Act; and includes all conditions to which the consent is subject.

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.

Building height The vertical distance between the floor level of the lowest *final exit* from the *building*; and the highest floor level containing or supporting any *purpose group* other than IE, IA or ID, or penthouses used to enclose stairways, liftshafts or machinery rooms located on or within the roof.

Building performance index The energy from a depletable resource needed to maintain a *building* at a constant internal temperature, measured per m^2 of floor area and per *degree-day*, for the period 1st of May to 31st of August under standard conditions. The standard conditions are:

a) A uniform continuous indoor temperature of 20 °C throughout the *building*.

b) An air change rate of 1 change per hour or the actual air leakage rate, whichever is the greater.

c) A heat emission contribution arising from internal heat sources for the period being considered of 1000 kWh for the first 50 m^2 of floor area and 10 kWh per m^2 of floor area thereafter.

d) No allowance for curtains, blinds, or drapes on windows.

e) Windows to have a shading coefficient of 0.6 (made up of 0.8 for windows and recesses and 0.75 for site shading).

Building statement of fitness means a statement issued by a *territorial authority* under section 44(4) (c) of the Act.

Building work means work for or in connection with the *construction*, *alteration*, demolition, or removal of a *building*; and includes *sitework*.

Cavity barrier A *construction* provided to close openings within a *concealed space* against the passage of *fire*, or to restrict the spread of *fire* within such spaces.

Check valve (or non-return valve) A valve that permits flow in one direction but prevents a return flow.

Chimney A *non-combustible* structure which encloses one or more *flues*, *fireplaces* or other heating *appliances*.

Chimney back The *non-combustible* wall forming the back of a *fireplace*.

Chimney base That part of a *chimney* which houses the *fireplace*.

Chimney jambs The side walls of a *fireplace*.

Cladding The exterior weather-resistant surface of a *building*.

Classified use means a *classified use* listed in clause A1 of the *building code*.

Code compliance certificate means a certificate to that effect issued by a *territorial authority* or a *building certifier* pursuant to section 43 of the Act.

Combined waste pipe A *discharge pipe* which serves two or more *waste pipes*.

Combustible See *non-combustible*.

Common ramp A ramp which is used, or intended to be used by the public whether as of right or not, and is not a *service ramp* or *accessible* ramp.

Common stairway A *stairway* which is used, or intended to be used, by the public whether as of right or not, and is not a *private stairway*, *service stairway* or *accessible stairway*.

Compliance schedule means a *compliance schedule* issued under section 44 of the Act.

Compound In relation to the storage of liquid dangerous goods, a basin, pit, excavation, hollow or enclosure constructed of concrete, brick, clay, earth, or similar incombustible material which will effectively retain the liquid dangerous goods if they leak from their container(s).

Concealed space Any part of the space within a *building* that cannot be seen from an *occupied space*.

Comment:

This term includes any ceiling space, roof space, space under a raised floor (such as computer rooms, floors, or stages) plenums, spaces under a tiered floor, "left-over spaces" created when some structural element or the like has been covered in; small service or duct spaces within the volume of a firecell and the like, but not a protected shaft.

Construct in relation to a *building*, includes to build, erect, prefabricate, and relocate; and **construction** has a corresponding meaning.

Contaminant has the meaning ascribed to it by the Resource Management Act 1991.

Controlled area That area where the use of radioactive material or an irradiating apparatus may, in the opinion of the *licensee*, present a hazard to persons within that area.

Cross connection Any actual or potential connection between a *potable* water supply and a source of contamination or pollution.

Damp-proof course (DPC) A layer of *durable vapour barrier* placed between *building elements* to prevent the passage of moisture from one element to another.

Dangerous goods Any materials included in the UN classification, classes 2-5.

Dangerous goods workroom A room reserved primarily for the use of *dangerous goods* of Class 3(a) or Class 3(b) (i.e. flammable liquids).

Dead end That part of an *open path* where escape is possible in only one direction.

Comment:

A dead end ceases to exist when the escape route reaches a point in the open path which offers alternative directions of travel, or at a final exit or an exitway.

Degree-day The number of °C by which a given base temperature exceeds the mean outdoor temperature measured daily. The degree-day total for a season is derived by summing these values for the period. For the purposes of the New Zealand Building Code the base temperature shall be 15 °C.

Comment:

Results are ignored for days where the mean outdoor temperature exceeds the base temperature. Tables produced by the NZ Meteorological Service give total degree-days for stated periods in different locations, and for different bases.

Depot In relation to *dangerous goods*, a *building*, place, or vessel as may be prescribed, or as may be approved by an Inspector (of *dangerous goods*), as a *depot* for the storage of *dangerous goods*.

Developed length The total length along the centre line of a pipe including fittings and bends.

Diameter (or bore) The nominal internal *diameter*.

Discharge pipe Any pipe which is intended to convey discharge from *sanitary fixtures* or *sanitary appliances* and includes a *waste pipe*, *combined waste pipe*, *branch discharge pipe* and *discharge stack*.

Discharge stack A main vertical *discharge pipe* having two or more *branch discharge pipe* connections, and which is vented to the atmosphere at one end via a *discharge stack vent*.

Discharge stack vent A vertical *vent pipe* connected to the top of the *discharge stack* at

one end and open to the atmosphere at the other.

Discharge unit The unit of measure for the discharge (hydraulic load) in the *plumbing system*, and is based on the rate, duration and frequency of discharge from a *sanitary fixture* or *sanitary appliance*.

Doorset A complete assembly comprising a door leaf or leaves including any glazed or solid panels adjacent to or over the leaves within the door frame including hardware or other inbuilt features; and a door frame, if any, with its fixings to the wall and, for a sliding or tilting door, all guides and their respective fixings to the lintel, wall or sill.

Drain A pipe normally laid below ground level including fittings and equipment and intended to convey *foul water* or *surface water* to an *outfall*.

Drainage access area means a space within a *building* containing an inspection chamber or access chamber, and which is isolated from other enclosed spaces within the *building*.

Drain vent pipe Any pipe which is intended to permit the movement of air into and out of the *drain* and *sewer*.

Draught diverter A device, without moving parts, fitted in the *flue* of an appliance for isolating the combustion system from the effects of pressure changes in the secondary *flue*.

Durable Resistant to wear and decay.

Electrical installation Any *electrical fixed appliances*, and components used in the reticulation of electricity, which are intended to remain permanently attached to and form part of the *building*.

Electrical supply system The source of electricity external to the *electrical installation*.

Escape route A continuous unobstructed route from any *occupied space* in a *building* to a *final exit* to enable occupants to reach a *safe place*, and shall comprise one or more of the following: *open paths, protected paths* and *safe paths*.

Comment:

Doors are not obstructions in an escape route provided they comply with C2/AS1, C3/AS1 and D1/AS1.

Essential service In the context of an *electrical installation* means emergency lighting, firemen's lifts, alarms, water pumps, sprinklers, detectors, ventilation systems and public address systems necessary for the safety of people in *buildings*.

Estimated value The value of *building work* shall be the aggregate of the values, determined in accordance with section 10 of the Goods and Services Tax Act 1985, of all goods and services to be supplied for that *building work*.

Evacuation time The time taken by the occupants of the *building* to evacuate the *building* to a *final exit*.

Exitway All parts of an *escape route* protected by *fire* or *smoke separations*, or by distance when exposed to open air, and terminating at a *final exit*.

External wall Any exterior face of a *building* within 30^0 of vertical, consisting of *primary* and/or *secondary elements* intended to provide protection against the outdoor environment, but which may also contain *unprotected areas*.

Comment:

A roof is an external wall if within 30^0 of the vertical.

External wall rating (E) The time in minutes for which it is intended that a *fire* in a *building* should not spread due to failure of any *primary* or *secondary element* in an *external wall*:

a) Across a *relevant boundary* to *other property*, or

b) To an *adjacent building* containing *purpose groups* SC, SD, SA, SR or CM, or

c) Vertically outside the wall to higher *firecells* in the same *building* containing *purpose groups* SC, SD, SA, SR or CM.

Factor of safety in relation to any *building* means the ratio of resisting forces to applied forces for a given loading condition. It is generally expressed to two significant figures.

Falsework used in the course of the construction process means any temporary structure or framework used in *construction* work to support materials, equipment, or any assembly; and includes the use of steel tubes, adjustable steel props, proprietary frames, or any other means to support a permanent structure during its *construction* until it becomes self-supporting; but does not include *scaffolding* or cranes for support.

Final exit The point at which an *escape route* terminates by giving direct access to a *safe place*.

Comment:

Final exits are commonly the external doors from a ground floor, but this only applies if such doors open directly onto a safe place. If a safe place can only be reached by passing down an alley, or across a bridge, then the final exit is not reached until the end of such an alley or bridge. Final exits, therefore, should be seen strictly as a point of arrival, rather than as any particular element of a building. They are determined entirely by the definition of safe place.

Fire The state of combustion during which flammable materials burn producing heat, toxic gases, or smoke or flame or any combination of these.

Firecell Any space including a group of contiguous spaces on the same or different levels within a *building*, which is enclosed by any combination of *fire separations*, *external walls*, roofs, and floors.

Comment:

Floors, in this context includes ground floors, and those in which the underside is exposed to the external environment (e.g. when cantilevered). Note also that internal floors between firecells are fire separations.

Firecell rating (F) the time in minutes for which it is intended to prevent *fire* spreading to another *firecell* within a *building*, or causing structural collapse within the *firecell* due to failure of any *primary* or *secondary element*.

Comment:

1. The purpose of the firecell rating is to prevent premature collapse of elements of structure in order to protect:

a) The occupants, some of whom may have to remain in the building for some time while evacuation proceeds, particularly if the building is a large one.

b) Adjacent household units and sleeping areas in the building of fire origin.

c) Fire fighters engaged on rescue and fire fighting operations (although this is limited because property protection in the building of origin is not a matter covered by the New Zealand Building Code except as required by (b) above).

2. The use of the F rating to determine the FRR of a primary or secondary element is discussed in C3/AS1.

Fire damper A device with a specified *FRR* complete with fixings and operating mechanism for automatically closing off an airway where it passes through a *fire separation*.

Comment:

An airway may be a duct, plenum, ceiling space, roof space or similar construction used for the passage of ventilating air.

Fire door A *doorset*, single or multi-leaf, having a specific *fire resistance rating*, and in certain situations a smoke control capability, and forming part of a *fire separation*.

Comment:

Requirements for fire doors are given in C3/AS1 Paragraph 5.0 and Appendix E.

Fire hazard means the danger in terms of potential harm and degree of exposure arising from the start and spread of *fire* and the smoke and gases that are thereby generated.

Fire hazard category The number (graded 1 to 4 in order of increasing severity), used to classify *purpose groups* or activities having a similar *fire hazard*, and where fully developed *fires* are likely to have similar impact on the structural stability of the *building*.

Comment:

Fire hazard categories are identified in C3/AS1, Appendix A Table A1.

Fire intensity The rate release of calorific energy in watts, determined either theoretically or empirically, as applicable.

Fire load The sum of the net calorific values of the *combustible* contents which can reasonably be expected to burn within a *firecell*, including furnishings, built-in and removable materials, and *building elements*. The calorific values shall be determined at the ambient moisture content or humidity. (The unit of measurement is MJ).

Fireplace A space formed by the *chimney back*, the *chimney jambs*, and the *chimney breast* in which fuel is burned for the purpose of heating the room into which it opens.

Fire resistance rating (FRR) The term used to classify *fire* resistance of *primary* and *secondary elements* as determined in the *standard test* for *fire* resistance, or in accordance with a specific calculation method verified by experimental data from standard *fire* resistance tests. It comprises three numbers giving the time in minutes for which each of the criteria *stability*, *integrity* and *insulation* are satisfied, and is presented always in that order.

Comment:

1. Examples of FRRs are:

a) 30/30/15 indicating stability 30 minutes, integrity 30 minutes, insulation 15 minutes.

b) 30/-/- indicating stability 30 minutes, but no time requirement for integrity or insulation.

c) -/15/15 indicating no time requirement for stability, but 15 minutes for integrity and insulation.

d) 60/30/x indicating stability of 60 minutes, integrity of 30 minutes, and a requirement for insulation from C3/AS1 Paragraph 3.5.

2. C3/AS1 Paragraph 3.0 gives more information on FRRs.

Fire resisting closure A *fire* rated device or assembly for closing an opening through a *fire separation*. It shall have a *FRR* of no less than that required for the *fire separation*.

Comment:

A fire resisting closure is intended to include fire doors, fire windows, access panels, or fixed glazing. In this context the opening may be used to permit passage of people or goods, or to transmit light, but does not include an opening to permit the passage of building services.

Fire resisting glazing Fixed glazing, complete with frame and fixings, mullions, transoms and glazing beads, with a specified *FRR*.

Comment:

The requirement for fire resisting glazing will not be met by ordinary window glass, or safety glasses, but rather by wired glass, or by special fire resisting glass shown by test to perform adequately. The nature and design of the frames also have an effect on the performance of fire resistant glazing. Note that heat radiation is not measured, but is empirically taken to be 50 % of that through an opening of the same size and shape.

Fire safety system The combination of all methods used in a *building* to warn people of an emergency, provide for safe evacuation, and restrict the spread of fire, and includes both active and passive protection.

Fire separation Any *building element* which separates *firecells* or *firecells* and *safe paths*, and provides a specific *fire resistance rating*.

Fire shutter A *fire* rated device, complete with fixings and operating mechanism, for automatically closing off an opening in a *fire separation* or *protected shaft*.

Fire stop A material or method of *construction* used to restrict the spread of *fire* within or through *fire separations*, and having a *FRR* no less than that of the *fire separation*.

Comment:

Fire stops are mainly used to seal around penetrations, but can also be used to seal narrow gaps between building elements.

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

Fixture discharge pipe A *discharge pipe* which is used to convey waste from a single *sanitary fixture* or *sanitary appliance* to a *branch discharge pipe*, a *discharge stack*, or directly to a *drain*. It does not include any pipes forming part of a *sanitary appliance*.

Fixture vent pipe A *vent pipe* which is connected to a *fixture discharge pipe* or the *sanitary fixture* itself.

Flame barrier A protective cover which is either *non-combustible* and arranged and fixed to prevent ready access of air or flame to the material it is protecting; or is able to limit the temperature rise to no more than 140K on the unexposed face of the *flame barrier* after 10 minutes exposure in the *standard test* for *fire* resistance.

Comment:

1. The principal use of flame barriers is to delay ignition of combustible foam plastics, but the definition covers situations such as protection applied to the underside of timber floors, and the protection provided by lining materials to building papers and combustible insulation located in cavities in building elements.

2. The fire resistance test specimen should include an assembly comprising both the flame barrier and the material it is protecting.

Flame safeguard system A system consisting of a flame detector(s) plus associated circuitry, integral components, valves and interlocks the function of which is to shut off the fuel supply to the burner(s) in the event of ignition failure or flame failure.

Flammability index (FI) That index number for flammability, which is determined according to the *standard test* method for flammability of thin flexible materials.

Flood level rim The top edge at which water can overflow from equipment or a *fixture*.

Floor waste A *discharge pipe* with a graded inlet located at the lowest point within a graded floor, and which conveys accidental overflows of waste water to either the outside of the *building* or to the *foul water* drainage or the *plumbing system*.

Flue The passage through which the products of combustion are conveyed to the outside.

Flue liner Pipes or linings of *fire* clay, metal or *fire* brick, surrounding *flues*.

Forced or induced draught appliance An appliance where all or part of the air for combustion is provided by a fan or other mechanical device which is an integral part of the combustion system.

Foul water The discharge from any *sanitary fixture* or *sanitary appliance*.

Foul water drainage system *Drains*, joints and fittings normally laid underground and used specifically for the conveyance of water from the *plumbing system* to an *outfall*.

Free outlet (push through) In the context of *storage water heaters* means a *water heater* with a tap on the cold water inlet so designed that the hot water is discharged through an open outlet.

Functional requirements in relation to a *building*, means those functions which a *building* is to perform for the purposes of the Act.

Gantry A structure covering a public way providing protection from both the side and overhead.

Gather That part of a *chimney* where the transition from *fireplace* to stack occurs.

Good ground means any soil or rock capable of permanently withstanding an ultimate bearing pressure of 300 kPa (i.e. an allowable bearing pressure of 100 kPa using a factor of safety of 3.0), but excludes:

a) Potentially compressible ground such as topsoil, soft soils such as clay which can be moulded easily in the fingers, and uncompacted loose gravel which contains obvious voids,

b) Expansive soils being those that have a liquid limit of more than 50 % when tested in accordance with NZS 4403 Test 2.2, and a linear shrinkage of more than 15 % when tested in accordance with NZS 4402 Test 2.6, and

c) Any ground which could forseeably experience movement of 25 mm or greater for any reason including one or a combination of:

land instability, ground creep, subsidence, seasonal swelling and shrinking, frost heave, changing ground water level, erosion, dissolution of soil in water, and effects of tree roots.

Comment:

Soils (excepting those described in (a), (b) and (c) above) tested with a dynamic cone penetrometer in accordance with NZS 4402 Test 6.5.2, shall be acceptable as good ground for building foundations if penetration resistance is no less than:

a) 3 blows per 75 mm at depths no greater than the footing width.

b) 2 blows per 75 mm at depths greater than the footing width.

Depths shall be measured from the underside of the proposed footing.

Grease trap A device designed to intercept grease in a *foul water* discharge.

Gully trap A fitting designed to prevent foul air escaping from the drainage system and used to receive the discharge from *waste pipes*.

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.

Habitable work Any *building* where people live, work or may assemble, but does not include *buildings* associated with the storage or use of *dangerous goods* on the same site.

Comment:

The terms 'Habitable Work' and 'Title Boundary' in this document replace the definition 'Protected Work' used in the Dangerous Goods Regulations 1980/46, 1985/188, 1985/170.

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

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

Hazardous substance Has the meaning ascribed to it by the Fire Service Act 1975.

Hearth The insulating floor under the *fire* and in front and at the sides of the *fireplace*.

Hoarding A structure alongside a public way providing side protection but no overhead protection.

Hold open device A device which holds a *fire door* open during normal use, but is released by deactivating the device by an alarm sensing element, allowing the door to close automatically under the action of a self-closing device.

Household unit means any *building* or group of *buildings*, or part of any *building* or group of *buildings*, used or intended to be used solely or principally for residential purposes and occupied or intended to be occupied exclusively as the home or residence of not more than one household; but does not include a hostel or boardinghouse or other specialised accommodation.

HVAC an abbreviation for heating, ventilating and air conditioning.

Ignitability index (Ig) That index number for ignitability which is determined according to the *standard test* method for measuring the properties of lining materials.

Illuminance The luminous flux falling onto a unit area of surface.

Impact insulation class, (IIC) A single number rating derived from measured values of normalized impact sound pressure levels in accordance with Method of ASTM E492, Annex A1. Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine. It provides an estimate of the impact sound insulating performance of a floor-ceiling assembly.

Impervious That which does not allow the passage of moisture.

In bulk In relation to liquid or gaseous *dangerous goods*, product contained in receptacles of a liquid capacity greater than 250 litres. Conversely, **non-bulk** means contained in receptacles of 250 litres capacity or less.

Inspection chamber A chamber with working space at ground level through which the *drain* passes either as an open channel or as a pipe incorporating an *inspection point*.

Inspection point A removable cap at *drain* level through which access may be made for cleaning and inspecting the drainage system.

Insulating material A material that has a thermal conductivity of less than 0.07 W/mK.

Insulation In the context of *fire* protection, the time in minutes for which a prototype specimen of a *fire separation* when subjected to the *standard test* for *fire* resistance, has limited the transmission of heat through the specimen.

Integrity In the context of *fire* protection, the time in minutes for which a prototype specimen of a *fire separation* when subjected to the *standard test* for *fire* resistance, has prevented the passage of flame or hot gases.

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.

Interceptor trap A device which will separate and retain desired liquids and solids from a

liquid stream and which will provide a water barrier to prevent foul air or gas from entering any downstream system.

Intermediate floor Any upper floor within a *firecell* which because of its configuration provides an opening allowing smoke to spread from a lower to an upper level within the *firecell.*

Comment:

An intermediate floor may be open, partly open or closed off (from the opening through which smoke can spread) with non-rated partitions including smoke separations. If closed-off with fire separations the space becomes a firecell, and the floor is no longer an intermediate floor.

Isolation distance The minimum physical distance by which an installation, or specified part of an installation, containing *dangerous goods* must be separated from any other specified place, or *building.*

Kerb ramp means a short ramp either cutting through a kerb or built up to the kerb.

Land held under the same title includes a piece of land, or a *building* or part of a *building, or* both, that is:

a) A unit under the Unit Titles Act 1972, or

b) Leased under a crosslease registered under the Land Transfer Act 1952, or

c) Leased under a company lease registered under the Land Transfer Act 1952.

Lock-out The safety shut down condition of the control system such that re-start cannot be accomplished without manual resetting.

Lower flammable limit (LFL) (also referred to as Lower Explosive Limit (LEL)). The lowest percentage of hydrocarbon or flammable vapour in the air which will readily ignite on introduction of an ignition source.

Means of escape from fire in relation to a *building* which has a floor area, means continuous unobstructed routes of travel from any part of a floor area of that *building* to a place of safety; and includes all active and passive protection features required to assist in protecting people from the effects of the *fire* in the course of their escape.

Minister means the Minister of Internal Affairs.

Multi-unit dwelling Applies to a *building* or use which contains more than one separate household or family.

Comment:

For fire-safety purposes each household unit is a separate firecell.

Natural draught The flow produced by the tendency of warmed gases to rise.

Network utility operator means a person who:

a) Undertakes the distribution or transmission by pipeline of natural or manufactured gas, petroleum, or geothermal energy; or

b) Is an electricity operator or electrical supply authority as defined by the Electricity Act 1968 for the purpose of an electric line as defined by that Act; or

c) Undertakes the piped distribution of *potable* water for supply; or

d) Is the operator of a sewerage system or a stormwater drainage system.

Nominal pile width The least width of a pile in side view and is equal to the diameter in round piles.

Non-bulk See *in bulk.*

Non-combustible Materials shall be classified as *non-combustible* or *combustible* when tested to: AS 1530 Methods for Fire Tests on Building Materials and Structures - Part 1: Combustibility Test for Materials, or BS 476 Fire Tests on Building Materials and Structures - Part 4 Non-combustibility test for materials.

Nosing The rounded projecting edge of a stair tread.

Notional boundary The boundary which for *fire* safety purposes, is assumed to exist between two *buildings* on the same property under a single land title.

Comment:

A notional boundary may be located anywhere between the two buildings, and once chosen determines the

unprotected area permitted in each building. Locating it closer to one building than the other, may be an advantage where it is planned for a rear wall without windows to face the front wall of the other building requiring windows.

Occupant load The greatest number of people likely to occupy a particular space within a *building*. It is determined by:

a) Multiplying the number of people per m^2 of net floor area (occupant density) for the activity being undertaken, by the total floor area, or

b) For sleeping areas, counting the number of beds, or

c) For fixed seating areas, counting the number of seats.

Occupied space Any space within a *building* in which a person will be present from time to time during the *intended use* of the *building*

Open path That part of an *escape route* (including *dead ends*) not protected by *fire* or *smoke separations*, and which terminates at a *final exit* or *exitway*.

Open vented storage water heater A *water heater* incorporating a *vent pipe* which is permanently open to the atmosphere.

Other property means any land or *buildings* or part thereof which are:

a) Not held under the same *allotment*; or

b) Not held under the same ownership - and includes any road.

Outdoor air Air as typically comprising by volume: i) oxygen 20.94 % ii) carbon dioxide 0.03 % iii) nitrogen and other inert gases 79.03 %.

Outfall That part of the disposal system receiving *surface water* or *foul water* from the drainage system. For *foul water*, the *outfall* may include a *sewer* or a septic tank. For *surface water*, the *outfall* may include a natural water course, kerb and channel, or soakage system.

Over-pressure protection Devices preventing the pressure in piping or appliances from exceeding a predetermined value.

Owner in relation to any land, including any *buildings* on that land, means the *person* who is for the time being entitled to the rack rent thereof or who would be so entitled if the land were let to a tenant at a rack rent; and, for the purposes of sections 30, 33, and 43 of the Act, includes the:

a) Owner of the fee simple of the land; and

b) 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, while the agreement remains in force, and **ownership** has a corresponding meaning.

Penetration A pipe, cable or duct passing through an opening in a *fire separation*.

People with disabilities People whose ability to use *buildings* is affected by mental, physical, hearing or sight impairment.

Performance criteria in relation to a *building*, means those qualitative or quantitative criteria which the *building* is to satisfy in performing its *functional requirement*.

Person includes the Crown, a corporation sole, and also a body of persons, whether corporate or unincorporated.

Piping system An assembly of pipes, pipe fittings, gaskets, bolting and pipe supports.

Pitch line The line joining the leading edge or *nosings* (if any) of successive stair treads within a single flight of a *stairway*.

Plans and specifications means the drawings, specifications, and other documents according to which a *building* is proposed to be constructed, altered, demolished, or removed, including proposed procedures for inspection during *construction*, *alteration*, demolition, or removal, and also including (in respect of *construction* or *alteration*):

a) The *intended use* of the *building*; and

b) The design features or systems which the applicant considers will be required to be

included in any *compliance schedule* issued in terms of section 44 of the Act; and

c) The proposed procedures for inspection and routine maintenance for the purposes of that *compliance schedule* in respect of those design features or systems.

Plumbing system Pipes, joints and fittings laid above ground and used for the conveyance of *foul water* to the *foul water drain*, and includes *vent pipes*.

Pressure control valve A pressure limiting valve or pressure reducing valve.

Primary element A *building element* providing the basic load bearing capacity to the structure, and which if affected by *fire* may initiate instability or premature structural collapse.

Privacy The situation of being withdrawn from view.

Private stairway A *stairway* used, or intended to be used, by the occupants of a single *household unit*.

Privy A private room containing a receptacle (other than a WC) or an excavation for excreted liquid or solid human waste, and with a means of disposal or containment of the waste.

Producer statement means any statement supplied by or on behalf of an applicant for a *building consent* or by or on behalf of a *person* who has been granted a *building consent* that certain work will be or has been carried out in accordance with certain technical specifications.

Property includes land, *buildings*, and goods; but does not include incorporeal forms of *property*.

Protected path That portion of an *exitway* within a *firecell* which is protected from the effects of smoke by *smoke separations*.

Protected shaft A space, other than a *safe path*, enclosed by *fire separations* or *external walls* used to house *building* services, lifts, or conveyors which pass from one *firecell* to another.

Public place Any place which is freely open to and frequented by the public, but excludes private property where the access of the public to *dangerous goods* can be controlled by the licensee.

Purpose group The classification of spaces within a *building* according to the activity for which the spaces are used.

Reflectance The ratio of the flux reflected from a surface to the flux incident on it.

Regulations means *regulations* in force under Part VI of the Act.

Regulator A device which automatically regulates the pressure or volume of gas passing through it to a predetermined level.

Relevant boundary A line from which space separation requirements are measured. It may be:

a) The boundary between 2 property titles,

b) The property boundary on the far side of an abutting street, right of way, railway or public place, or

c) A *notional boundary*.

Comment:

Separation requirements are related to the potential threat from the effects of a fire emanating from the exterior wall of a building. A boundary is not a relevant boundary, if lines drawn parallel to the face of the building and to the boundary, intersect at an angle of more than 80^0.

Relief vent A *vent pipe* which is connected to a discharge stack below the lowest branch connection.

Rodding point A removable cap at ground level through which access may be made for cleaning and inspecting the *foul water drainage system*.

Room-sealed appliance An appliance designed so that air for combustion neither enters from, nor combustion products enter into, the room in which the appliance is located.

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

Safe path That part of an *exitway* which is protected from the effects of *fire* by *fire*

separations, *external walls*, or by distance when exposed to open air.

Safe place A place of safety in the vicinity of a *building*, from which people may safely disperse after escaping the effects of a *fire*. It may be a place such as a street, open space, public space or an *adjacent building*.

Safety colour (green, red or yellow) A colour of specified properties to which a safety meaning is attributed.

Safety glass means a glass so treated or combined with other materials as to reduce the likelihood of injury to persons when it is cracked or broken.

Safety shut-off system An arrangement of valves and associated control systems which shuts off the supply of gas when required by a device which senses an unsafe condition.

Safety sign A particular type of sign which comprises a geometric form and a *safety colour*, together with a *safety symbol* or text (that is, words, letters numbers or a combination of these) and gives a particular safety message.

Safety symbol means a graphic symbol used in a *safety sign*.

Sanitary appliance An appliance which is intended to be used for *sanitation* and which is not a *sanitary fixture*. Included are machines for washing dishes and clothes.

Sanitary fixture Any *fixture* which is intended to be used for *sanitation*.

Sanitation The term used to describe the activities of washing and/or excretion carried out in a manner or condition such that the effect on health is minimised, with regard to dirt and infection.

Scaffolding used in the course of the *construction* process means any structure, framework, swinging stage, suspended *scaffolding*, or boatswain's chair, of a temporary nature, used or intended to be used for the support or protection of workers engaged in or in connection with *construction* work for the purpose of carrying out that work, or for the support of materials used in connection with any such work; and includes any plank, coupling, fastening, fitting, or device used in connection with the *construction*, erection, or use of *scaffolding*.

Screen wall Any wall or barrier which effectively diverts flammable vapours by virtue of its width, height and position, or which prevents the spread of *fire* from one place to another.

Secondary element A *building element* not providing load bearing capacity to the structure and if affected by *fire*, instability or collapse of the *building* structure will not occur.

Secondary flow path The path over which *surface water* will follow if the drainage system becomes overloaded or inoperative.

Security rating (S) The time in minutes within which a *fire* should not cause structural failure of *primary* or *secondary elements*, resulting in consequential *fire* spread or collapse damage to *other property*, or an *adjacent building* on the same property which contains sleeping *purpose groups*.

Comment:

The purpose of the security rating is to minimise the danger to people and buildings on other property and adjacent buildings in which people sleep. The danger may be caused by radiation, falling debris or by impact from the collapsing structure onto other buildings.

Service ramp means a ramp that is used, or intended to be used, infrequently by service personnel to gain access to spaces for the purposes of maintenance and the movement of goods.

Service stairway means a *stairway* that is used, or intended to be used, infrequently by service personnel to gain access to spaces for the purposes of maintenance and the like.

Sewer A *drain* that is under the control of, or maintained by, a *network utility operator*.

Sitework means work on a *building* site, including earthworks, preparatory to or associated with the *construction*, *alteration*, demolition or removal of a *building*.

Smoke baffle Part of the floor structure, or a screen attached to the underside of an *intermediate floor*, which extends downwards

to create a smoke reservoir and obstruct the lateral flow of smoke. *Smoke baffles* are either *non-combustible* or have a *FRR*.

Comment:

1. This traps hot smoke around smoke detectors, and is regarded as essential for ensuring early detection of the presence of smoke. If a ceiling is perforated so that smoke can pass into the space below the floor above, and penetration through the ceiling by water spray from sprinkler heads located above the ceiling is not impeded, then the ceiling may be taken as non-existent for the purposes of this definition.

2. Control of smoke spread in large open floor areas (e.g. shopping malls and supermarkets) is aided by dividing underfloor or roof areas into reservoirs with smoke baffles, and providing smoke extraction or venting to each.

Smokecell A space within a *building* which is enclosed by an envelope of *smoke separations*, or *external walls*, roofs, and floors.

Smoke control door A *doorset* with close-fitting single or multi-leaves which are impermeable to the passage of smoke, fitted with smoke seals and forming a part of a *smoke separation*.

Comment:

Requirements for smoke control doors are given in C3/AS1 Paragraph 5.0.

Smoke developed index (SDI) That index number for smoke developed when determined according to the *standard test* method for measuring the properties of lining materials.

Smoke separation Any vertical, horizontal or inclined *building element* with known smoke-stopping or smoke-leakage characteristics.

Socket outlet An accessory fixed to a wall or ceiling and designed to accept a plug that extends the electrical supply to an appliance by means of a flexible cable.

Soil fixture A *sanitary fixture constructed* to receive solid and/or liquid excreted human waste. It includes a bedpan disposal unit, slop sink, urinal, water closet pan, bidet and water-flushed sanitary towel disposal unit.

Sound transmission class, (STC) A single number rating derived from measured values of transmission loss in accordance with classification ASTM E413, Determination of Sound Transmission Class. It provides an estimate of the performance of a partition in certain common sound insulation situations.

Specified intended life has the meaning ascribed to it by section 39 of the Act as follows: "*specified intended life*" in relation to a proposed *building*, or any existing *building* proposed to be altered, and which is intended to have a use of not more than 50 years, means the period of time, as stated in an application for a *building consent* or in the consent itself, for which the *building* is proposed to be used for its *intended use.*

Spread of flame index (SFI) That index number for spread of flame which is determined according to the *standard test* method for measuring the properties of lining materials.

Stability In the context of *fire* protection, the time in minutes for which a prototype specimen of a *primary element* when subject to the *standard test* for *fire* resistance, has continued to carry its *fire* design load without failure.

Comment:

The fire design load should be as specified in the limit state loadings code NZS 4203.

Stairway A series of steps or stairs with or without landings, including all necessary *handrails* and giving access from between two different levels.

Standard test A test method which is recognised as being appropriate for the *fire* protection properties being assessed.

Comment:

A list of standard test methods is given in Appendix E of the Annex to Fire Safety Documents attached to Approved Document C4.

Standard year For the purposes of determining natural lighting, the hours between 8am and 5pm each day with an allowance being made for daylight saving.

Storage water heater A *water heater* with an integral hot *water tank*.

Sump A chamber which is installed in the *drain* and incorporates features to intercept and retain silt, gravel and other debris.

Surface finish The material on surfaces normally exposed to view, on either interior or exterior *building elements.* It can be a decorative coating or the uncoated lining or cladding itself.

Surface water All naturally occurring water, other than sub-surface water, which results from rainfall on the site or water flowing onto the site, including that flowing from a *drain*, stream, river, lake or sea.

Tailpipe A device placed at the low point of a gas piping system to collect condensate, and from which the condensate may be removed.

Territorial authority has the meaning ascribed to it by section 2 of the Local Government Act 1974; and includes any organisation which is authorised to permit structures pursuant to section 12(1)(b) of the Resource Management Act 1991.

Theatre A place of assembly intended for the production and viewing of performing arts, and consisting of an auditorium and stage with provision for raising and suspending stage scenery above and clear of the working area.

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 $°Cm^2/W$.

Threshold A sill to an external door, or the floor under an internal door.

Title boundary A boundary with *other property.*

Comment:

The terms 'Habitable Work' and 'Title Boundary' in this document replace the definition 'Protected Work' used in the Dangerous Goods Regulations 1980/46, 1985/188, 1985/170.

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).

Town gas A manufactured gas.

Trap A chamber which is installed in the *drain* and incorporates features to intercept and retain floatable debris.

Travel distance The length of the *escape route* as a whole or the individual lengths of its parts, namely:

a) *open paths*

b) *protected paths* and

c) *safe paths.*

Unprotected area - In relation to an *external wall* of a *building* means:

a) Any part of the *external wall* which has less than the required *FRR.* For example, a non *fire* rated window, door or other opening, or sheet metal.

b) Any part of the *external wall* which has *combustible* material more than 1.0 mm thick attached or applied to its outermost external face, whether for cladding or any other purpose.

Valve vented storage water heater (unvented *storage water heater)* A *storage water heater* in which the required venting to the atmosphere is controlled by a valve.

Vapour barrier Sheet material or coating having a low water-vapour transmission, and used to minimise water-vapour penetration in *buildings.* (Vapour barriers are sometimes referred to as damp-proof membranes).

Vapour path length The travel distance between the vapour source and the point at which the vapour concentration is being considered.

Vent line A pipe or tube which conveys gas to a safe place outside the *building* from a gas pressure *regulator* relief valve.

Vent pipe A pipe which is open to the atmosphere at one end and acts as a pressure limiting device.

Vent stack A main vertical *vent pipe,* to which two or more *combined vent pipes* are connected.

Waste pipe A *discharge pipe* which conveys the discharge from *waste water fixtures* to a *gully trap*.

Waste water fixture A *sanitary fixture* or *sanitary appliance* used to receive wastes, and which is not a *soil fixture*.

Water heater A device for heating water.

Water seal The depth of water that can be retained in a *water trap*.

Water storage tank A covered *water tank* generally used for reserve water storage in case of failure of the *water main*.

Water supply system Pipes, fittings and tanks used or intended to be used in the piping of water from a *water main* or other water source to *sanitary fixtures*, *sanitary appliances* and fittings within a *building*.

Water supply tank (or cistern) A covered *water tank* generally used for the supply to *sanitary fixtures* or to *storage water heaters*. The water supply to the tank is normally regulated by a float control valve.

Water tank A fixed container for storing water.

Water trap A fitting designed to prevent foul air escaping from the plumbing system or *foul water drainage system* and entering a *building*.

Weatherboards Any overlapping strip cladding. It may be fixed either horizontally or vertically.

Working day means any day except:

a) A Saturday, a Sunday, Good Friday, Easter Monday, Christmas Day, Boxing Day, Anzac Day, Labour Day, the Sovereign's birthday, Waitangi Day, and any other day observed in any locality concerned as a public holiday; and

b) Any day in the period commencing on the 20th day of December in any year and ending with the 10th day of January in the following year.

COMPLIANCE SCHEDULES

CONTENTS

COMPLIANCE SCHEDULES

1.0 INTRODUCTION

1.0.1 Section 44 of the Building Act 1991 requires specific systems in buildings to be subject to regular inspection, maintenance and reporting procedures. This section of the New Zealand Building Code Handbook provides guidelines for those procedures.

1.0.2 Where suitable reference documents have been identified these are quoted. In other cases suggested check lists are provided, but those lists do no necessarily satisfy the essential requirements for all installations.

1.0.3 In many cases inspection and maintenance requirements will be specific to a particular type of equipment, and recommendations of the designer, manufacturer or supplier should be followed.

1.0.4 The definition (Act s.2) of plans and specifications, includes the proposed procedures for inspection and routine maintenance of design features or systems required to have a compliance schedule. These must be supplied to the territorial authority with the application for a building consent.

1.0.5 The procedures and independent qualified persons, must have the approval of the territorial authority which issues the compliance schedule in the prescribed form in accordance with the Act s.44(2).

1.1 Inspection and maintenance

1.1.1 Inspections will generally cover the complete installation. The frequency of such inspections shall be appropriate to the type of installation and the consequences of the system not functioning.

1.1.2 Maintenance for mechanical, electrical, hydraulic or electronic systems will generally be based on the designer's, manufacturer's or supplier's recommendations for routine servicing, and the frequency will vary for different parts of the installation. Routine maintenance is aimed at avoiding breakdown or malfunction, but should breakdown or malfunction occur, corrective action should be taken as soon as is reasonably practical.

1.2 Reporting

1.2.1 Section 44(4) of the Act requires the compliance schedule to be kept in the building or some other location agreed upon with the territorial authority. Section 45(3) of the Act requires the owner to state on the building warrant of fitness, the location of the compliance schedule and associated written reports.

1.2.2 Depending on the installation it may, for practical reasons, be appropriate for a log book to be kept at the installation, with a summary report held in the designated location with the compliance schedule. Defects and action taken should be recorded with the date and the name of the individual concerned.

1.2.3 Written reports by independent qualified persons shall be filed by the owner in a systematic manner. The reports shall be kept for no less than 2 years and be available for inspection by authorised persons.

1.2.4 Where inspections are undertaken by the owner, details of those inspections and any remedial action taken shall be recorded and filed.

1.3 Existing buildings

1.3.1 Compliance schedules are required for existing buildings containing any of the nominated systems (Act s.44(6)). Existing buildings (other than those subject to alteration or change of use) are not required to be upgraded to comply with the New Zealand Building Code (Act s.8).

1.3.2 It is therefore implicit that the inspection and maintenance procedures for an existing building need only satisfy the requirements appropriate to the system at the time of installation. In such cases the examples given in this part of the Handbook may not be appropriate and this must be taken into account by the territorial authority when issuing compliance schedules for existing buildings.

1.3.3 Sections 38 and 46 of the Act explain the extent to which existing buildings, subject to alteration or change of use, must satisfy the New Zealand Building Code.

CS 1 AUTOMATIC SPRINKLER SYSTEMS

A. Inspections

Automatic sprinkler systems shall be inspected for compliance with New Zealand Building Code C3. Content of the inspections shall be in accordance with NZS 4541 or NZS 4515 as is appropriate for the installation.

Frequency of inspection is dependent upon the type of installation, and shall be weekly, monthly, annually, 2 yearly and 4 yearly as prescribed in the relevant referenced Standard.

B. Maintenance

Automatic sprinkler systems and fire alarms shall be maintained in accordance with NZS 4541 or NZS 4515 as is appropriate for the installation.

C. Persons responsible

All inspections and maintenance shall be undertaken by independent qualified persons.

CS 2 AUTOMATIC FIRE DOORS

A. Inspections

Automatic fire doors shall be inspected for compliance with New Zealand Building Code C3. Inspections shall be monthly and annually and in particular shall check that:

i) Doors are not damaged or obstructed.

ii) Door leaves or shutters close and latch automatically from any position.

iii) Double acting doors and double leaf doors stop with the leaves in line with the frame, and seals are in contact at meeting stile and/or frame.

iv) Smoke control door seals are intact and provide continuous contact.

v) Hardware is securely fixed.

vi) No unauthorised hardware is attached.

vii) Doors in exitways can be opened without keys to allow ready egress from the inside of the building at all times.

viii) Door to frame clearances comply with NZS 4232.

ix) Manufacturer's label is on door leaf or shutter and frame complies with C3/AS1.

x) Electrical interlocks on hold-open or self-closing devices are operable.

B. Maintenance

Automatic fire doors shall be maintained to ensure continued compliance with New Zealand Building Code C3 and in particular with the requirements (i) to (x) above.

C. Persons responsible

Monthly inspection and maintenance including items (i) to (viii) above shall be undertaken by the owner.

Annual inspection and maintenance including all items (i) to (x) above shall be undertaken by independent qualified persons.

CS 3 EMERGENCY WARNING SYSTEMS

A. Inspections

Emergency warning systems shall be inspected for compliance with New Zealand Building Code F7 and C3. Content of the inspections for the different inspection frequencies shall be in accordance with the following referenced Standards:

i) Automatic fire alarms - monthly, annually - NZS 4512.

ii) Manual fire alarms - monthly - NZS 4561.

iii) Emergency intercommunication systems - monthly, 6 monthly - AS 2220 and AS 1851.10.

B. Maintenance

Emergency warning systems shall be maintained in accordance with the appropriate Standard referenced above.

C. Persons responsible

All inspection and maintenance shall be undertaken by independent qualified persons.

CS 4 EMERGENCY LIGHTING SYSTEMS

A. Inspections

Emergency lighting systems shall be inspected to ensure compliance with New Zealand Building Code F6. Inspections shall be fortnightly or monthly (depending on type of installation), and annually, with inspection content being in accordance with NZS 6742 for the inspection frequency.

B. Maintenance

Emergency lighting systems shall be maintained in accordance with NZS 6742.

C. Persons responsible

The fortnightly or monthly inspection and maintenance shall be undertaken by the owner. Annual inspection and maintenance shall be undertaken by independent qualified persons.

CS 5 ESCAPE ROUTE PRESSURISATION SYSTEMS

A. Inspections

Escape route pressurisation systems shall be inspected for compliance with New Zealand Building Code C3. Inspections shall be monthly, 6 monthly, and 2 yearly. Inspection content shall be in accordance with AS 1851.6 or the designer's recommendations as is appropriate for the installation.

B. Maintenance

Escape route pressurisation systems shall be maintained in accordance with AS 1851.6 or the designer's recommended maintenance procedures, as is appropriate.

C. Persons responsible

All inspection and maintenance shall be undertaken by independent qualified persons.

CS 6 RISER MAINS

A. Inspections

Riser mains for Fire Service use shall be inspected for compliance with New Zealand Building Code C3. Inspections shall be:

* For pumps - weekly if diesel powered, or monthly if electrically powered.
* For hydrants - monthly.
* For total installation - annually.

Inspection content shall be in accordance with NZS 4510.

B. Maintenance

Riser mains for Fire Service use shall be maintained in accordance with NZS 4510.

C. Persons responsible

The monthly inspection of hydrants to detect obvious faults or damage shall be undertaken by the owner. All other inspection and maintenance shall be undertaken by independent qualified persons.

CS 7 BACK-FLOW PREVENTERS

A. Inspections

Automatic back-flow preventers shall be repaired or replaced if they fail the inspection test.

B. Maintenance

Automatic back-flow preventers shall be repaired or replaced if they fail the inspection test.

C. Persons responsible

The above inspection and maintenance procedures shall be undertaken by independent qualified persons.

CS 8/1 PASSENGER CARRYING LIFTS

A. Inspections

Passenger carrying lift installations shall be inspected annually. Installations in existing buildings shall comply with the Power Lift Rules applicable at the time of installation. Where the installation complies with D2/AS1 the attached check list is a suitable basis for the inspection. If D2/AS1 has not been used the owner should provide and work to a similar check list, approved by the territorial authority.

Glazed liftwells shall be inspected in accordance with Power Lift Rule 12.6.2(g).

B. Maintenance

Lifts shall be maintained in accordance with the manufacturer's or supplier's recommendations.

Maintenance frequency shall reflect the rate of lift usage, but in no case shall it be less than six monthly. For heavy usage the maintenance could be fortnightly.

C. Persons responsible

The above inspection and maintenance procedures shall be undertaken by independent qualified persons.

CHECK LIST SUITABLE FOR PASSENGER CARRYING LIFTS COMPLYING WITH D2/AS1

References are to rules in the Power Lift Rules 1989
*** Indicates that the rule has been modified by D2/AS1**

	Reference	Initials and comments
Machine room		
Visual inspection of machine beams and supports.	6.1, 6.4, 7.18*	
Check security of machine room door.	7.4.1*	
Check there are no obstructions or rubbish in the machine room.	7.2, 7.7*	
Check that lighting in machine room functions.	7.14	
Check ventilation in machine room functions.	7.17	
Check for the presence of circuit diagrams and manual.	24.25	
Check for presence and condition of any emergency hand winding equipment.	8.16	
Machinery		
Check condition of traction sheave, with special attention to the grooves.	18.1, 18.2	
Check condition of divertor sheave and other sheaves.	18.1, 18.2	
Check the condition and operation of the brake and the condition of brake linings.	8.11	
Check the running of machines, gearboxes, motors, generators, their bearings and any commutators.		
Lift well		
Inspect and test safety gear.	29*, 30, 70	
Visual check of liftwell enclosure.	12.1*, 12.4, 12.5	
Check hoisting ropes for equal tension, attachments and terminations correct and in good condition, number of broken wires within acceptable limits, fillings not being shed, all ropes of similar condition.	16, 17*	

	Reference	Initials and comments
Check for presence and legibility of rope data plates.	16.6	
Check that rope retainers are present and correctly fastened.	18.2	
Visual check of guide rails for straightness and security.	20*	
Lift pit		
Check there are no obstructions or rubbish in the pit.	11.3	
Check lighting in the pit functions.	11.6	
Check dryness of pit.	11.3, 11.9	
Visual check of buffer condition.	10	
Lift car exterior		
Check functioning of car external lighting.	22.20.1*	
Check condition of guides or rollers.	19.4, 20.15, 20.16	
Check function of car top controls.	25.3	
Lift car		
Observe door operation.	23	
Check operation of door protective devices.	23.6	
Check lift rating plate present.	21.3	
Check lift controls for correct operation.	25*	
Check correct operation of alarms and emergency telephone.	28.3*	
Check access to emergency trapdoor.	22.15	
Landings doors		
Check door locks	14.1, 14.4	
Check emergency opening facilities on landing doors.	14.5	
Hydraulic systems		
Visual check of the hydraulic system, including hoses, ram and cylinder.	34, 35, 37	
Check caisson for moisture.	34.3.7	
Check condition of flow restriction valve.	36.5	

	Reference	Initials and comments
Check operation of the manual lowering means.	36.6	
Operation		
Check operation of door locks, limit switches, slack rope switch, stop switches, trapdoor switch and other safety switches.	7.12, 11.7, 22.15(f), 24.7, 26.1*, 26.7*, 27, 61*	
Check functioning of lift car emergency lighting.	22.20.2.7*, 22.21	
Check for correct operation under fire conditions.	25.6*, 25.7	
Check correct operation of counterweight displacement detector.	25.9	
Check operation of load weighing device.	26.6*	
Lifts on access routes for people with disabilities		
Check floor levelling.	71.1*	
Check door dwell time.	71.3*	
Check controls position and distinction.	71.4*	
Check correct operation of landing indicators.	71.5*	
Check handrails.	71.6*	
General		
Visual check for any repairs or modifications carried out incorrectly.		
Check maintenance records are properly kept.		

Name of independent qualified person: .....

Address: .....

Date of Inspection: .....

CS 8/2 SERVICE LIFTS

A. Inspections

Service lift installations shall be inspected annually. Installations in existing buildings shall comply with the Rules for Power Lifts not exceeding 750 Watts (1.H.P): applicable at the time of installation. Where the lift installation complies with D2/AS2 the attached check list is a suitable basis for the inspection. If D2/AS2 has not been used the owner should provide and work to a similar check list approved by the territorial authority.

B. Maintenance

Lifts shall be maintained in accordance with the manufacturer's or supplier's recommendations but at least every six months.

C. Persons responsible

The above inspection and maintenance procedures shall be undertaken by independent qualified persons.

CHECK LIST SUITABLE FOR SERVICE LIFTS COMPLYING WITH D2/AS2

References are rules in The Rules For Power Lifts Not Exceeding 750 Watts (1.H.P)
*** Indicates that the rule has been modified by D2/AS2**

	Reference	Initials and comment
Machinery spaces		
Visual inspection of machine beams and supports.	3.1(a)	
Check security of machine room door.	3.2(f)*	
Clean the machinery space and clear out any rubbish.	3.2(f)*	
Check lighting in the machinery space functions.	3.2(d)	
Check the condition of the controller.		
Check the governor and any position devices.		
Check for the presence of circuit diagrams, manual and log book.		
Machinery		
Check sheaves, pulleys and drums with special attention to the grooves.	6.2	
Check the condition and operation of the brake and the condition of brake linings.	3.1(b)	
Check the running of the lift machinery.		
Check condition of drive belts.	3.1(c)	
Lift well		
Inspect and test any safety gear.	1.5	
Visual check of liftwell enclosure.	5	
Check hoisting ropes for equal tension, attachments and terminations correct and in good condition, number of broken wires within acceptable limits, filling not being shed, all ropes of similar condition, correct length of rope.	6.1.1	
Visual check of guide rails for integrity, straightness and security.	9.2*	
Check condition of guide shoes or rollers.		

	Reference	Initials and comment
Lift pit		
Remove any rubbish from the lift pit.		
Check lighting in the pit functions.	4.4(g)	
Check dryness of pit.	4.4(b)	
Visual check of buffer condition and other pit components.	4.3*	
Landing stations		
Check door locks.	8.3(a) and (b), 8.4	
Check lift controls for correct operation.		
Lift car		
Check car doors or safety barriers.		
Check lift car lighting.		
Hydraulic systems		
Visual check of the hydraulic system, including hoses, ram and cylinder.	12*	
Check caisson for moisture.		
Check operation of anti-creep device.	12.7	
Check the operation of control and auxiliary valves.	12.8, 12.9	
Operation		
Check operation of terminal stopping devices, slack rope switch and any emergency switch.	10	
Check landing door interlocks and opening of the door when the car is away from the landing.	8.4(a)	
General		
Visually check for any repairs or modifications carried out.		
Maintain full records of maintenance and inspections.		

Name of independent qualified person: .....

Address: .....

Date of Inspection: .....

CS 8/3 ESCALATORS AND MOVING WALKS

A. Inspections

Escalators and moving walks shall be inspected annually. Where the installation complies with D2/AS3 the attached check list is a suitable basis for the inspection. If D2/AS3 has not been used the owner should provide and work to a similar check list approved by the territorial authority.

B. Maintenance

Escalators and moving walks shall be maintained in accordance with the manufacturer's or supplier's recommendations.

C. Persons responsible

The above inspection and maintenance procedures shall be undertaken by independent qualified persons.

CHECK LIST SUITABLE FOR ESCALATORS AND MOVING WALKS

References are to clauses in EN115
*** Indicates that the rule has been modified by D2/AS3**

	Reference	Initials and comment
Safety devices as appropriate.		
Switches to inspection doors.	5.1.3	
Stop switch in machinery space.	6.3.3*	
Overspeed protection.	12.5	
Emergency stop devices.	14.2.2.3.1	
Other stop switches.	14.2.2.1(a) to (h)	
Brakes	12.4, 16.2.1 (d)	
Driving elements for visible signs of wear and tear and for insufficient tension of belts and chains.	9.0*	
Steps , pallets or the belt for defects, true run and guidance.	8.0*	
Dimensions and tolerances.	0.1.2, 11.0	
Combs for proper condition and adjustment.	8.3, 11.3	
Balustrade interior panelling and the skirting.	5.1.5.4 to 5.1.5.6	
Handrails.	7.0*	

Name of independent qualified person: .....

Address: .....

Date of Inspection: .....

CS 9 MECHANICAL VENTILATION AND AIR CONDITIONING SYSTEMS

A. Inspections

Mechanical ventilation and air conditioning systems shall be inspected to ensure compliance with New Zealand Building Code C3 and G4. Inspection content and frequency shall be as follows:

i) Mechanical ventilation and air conditioning systems, in accordance with the designer's recommendations for functional operation.

To ensure adequate chemical control is being achieved in cooling towers, bacteriological tests shall be performed for:

* Legionella - six monthly.

* Total bacterial count by dip slide methods - weekly, and by pourplate, spread plate or other approved method - monthly.

The total bacterial count shall not exceed 10^5 organisms/ml for safe operation.

ii) Smoke control systems, monthly, six monthly and two yearly, as required by AS 1851.6, or in accordance with the designer's recommendations as is appropriate.

B. Maintenance

Mechanical ventilation and air conditioning systems shall be maintained in accordance with AS 1851.6 or the designer's recommended maintenance procedures as is appropriate to the installation. Specific design in accordance with G4/AS1 shall include a maintenance manual.

C. Persons responsible

All inspection and maintenance shall be undertaken by independent qualified persons.

CS 10 OTHER MECHANICAL, ELECTRICAL, HYDRAULIC OR ELECTRONIC SYSTEMS

Any other mechanical, electrical, hydraulic or electronic system whose proper operation is necessary for compliance with the New Zealand Building Code, shall have inspection and maintenance procedures determined by the designer.

The information shall be contained in a maintenance manual and include the nature and frequencies of inspection and the required maintenance procedures, and identify which activities may be undertaken by the owner, and which must be undertaken by independent qualified persons.

CS 11 BUILDING MAINTENANCE UNITS

A. Inspections

Building maintenance units shall be inspected 3-monthly, 6-monthly and annually. Inspections shall be in accordance with BS 6037:1981. The annual inspection shall include testing as described in Clause 19.3 of that document.

B. Maintenance

Building maintenance units shall be maintained in accordance with Clause 21 of BS 6037:1981, together with any additional requirements of the manufacturer.

C. Persons responsible

The 3-monthly inspections shall be undertaken by the owner. The 6-monthly and annual inspections, and all maintenance procedures shall be undertaken by independent qualified persons.

CS 12 SIGNS

A. Inspections

Signs shall be inspected to confirm compliance with New Zealand Building Code F8, and in particular that they are of the correct type, are present and in the right locations, and are legible.

Inspections of signs required for emergency purposes to be illuminated, shall (as for emergency lighting) be done monthly. For other signs inspections shall be done annually.

B. Maintenance

Signs shall be refurbished before they become illegible, and shall be replaced immediately should they be missing.

Defects in illuminated emergency signs shall be remedied immediately they are apparent.

C. Persons responsible

The above inspection and maintenance procedures shall be undertaken by the building owner.

CS 13 MEANS OF ESCAPE

A. Inspections

Means of escape shall be inspected:

* Daily, when the building is in use, for crowd occupancies (purpose groups CL, CO and CM).
* Monthly in other occupancies.
* Annually for all occupancies.

Inspections shall check for compliance with New Zealand Building Code C2.

B. Maintenance

Means of escape shall be maintained at all times in a safe condition with particular attention to freedom from obstructions and from storage of combustibles, adequacy of handrails, proper operation of fire and smoke control doors, and ease of opening any doors leading into the escape route and at the final exit.

C. Persons responsible

Daily and monthly inspections shall be undertaken by the building owner, and annual inspections by independently qualified persons. Maintenance shall be undertaken by the owner.

CS 14 SAFETY BARRIERS

A. Inspections

Safety barriers shall be inspected quarterly to confirm that they are located as required, and are serviceable. The inspection shall check where applicable, for compliance with the Fencing of Swimming Pools Act 1987.

B. Maintenance

Safety barriers shall be maintained in a structurally sound condition and, where applicable, self-closing gates and other components required for the protection of children shall be kept operable. Defects shall be remedied immediately they are apparent.

C. Persons responsible

The above inspection and maintenance procedures shall be undertaken by the owner.

CS 15 ACCESS AND FACILITIES FOR PEOPLE WITH DISABILITIES

A. Inspections

Access or facilities for people with disabilities shall be inspected 6 monthly and annually to ensure compliance with New Zealand Building Code D1. The inspection shall check the adequacy of accessible routes from street level or car park to spaces within the building, with particular attention to:

Usability of accessible route to the principal entrance

Manoeuvre spaces in
- accessible routes
- accessible car parking spaces
- accessible toilet areas
- accessible laundry areas
- accessible kitchens

Handrails
Lighting levels
Door hardware
Grab rails in toilets
Lifts
- door opening times
- location and height of control panels
- handrails

B. Maintenance

Defects shall be remedied immediately they become apparent.

C. Persons responsible

The 6 monthly inspections and the maintenance procedures shall be undertaken by the owner. The annual inspections shall be undertaken by independent qualified persons.

CS 16 FIRE HOSE REELS

A. Inspections

Fire hose reels shall be inspected monthly and annually to ensure compliance with NZS 4503.

B. Maintenance

Defects in fire hose reels shall be remedied immediately they are apparent.

C. Persons responsible

Maintenance and monthly inspections shall be undertaken by the owner. Annual inspections shall be undertaken by an independent qualified person.

LIST OF APPROVED DOCUMENTS

The following Approved Documents have been published by the Building Industry Authority. AS indicates an acceptable solution, VM indicates a verification method. The Approved Document for any topic includes both the acceptable solution and verification method (where one has been adopted by the Authority).

B STABILITY

B1	Structure		
	AS1	VM1	General
	AS2		Timber barriers
	AS3		Small chimneys
	AS4	VM4	Foundations
B2	AS1	VM1	Durability

C FIRE SAFETY

C1	AS1	VM1	Outbreak of fire
C2	AS1		Means of escape
C3	AS1		Spread of fire
C4	AS1		Structural stability during fire

D ACCESS

D1	AS1		Access routes
D2			Mechanical installations for access:
	AS1		Passenger carrying lifts
	AS2		Domestic and service lifts
	AS3		Escalators and moving walks

E MOISTURE

E1	AS1	VM1	Surface water
E2	AS1		External moisture
E3	AS1		Internal moisture

F SAFETY OF USERS

F1	VM1		Hazardous agents on site
F2	AS2		Hazardous building materials
F3	AS1		Hazardous substances and processes
	AS1		Dangerous goods
F4	AS1		Safety from falling
F5	AS1		Construction and demolition hazards
F6	AS1	VM1	Lighting for emergency
F7	AS1		Warning systems
F8	AS1		Signs

G SERVICES AND FACILITIES

G1	AS1		Personal hygiene
G2	AS1		Laundering
G3	AS1		Food preparation, storage and utensil washing
G4	AS1	VM1	Ventilation
G5	AS1		Interior environment
G6	AS1	VM1	Airborne and impact sound
G7	AS1	VM1	Natural light
G8	AS1	VM1	Artificial light
G9	AS1	VM1	Electricity
G10	AS1	VM1	Piped services
G11	AS1		Gas as an energy source
G12	AS1	VM1	Water supplies
G13			Foul water:
	AS1	VM1	Sanitary plumbing
	AS1	VM2	Drainage
G14	AS1	VM1	Industrial liquid waste
G15	AS1		Solid waste
H1	AS1	VM1	Energy efficiency

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THE NEW ZEALAND BUILDING CODE

CONTENTS

A GENERAL PROVISIONS

A1 CLASSIFIED USES

1.0 EXPLANATION

1.0.1 For the purposes of this New Zealand Building Code, *buildings* are classified according to type, under seven categories.

1.0.2 A *building* with a given classified use may have one or more *intended uses* as defined in the Act.

2.0 HOUSING

2.0.1 Applies to *buildings* or use where there is self care and service (internal management). There are three types.

2.0.2 Detached dwellings

Applies to a *building* or use where a group of people live as a single household or family. Examples: a holiday cottage, boarding house accommodating fewer than 6 people, dwelling or hut.

2.0.3 Multi-unit dwelling

Applies to a *building* or use which contains more than one separate household or family. Examples: an attached dwelling, flat or multi-unit apartment.

2.0.4 Group dwelling

Applies to a *building* or use where groups of people live as one large extended family. Examples: within a commune or marae.

3.0 COMMUNAL RESIDENTIAL

3.0.1 Applies to *buildings* or use where assistance or care is extended to the *principal users*. There are two types.

3.0.2 Community service

Applies to a residential *building* or use where limited assistance or care is extended to the *principal users*. Examples: a boarding house, hall of residence, holiday cabin, hostel, hotel, motel, nurse's home, retirement village, time-share accommodation, a work camp, or camping ground.

3.0.3 Community care

Applies to a residential *building* or use where a large degree of assistance or care is extended to the *principal users*. There are two types:

a) **Unrestrained**; where the *principal users* are free to come and go. Examples: a hospital, an old people's home or a health camp.

b) **Restrained**; where the *principal users* are legally or physically constrained in their movements. Examples: a borstal or drug rehabilitation centre, an old people's home where substantial care is extended, a prison or hospital.

4.0 COMMUNAL NON-RESIDENTIAL

4.0.1 Applies to a *building* or use being a meeting place for people where care and service is provided by people other than the *principal users*. There are two types:

4.0.2 Assembly service

Applies to a *building* or use where limited care and service is provided. Examples: a church, cinema, clubroom, hall, museum, public swimming pool, stadium, theatre, or whare runanga (the assembly house).

4.0.3 Assembly care

Applies to a *building* or use where a large degree of care and service is provided. Examples: an early childhood centre, college, day care institution, centre for handicapped persons, kindergarten, school or university.

5.0 COMMERCIAL

5.0.1 Applies to a *building* or use in which any natural resources, goods, services or money are either developed, sold, exchanged or stored. Examples: an amusement park, auction room, bank, car-park, catering facility, coffee bar, computer centre, fire station, funeral parlour, hair-dresser, library, office (commercial or government), police station, post office, public laundry, radio station, restaurant, service station, shop, showroom, storage facility, television station or transport terminal.

6.0 INDUSTRIAL

6.0.1 Applies to a *building* or use where people use mental and physical effort to:

a) Extract or convert natural resources,

b) Produce goods or energy from natural or converted resources,

c) Repair goods, or

d) Store goods (ensuing from the industrial process). Examples: an agricultural building, agricultural processing facility, aircraft hangar, factory, power station, sewage treatment works, warehouse or utility.

7.0 OUTBUILDINGS

7.0.1 Applies to a *building* or use which may be included within each classified use but are not intended for human habitation, and are accessory to the principal use of associated *buildings*. Examples: a carport, farm *building*, garage, greenhouse, machinery room, private swimming pool, public toilet, or shed.

8.0 ANCILLARY

8.0.1 Applies to a *building* or use not for human habitation and which may be exempted from some amenity provisions, but which are required to comply with structural and safety-related aspects of the *building code*. Examples: a bridge, derrick, fence, free standing outdoor fireplace, jetty, mast, path, platform, pylon, retaining wall, tank, tunnel or dam.

A2 INTERPRETATION

This Clause of the New Zealand Building code lists defined words used within the code.

Those definitions, plus defined words or terms used in the Approved Documents are included in the section on definitions in this Handbook.

B STABILITY

B1 STRUCTURE

Provisions

OBJECTIVE

B1.1 The objective of this provision is to:

(a) Safeguard people from injury caused by structural failure,

(b) Safeguard people from loss of *amenity* caused by structural behaviour, and

(c) Protect *other property* from physical damage caused by structural failure.

FUNCTIONAL REQUIREMENT

B1.2 *Buildings, building elements* and *sitework* shall withstand the combination of loads that they are likely to experience during *construction* or *alteration* and throughout their lives.

PERFORMANCE

B1.3.1 *Buildings, building elements* and *sitework* shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during *construction* or *alteration* and throughout their lives.

B1.3.2 *Buildings, building elements* and *sitework* shall have a low probability of causing loss of *amenity* through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during *construction* or *alteration* when the *building* is in use.

B1.3.3 Account shall be taken of all physical conditions likely to affect the stability of *buildings*, *building elements* and *sitework*, including:

(a) Self-weight,

(b) Imposed gravity loads arising from use,

Limits on application

Provisions	Limits on application
(c) Temperature,	
(d) Earth pressure,	
(e) Water and other liquids,	
(f) Earthquake,	
(g) Snow,	
(h) Wind,	
(i) *Fire*,	
(j) Impact,	
(k) Explosion,	
(l) Reversing or fluctuating effects,	
(m) Differential movement,	
(n) Vegetation,	
(o) Adverse effects due to insufficient separation from other *buildings*,	
(p) Influence of equipment, services, non-structural elements and contents,	
(q) Time dependent effects including creep and shrinkage, and	
(r) Removal of support.	
B1.3.4 Due allowance shall be made for:	
(a) The consequences of failure,	
(b) The intended use of the *building*,	
(c) Effects of uncertainties resulting from *construction* activities, or the sequence in which *construction* activities occur,	
(d) Variation in the properties of materials and the characteristics of the site, and	
(e) Accuracy limitations inherent in the methods used to predict the stability of *buildings*.	

Provisions

B1.3.5 The demolition of *buildings* shall be carried out in a way that avoids the likelihood of premature collapse.

B1.3.6 *Sitework*, where necessary, shall be carried out to:

(a) Provide stability for *construction* on the site, and

(b) Avoid the likelihood of damage to *other property*.

B1.3.7 Any *sitework* and associated supports shall take account of the effects of:

(a) Changes in ground water level,

(b) Water, weather and vegetation, and

(c) Ground loss and slumping.

Limits on applications

B2 DURABILITY

Provisions

OBJECTIVE

B2.1 The objective of this provision is to ensure that a *building* will throughout its life continue to satisfy the other objectives of this code.

FUNCTIONAL REQUIREMENT

B2.2 *Building* materials, components and *construction* methods shall be sufficiently durable to ensure that the *building*, without reconstruction or major renovation, satisfies the other functional requirements of this code throughout the life of the *building*.

PERFORMANCE

B2.3 From the time a *code compliance certificate* is issued, *building elements* shall with only normal maintenance continue to satisfy the performances of this code for the lesser of; the *specified intended life* of the *building*, if any, or:

(a) For the structure, including *building elements* such as floors and walls which provide structural stability: the life of the *building* being not less than 50 years.

(b) For services to which access is difficult, and for hidden fixings of the external envelope and attached structures of a *building* : the life of the *building* being not less than 50 years.

(c) For other fixings of the *building* envelope and attached structures, the *building* envelope, lining supports and other *building elements* having moderate ease of access but which are difficult to replace: 15 years.

(d) For linings, renewable protective coatings, fittings and other *building elements* to which there is ready access: 5 years.

Limits on application

C FIRE SAFETY

C1 OUTBREAK OF FIRE

Provisions

OBJECTIVE

C1.1 The objective of this provision is to safeguard people from injury or illness caused by *fire*.

FUNCTIONAL REQUIREMENT

C1.2 In *buildings* fixed appliances using the controlled combustion of solid, liquid or gaseous fuel, shall be installed in a way which reduces the likelihood of *fire*.

PERFORMANCE

C1.3.1 Fixed appliances and services shall be installed so as to avoid the accumulation of gases within the installation and in *building* spaces, where heat or ignition could cause uncontrolled combustion or explosion.

C1.3.2 Fixed appliances shall be installed in a manner that does not raise the temperature of any *building element* by heat transfer or concentration to a level that would adversely affect its physical or mechanical properties or function.

Limits on application

C2 MEANS OF ESCAPE

Provisions

OBJECTIVE

C2.1 The objective of this provision is to:

(a) Safeguard people from injury or illness from a *fire* while escaping to a *safe place*, and

(b) Facilitate *fire* rescue operations.

FUNCTIONAL REQUIREMENT

C2.2 *Buildings* shall be provided with *escape routes* which:

(a) Give people *adequate* time to reach a *safe place* without being overcome by the effects of *fire*, and

(b) Give fire service personnel *adequate* time to undertake rescue operations.

PERFORMANCE

C2.3.1 The number of *open paths* available to each person escaping to an *exitway* or *final exit* shall be appropriate to:

(a) The *travel distance*,

(b) The number of occupants,

(c) The *fire hazard*, and

(d) The *fire safety systems* installed in the *firecell*.

C2.3.2 The number of *exitways* or *final exits* available to each person shall be appropriate to:

(a) *The open path travel distance*,

(b) The *building height*,

(c) The number of occupants,

Limits on application

Provisions	Limits on applications
(d) The *fire hazard*, and	
(e) The *fire safety systems* installed in the *building*.	
C2.3.3 *Escape routes* shall be:	
(a) Of *adequate* size for the number of occupants,	
(b) Free of obstruction in the direction of escape,	
(c) Of length appropriate to the mobility of the people using them,	
(d) Resistant to the spread of *fire* as required by Clause C3 "Spread of Fire",	
(e) Easy to find as required by Clause F8 "Signs",	
(f) Provided with *adequate* illumination as required by Clause F6 "Lighting for Emergency", and	
(g) Easy and safe to use as required by Clause D1.3.3 "Access Routes".	

C3 SPREAD OF FIRE

Provisions

OBJECTIVE

C3.1 The objective of this provision is to:

a) Safeguard people from injury or illness when evacuating a *building* during *fire*.

b) Provide protection to fire service personnel during firefighting operations.

c) Protect adjacent *household units* and *other property* from the effects of *fire*.

d) Safeguard the environment from adverse effects of *fire*.

FUNCTIONAL REQUIREMENT

C3.2 *Buildings* shall be provided with safeguards against *fire* spread so that:

a) Occupants have time to escape to a *safe place* without being overcome by the effects of *fire*,

b) Firefighters may undertake rescue operations and protect property,

c) Adjacent *household units* and *other property* are protected from damage, and

d) Significant quantities of *hazardous substances* are not released to the environment during *fire*.

PERFORMANCE

C3.3.1 Interior surface finishes on walls, floors, ceilings and suspended *building elements*, shall resist the spread of *fire* and limit the generation of toxic gases, smoke and heat, to a degree appropriate to:

a) The *travel distance*,

Limits on application

Requirement C3.2 (d) applies only to *buildings* where significant quantities of *hazardous substances* are stored or processed.

Provisions	Limits on applications
b) The number of occupants,	Performance C3.3.2 shall not apply to *Detached Dwellings*, or within *household units* of *Multi-unit Dwellings*.
c) The *fire hazard,* and	
d) The active *fire safety systems* installed in the *building*.	
C3.3.2 *Fire separations* shall be provided within *buildings* to avoid the spread of *fire* and smoke to:	
a) Other *firecells*,	
b) Spaces intended for sleeping, and	
c) *Household units* within the same *building* or *adjacent buildings*.	
C3.3.3 *Fire separations* shall:	
a) Where openings occur, be provided with *fire resisting closures* to maintain the *integrity* of the *fire separations* for an *adequate* time, and	
b) Where penetrations occur, maintain the *fire resistance rating* of the *fire separation*.	
C3.3.4 *Concealed spaces* and cavities within *buildings* shall be sealed and subdivided where necessary to inhibit the unseen spread of *fire* and smoke.	Performance C3.3.4 shall not apply to *Detached Dwellings*.
C3.3.5 *External walls* and roofs shall have resistance to the spread of *fire*, appropriate to the *fire load* within the *building* and to the proximity of other *household units* and *other property*.	
C3.3.6 Automatic fire suppression systems shall be installed where people would otherwise be:	
a) Unlikely to reach a *safe place* in *adequate* time because of the number of storeys in the *building*,	
b) Required to remain within the *building* without proceeding directly to a *final exit*, or where the *evacuation time* is excessive,	
c) Unlikely to reach a *safe place* due to confinement under institutional care because of mental or physical disability, illness or legal detention, and the *evacuation time* is excessive, or	

Provisions	Limits on applications
d) At high risk due to the *fire load* and *fire hazard* within the *building*.	
C3.3.7 Air conditioning and mechanical ventilation systems shall be constructed to avoid circulation of smoke and *fire* between *firecells*.	
C3.3.8 Where an automatic smoke control system is installed, it shall be constructed to:	
a) Avoid the spread of *fire* and smoke between *firecells*, and	
b) Protect *escape routes* from smoke until the occupants have reached a *safe place*.	
C3.3.9 The *fire safety systems* installed shall facilitate the specific needs of fire service personnel to:	
a) Carry out rescue operations, and	
b) Control the spread of *fire*.	
C3.3.10 Environmental protection systems shall ensure a low probability of *hazardous substances* being released to:	Performance C3.3.10 applies only to *buildings* where significant quantities of *hazardous substances* are stored or processed.
a) Soils, vegetation or natural waters,	
b) The atmosphere, and	
c) *Sewers* or public *drains*.	

C4 STRUCTURAL STABILITY

Provisions	Limits on application

OBJECTIVE

C4.1 The objective of this provision is to:

(a) Safeguard people from injury due to loss of structural stability during *fire*, and

(b) Protect *household units* and *other property* from damage due to structural instability caused by *fire*.

FUNCTIONAL REQUIREMENT

C4.2 *Buildings* shall be constructed to maintain structural stability during *fire* to:

(a) Allow people *adequate* time to evacuate safely,

(b) Allow fire service personnel *adequate* time to undertake rescue and firefighting operations, and

(c) Avoid collapse and consequential damage to adjacent *household units* or *other property*.

PERFORMANCE

C4.3.1 Structural elements of *buildings* shall have *fire* resistance appropriate to the function of the elements, the *fire load*, the *fire intensity*, the *fire hazard*, the height of the *buildings* and the *fire* control facilities external to and within them.

C4.3.2 Structural elements shall have a *fire* resistance of no less than that of any element to which they provide support within the same *firecell*.

C4.3.3 Collapse of elements having lesser *fire* resistance shall not cause the consequential collapse of elements required to have a higher *fire* resistance.

D ACCESS

D1 ACCESS ROUTES

Provisions	Limits on application
OBJECTIVE	
D1.1 The objective of this provision is to:	
(a) Safeguard people from injury during movement into, within and out of *buildings*,	
(b) Safeguard people from injury resulting from the movement of vehicles into, within and out of *buildings*, and	
(c) Ensure that *people with disabilities* are able to enter and carry out normal activities and functions within *buildings*.	Objective D1.1(c) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
D1.2.1 *Buildings* shall be provided with reasonable and adequate access to enable safe and easy movement of people.	Requirement D1.2.1 shall not apply to *Ancillary buildings* or *Outbuildings*.
D1.2.2 Where a *building* is provided with loading or parking spaces, they shall be constructed to permit safe and easy unloading and movement of vehicles, and to avoid conflict between vehicles and pedestrians.	
PERFORMANCE	
D1.3.1 *Access routes* shall enable people to:	
(a) Safely and easily approach the main entrance of *buildings* from the apron or *construction* edge of a *building*,	
(b) Enter *buildings*,	
(c) Move into spaces within *buildings* by such means as corridors, doors, stairs, ramps and lifts,	
(d) Manoeuvre and park cars, and	
(e) Manoeuvre and park delivery vehicles required to use the loading space.	

Provisions	Limits on application
D1.3.2 At least one *access route* shall have features to enable *people with disabilities* to:	Performance D1.3.2 shall not apply to *Housing*, *Outbuildings*, *Ancillary buildings*, and to *Industrial buildings* where no more than 10 people are employed.
(a) Approach the *building* from the street boundary or, where required to be provided, the *building* car park,	
(b) Have access to the internal space served by the principal access, and	
(c) Have access to and within those spaces where they may be expected to work or visit, or which contain facilities for personal hygiene as required by Clause G1 "Personal Hygiene".	
D1.3.3 Access routes shall:	
(a) Have *adequate* activity space,	
(b) Be free from dangerous obstructions and from any projections likely to cause an obstruction,	
(c) Have a safe cross fall, and safe slope in the direction of travel,	
(d) Have *adequate* slip-resistant walking surfaces under all conditions of normal use,	
(e) Include stairs to allow access to upper floors irrespective of whether an escalator or lift has been provided,	
(f) Have stair treads, and ladder treads or rungs which:	
(i) provide *adequate* footing, and	
(ii) have uniform rise within each flight and for consecutive flights,	
(g) Have stair treads with a leading edge that can be easily seen,	
(h) Have stair treads which prevent children falling through or becoming held fast between treads, where open risers are used,	Performance D1.3.3 (h) shall not apply within *Industrial buildings*, *Outbuildings* and *Ancillary buildings*.
(i) Not contain isolated steps,	Performance D1.3.3 (i) shall not apply within *Detached Dwellings* or within *household units* of *Multi-unit Dwellings*, or to *Outbuildings* and *Ancilliary buildings*.

Provisions

(j) Have smooth, reachable and graspable *handrails* to provide support and to assist with movement along a stair or ladder,

(k) Have *handrails* of *adequate* strength and rigidity as required by Clause B1 "Structure",

(l) Have landings of appropriate dimensions and at appropriate intervals along a stair or ramp to prevent undue fatigue,

(m) Have landings of appropriate dimensions where a door opens from or onto a stair, ramp or ladder so that the door does not create a hazard, and

(n) Have any automatically controlled doors *constructed* to avoid the risk of people becoming caught or being struck by moving parts.

D1.3.4 An *accessible route,* in addition to the requirement of Clause D1.3.3, shall:

(a) Be easy to find, as required by Clause F8 "Signs",

(b) Have *adequate* activity space to enable a person in a wheelchair to negotiate the route while permitting an ambulant person to pass,

(c) Include a lift complying with Clause D2 "Mechanical Installations for Access" to upper floors where:

(i) *buildings* are four or more storeys high,

(ii) *buildings* are three storeys high and have a total design occupancy of 50 or more persons on the two upper floors,

(iii) *buildings* are two storeys high and have a total design occupancy of 40 or more persons on the upper floor, or

(iv) an upper floor, irrespective of design occupancy, is to be used for the purposes of public reception areas of banks, central, regional and local government offices and facilities, hospitals, medical and dental surgeries, and medical, paramedical and other primary health care centres,

Limits on application

Performance D1.3.3(j) shall not apply to isolated steps.

Provisions	Limits on application
(d) Contain no thresholds or upstands forming a barrier to an unaided wheelchair user,	
(e) Have means to prevent the wheel of a wheelchair dropping over the side of the *accessible route*,	
(f) Have doors and related hardware which are easily used,	
(g) Not include spiral stairs, or stairs having open risers,	
(h) Have stair treads with a leading edge which is rounded, and	
(i) Have *handrails* on both sides of the *accessible route* when the slope of the route exceeds 1 in 20. The *handrails* shall be continuous along both sides of the stair, ramp and landing except where the *handrail* is interrupted by a doorway.	
D1.3.5 Vehicle spaces and circulation routes shall have:	
(a) Dimensions appropriate to the *intended use*,	
(b) Appropriate crossfall, and slope in the direction of travel,	
(c) *Adequate* queuing and circulation space, and	
(d) *Adequate* sight distances.	
D1.3.6 Vehicle spaces for use by *people with disabilties*, shall, in addition to the requirements of Clause D1.3.5, be:	
(a) Provided in sufficient numbers,	
(b) Located to avoid conflict between vehicles and people using or moving to or from the space, and	
(c) Easy to find as required by Clause F8 "Signs".	

D2 MECHANICAL INSTALLATIONS FOR ACCESS

Provisions	Limits on application
OBJECTIVE	
D2.1 The objective of this provision is to:	
(a) Safeguard people from injury and loss of amenity while using mechanical installations for movement into, within and out of *buildings*,	
(b) Safeguard maintenance personnel from injury while servicing mechanical installations for access, and	
(c) Ensure that *people with disabilities* are able to carry out normal activities and processes within *buildings*.	Objective D2.1(c) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
D2.2 Mechanical installations for access into, within and out of *buildings* shall provide for the safe and easy movement of people, and for the safety of maintenance personnel.	
PERFORMANCE	
D2.3.1 Mechanical installations for access shall:	
(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,	

Provisions	Limits on application
(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.	Performance D2.3.3 (d) shall not apply to installations travelling less than 15 m vertically.
D2.3.4 Potentially dangerous equipment shall be located in spaces which:	
(a) Are secure from unauthorised entry and contain only equipment associated with the installation,	
(b) Are appropriately sized and suitably guarded to provide *adequate*, safe working areas for maintenance personnel,	

Provisions	Limits on application
(c) Are provided with *adequate* power and lighting for maintenance, and	
(d) Have an environment that ensures the safe operation of the equipment under all likely conditions of use.	
D2.3.5 Mechanical installations on *accessible routes* shall:	
(a) Where the passenger conveyor is manually controlled, provide:	
(i) controls which are easily identifiable and easy to use,	
(ii) *adequate* notification that the passenger conveyor has registered a summoning call, and	
(iii) *adequate* notification that the passenger conveyor has arrived, and of its future direction of travel,	
(b) Where the passenger conveyor is fully enclosed and serves more than two levels, provide an *adequate* means of informing occupants of their location,	
(c) Where appropriate, have doors which:	
(i) are power operated,	
(ii) are readily distinguishable from their surroundings, and	
(iii) where automatic, remain open sufficiently long to enable *people with disabilities* to pass through, and	
(d) Have *handrails* within the passenger conveyor.	

E MOISTURE

E1 SURFACE WATER

Provisions	Limits on application
OBJECTIVE	
E1.1 The objective of this provision is to:	
(a) Safeguard people from injury or illness, and *other property* from damage, caused by *surface water*, and	
(b) Protect the *outfalls* of drainage systems.	
FUNCTIONAL REQUIREMENT	
E1.2 *Buildings* and *sitework* shall be constructed in a way that protects people and *other property* from the adverse effects of *surface water.*	
PERFORMANCE	
E1.3.1 *Surface water*, resulting from a storm having a 10% probability of occurring annually and which is collected or concentrated by *buildings* or *sitework*, shall be disposed of in a way that avoids the likelihood of damage or nuisance to *other property.*	
E1.3.2 *Surface water*, resulting from a storm having a 2% probability of occurring annually, shall not enter *buildings.*	Performance E1.3.2 shall apply only to *Housing, Communal Residential* and *Communal Non-residential buildings.*
E1.3.3 Drainage systems for the disposal of *surface water* shall be constructed to:	
(a) Convey *surface water* to an appropriate *outfall* using gravity flow where possible,	
(b) Avoid the likelihood of blockages,	
(c) Avoid the likelihood of leakage, penetration by roots, or the entry of ground water where pipes or lined channels are used,	
(d) Provide reasonable access for maintenance and clearing blockages,	

Provisions	Limits on application
(e) Avoid the likelihood of damage to any *outfall*, in a manner acceptable to the *network utility operator*, and	
(f) Avoid the likelihood of damage from superimposed loads or normal ground movements.	

E2 EXTERNAL MOISTURE

Provisions

OBJECTIVE

E2.1 The objective of this provision is to safeguard people from illness or injury which could result from external moisture entering the *building*.

FUNCTIONAL REQUIREMENT

E2.2 *Buildings* shall be constructed to provide *adequate* resistance to penetration by, and the accumulation of, moisture from the outside.

PERFORMANCE

E2.3.1 Roofs shall shed precipitated moisture. In locations subject to snowfalls, roofs shall also shed melted snow.

E2.3.2 Roofs and exterior walls shall prevent the penetration of water that could cause undue dampness, or damage to *building elements*.

E2.3.3 Walls, floors and structural elements in contact with the ground shall not absorb or transmit moisture in quantities that could cause undue dampness, or damage to *building elements*.

E2.3.4 *Building elements* susceptible to damage shall be protected from the adverse effects of moisture entering the space below suspended floors.

E2.3.5 *Concealed spaces* and cavities in *buildings* shall be constructed in a way which prevents external moisture being transferred and causing condensation and the degradation of *building elements*.

E2.3.6 Excess moisture present at the completion of *construction*, shall be capable of being dissipated without permanent damage to *building elements*.

Limits on application

Requirement E2.2 shall not apply to *buildings* in which moisture from outside would result in effects which are no more harmful than those likely to arise indoors during normal use.

E3 INTERNAL MOISTURE

Provisions	Limits on application
OBJECTIVE	
E3.1 The objective of this provision is to:	
(a) Safeguard people against illness or injury which could result from accumulation of internal moisture, and	
(b) Protect *household units* from damage caused by free water from another occupancy in the same *building*.	
FUNCTIONAL REQUIREMENT	
E3.2 *Buildings* shall be constructed to avoid the likelihood of:	
(a) Fungal growth or the accumulation of *contaminants* on linings and other *building elements*,	
(b) Free water overflow penetrating to an adjoining *household unit*, and	
(c) Damage to *building elements* being caused by use of water.	
PERFORMANCE	
E3.3.1 An *adequate* combination of *thermal resistance* and ventilation shall be provided to all *habitable spaces*, bathrooms, laundries, and other spaces where moisture may be generated.	Performance E3.3.1 shall not apply to *Communal Non-residential*, *Commercial*, *Industrial*, *Outbuildings* or *Ancilliary buildings*.
E3.3.2 Accidental overflow from *sanitary fixtures* or laundering facilities shall be constrained from penetrating to another occupancy in the same *building*.	
E3.3.3 Floor surfaces of any space containing *sanitary fixtures* or laundering facilities shall be *impervious* and easily cleaned.	

Provisions

E3.3.4 Wall surfaces adjacent to *sanitary fixtures* or laundering facilities shall be *impervious* and easily cleaned.

E3.3.5 Surfaces of *building elements* likely to be splashed or become contaminated in the course of the *intended use* of the *building*, shall be *impervious* and easily cleaned.

E3.3.6 Water splash shall be prevented from penetrating behind linings or to *concealed spaces*.

Limits on application

F SAFETY OF USERS

F1 HAZARDOUS AGENTS ON SITE

Provisions	Limits on application

OBJECTIVE

F1.1 The objective of this provision is to safeguard people from injury or illness caused by *hazardous* agents or *contaminants* on a site.

FUNCTIONAL REQUIREMENT

F1.2 *Buildings* shall be constructed to avoid the likelihood of people within the *building* being adversely affected by *hazardous* agents or *contaminants* on the site.

PERFORMANCE

F1.3.1 Sites shall be assessed to determine the presence and potential threat of any *hazardous* agents or *contaminants.*

F1.3.2 The likely effect of any *hazardous* agent or *contaminant* on people shall be determined taking account of:

(a) The *intended use* of the *building,*

(b) The nature, potency or toxicity of the *hazardous* agent or *contaminant,* and

(c) The protection afforded by the *building* envelope and *building* systems.

F2 HAZARDOUS BUILDING MATERIALS

Provisions	Limits on application
OBJECTIVE	
F2.1 The objective of this provision is to safeguard people from injury and illness caused by exposure to *hazardous building* materials.	
FUNCTIONAL REQUIREMENT	
F2.2 *Building* materials which are potentially *hazardous*, shall be used in ways that avoid undue risk to people.	
PERFORMANCE	
F2.3.1 The quantities of gas, liquid, radiation or solid particles emitted by materials used in the *construction* of *buildings*, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space.	
F2.3.2 Transparent panels capable of being mistaken for an unimpeded path of travel shall be marked to make them visible.	Performance F2.3.2 does not apply to *Housing*.
F2.3.3 Glass or other brittle materials with which people are likely to come into contact shall: (a) If broken on impact, break in a way which is unlikely to cause injury, or (b) Resist a reasonably foreseeable impact without breaking, or (c) Be protected from impact.	

F3 HAZARDOUS SUBSTANCES AND PROCESSES

Provisions

Limits on application

OBJECTIVE

F3.1 The objective of this provision is to safeguard people from injury or illness, and *other property* from damage, caused by *hazardous substances* or processes in *buildings*.

FUNCTIONAL REQUIREMENT

F3.2 *Buildings* where *hazardous substances* are stored and *hazardous* processes undertaken, shall be constructed to provide *adequate* protection to people and to *other property*.

PERFORMANCE

F3.3 Spaces in *buildings* where *hazardous substances* are stored, handled or used, or where *hazardous* processes are undertaken, shall be located and constructed to protect people, and *other property*, under both normal and reasonably foreseeable abnormal conditions, and shall be provided with:

(a) Means of restricting unauthorised access,

(b) Means of preventing *hazardous substances*, or other materials unacceptable to the *network utility operator*, from entering *sewers* or public *drains*,

(c) Means of allowing the harmless release of pressure where there is a significant risk of explosion occurring,

(d) Protected ignition sources where flammable or explosive goods are stored,

(e) Means of rendering harmless by ventilation, containment, dilution, or chemical or biological action, any radioactive, toxic or flammable vapours, gases or materials which may escape from pipes, vessels or containers,

Provisions	Limits on application
(f) Impervious, easily cleaned surface finishes on *building elements* likely to be splashed or become contaminated in the course of the *intended use* of the *building*, and	
(g) Signs as required by Clause F8 "Signs".	

F4 SAFETY FROM FALLING

Provisions	Limits on application
OBJECTIVE	
F4.1 The objective of this provision is to safeguard people from injury caused by falling.	
FUNCTIONAL REQUIREMENT	
F4.2 *Buildings* shall be constructed to reduce the likelihood of accidental fall.	
PERFORMANCE	
F.4.3.1 Where people could fall 1 metre or more from an opening in the external envelope or floor of a *building*, or from a sudden change of level within or associated with a *building*, a barrier shall be provided.	Performance F4.3.1 shall not apply where such a barrier would be incompatible with the *intended use* of an area, or to temporary barriers on *construction* sites where the possible fall is less than 3 metres.
F4.3.2 Roofs with permanent access shall have barriers provided.	
F4.3.3 Swimming pools having a depth of water exceeding 400 mm, shall be constructed with a barrier to restrict access to the pool or the immediate pool area, by children under 6 years of age.	Performance F4.3.3 shall not apply to any pool exempted under section 5 of the Fencing of Swimming Pools Act 1987.
F4.3.4 Barriers shall:	
(a) Be continuous and extend for the full extent of the hazard,	
(b) Be of appropriate height,	
(c) Be constructed with *adequate* rigidity,	
(d) Be of *adequate* strength to withstand the foreseeable impact of people and, where appropriate, the static pressure of people pressing against them,	
(e) Be constructed to prevent people from falling through them, and	

Provisions	Limits on application
(f) Restrict the entry of children under 6 years of age, when located in areas likely to be frequented by them.	
F4.3.5 Barriers to swimming pools shall have in addition to performance F4.3.4:	
(a) All gates constructed so that they close, and latch automatically with latching devices not readily operated by children, and	
(b) No permanent objects on the outside of the barrier that could provide a climbing step.	

F5 CONSTRUCTION AND DEMOLITION HAZARDS

Provisions

OBJECTIVE

F5.1 The objective of this provision is to safeguard people from injury, and *other property* from damage, caused by *construction* or demolition site hazards.

FUNCTIONAL REQUIREMENT

F5.2 *Construction* and demolition work on *buildings* shall be performed in a manner that avoids the likelihood of:

(a) Objects falling onto people on or off the site,

(b) Objects falling on property off the site,

(c) Other hazards arising on the site affecting people off the site and *other property*, and

(d) Unauthorised entry of children to hazards on the site.

PERFORMANCE

F5.3.1 Suitable *construction* methods shall be used to avoid the likelihood of tools or materials falling onto places where people might be present.

F5.3.2 Where *construction* or demolition work presents a hazard in places to which the public has access, barriers shall be provided and shall:

(a) Be of appropriate height and *construction* to prevent site hazards from harming traffic or passersby,

(b) Be difficult to climb,

(c) Have no opening other than those approved by the *territorial authority* for access and viewing,

Limits on application

Provisions	Limits on application
(d) Have no gates or doors which project beyond the site when opened,	
(e) Contain no projection that would be a hazard to traffic or people, and	
(f) Be clearly marked where the barrier itself may otherwise present a hazard to traffic or passersby.	
F5.3.3 Where a *construction* or demolition site contains any hazard which might be expected to attract the unauthorised entry of children, the hazard shall be enclosed to restrict access by children.	
F5.3.4 Suitable barriers shall be constructed to provide a safe route for people where lifting equipment creates a risk of accident from objects falling on a place of public access, or where a similar risk results from the height at which *construction* or demolition work is being carried out.	

F6 LIGHTING FOR EMERGENCY

Provisions	Limits on application
OBJECTIVE	
F6.1 The objective of this provision is to safeguard people from injury due to inadequate lighting being available during an emergency.	
FUNCTIONAL REQUIREMENT	
F6.2 *Buildings* shall be provided with *adequate* lighting within all *escape routes* in an emergency.	Requirement F6.2 shall not apply to *Detached Dwellings, household units* within *Multi-unit Dwellings*, *Outbuildings* or *Ancilliary buildings.*
PERFORMANCE	
F6.3.1 An *illuminance* of 1 lux minimum shall be maintained at floor level throughout *buildings* for a period equal to 1.5 times the *evacuation time.*	Performance F6.3.1 shall not apply to spaces infrequently inhabited such as plant rooms, storage areas and service tunnels.
F6.3.2 Signs to indicate *escape routes* shall be provided as required by Clause F8 "Signs".	

F7 WARNING SYSTEMS

Provisions	Limits on application
OBJECTIVE	
F7.1 The objective of this provision is to safeguard people from injury or illness due to lack of awareness of an emergency.	
FUNCTIONAL REQUIREMENT	
F7.2 *Buildings* shall be provided with appropriate means of warning people to escape to a *safe place*.	
PERFORMANCE	
F7.3 A warning system shall consist of a combined *fire* detection and warning system that will alert people in *adequate* time for them to reach a *safe place*.	Performance F7.3 shall not apply to *Detached Dwellings*, *Outbuildings* or *Ancilliary buildings*.

F8 SIGNS

Provisions	Limits on application
OBJECTIVE	
F8.1 The objective of this provision is to:	
(a) Safeguard people from injury or illness resulting from inadequate identification of *escape routes,* or of hazards within or about the *building,*	
(b) Safeguard people from loss of *amenity* due to inadequate direction, and	
(c) Ensure that *people with disabilities* are able to carry out normal activities and processes within *buildings.*	Objective F8.1(c) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
F8.2 Signs shall be provided in and about *buildings* to identify:	Requirement F8.2 shall not apply to *Detached Dwellings,* or within *household units* of *Multi-unit Dwellings.*
(a) *Escape routes,*	
(b) Emergency related safety features,	
(c) Potential hazards, and	
(d) *Accessible routes* and facilities for *people with disabilities.*	
PERFORMANCE	
F8.3.1 Signs shall be clearly visible and readily understandable under all conditions of foreseeable use.	
F8.3.2 Signs indicating potential hazards shall be provided in sufficient locations to notify people before they encounter the hazard.	

Provisions	Limits on application
F8.3.3 Signs to facilitate escape shall: (a) Be provided in sufficient locations to identify *escape routes* and guide people to a *safe place*, and (b) Remain visible in the event of a power failure of the main lighting supply, for the same duration as required by Clause F6 'Lighting for Emergency'. **F8.3.4** Signs shall be provided in sufficient locations to identify *accessible routes* and facilities provided for *people with disabilities.*	

G SERVICES AND FACILITIES

G1 PERSONAL HYGIENE

Provisions	Limits on application
OBJECTIVE	
G1.1 The objective of this provision is to :	
(a) Safeguard people from illness caused by infection or contamination,	
(b) Safeguard people from loss of *amenity* arising from the absence of appropriate personal hygiene facilities, and	
(c) Ensure *people with disabilities* are able to carry out normal activities and processes within *buildings*.	Objective G1.1(c) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
G1.2 *Buildings* shall be provided with appropriate spaces and facilities for personal hygiene.	
PERFORMANCE	
G1.3.1 *Sanitary fixtures* shall be provided in sufficient number and be appropriate for the people who are intended to use them.	
G1.3.2 *Sanitary fixtures* shall be located, *constructed* and installed to:	
(a) Facilitate *sanitation*,	
(b) Avoid risk of food contamination,	
(c) Avoid harbouring dirt or germs,	
(d) Provide appropriate privacy,	
(e) Avoid affecting occupants of adjacent spaces from the presence of unpleasant odours, accumulation of offensive matter, or other source of annoyance,	
(f) Allow effective cleaning,	

Provisions	Limits on application
(g) Discharge to a plumbing and drainage system as required by Clause G13 "Foul Water" when water-borne disposal is used, and	
(h) Provide a healthy, safe disposal system when non-water-borne disposal is used.	
G1.3.3 Facilities for personal hygiene shall be provided in convenient locations.	
G1.3.4 Personal hygiene facilities provided for *people with disabilities* shall be *accessible*.	Performance G1.3.4 shall not apply to *Housing*, *Outbuildings*, *Ancillary buildings*, and to *Industrial buildings* where no more than 10 people are employed.

G2 LAUNDERING

Provisions	Limits on application
OBJECTIVE	
G2.1 The objective of this provision is to ensure:	
(a) *Adequate amenities* for people to do laundering, and	
(b) That *people with disabilities* are able to carry out normal activities and processes within *buildings*.	Objective G2.1(b) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare 1975 Act applies.
FUNCTIONAL REQUIREMENT	
G2.2 *Buildings* shall be provided with *adequate* space and facilities for laundering.	Requirement G2.2 shall apply only to *Housing*, old people's homes, early childhood centres, camping grounds and work camps.
PERFORMANCE	
G2.3.1 Facilities shall have capacity for the *intended use*, and consist of *fixtures*, or space and services for appliances.	
G2.3.2 Space shall be *adequate* in size to provide for the installation and use of *fixtures* or appliances.	
G2.3.3 Space and facilities shall be provided within each accommodation unit or may be grouped elsewhere in a convenient location.	
G2.3.4 *Accessible* facilities shall be provided for *people with disabilities*.	Performance G2.3.4 shall apply only to camping grounds.

G3 FOOD PREPARATION AND PREVENTION OF CONTAMINATION

Provisions	Limits on application
OBJECTIVE	
G3.1 The objective of this provision is to:	
(a) Safeguard people from illness due to contamination,	
(b) Enable hygienic food preparation without loss of *amenity*, and	
(c) Ensure that *people with disabilities* are able to carry out normal activities and processes within *buildings*.	Objective G3.1(c) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
G3.2.1 *Buildings* shall be provided with space and facilities for the hygienic storage, preparation and cooking of food, that are *adequate* for the *intended use* of the *building*.	Requirement G3.2.1 shall apply to *Housing*, work camps, old people's homes and early childhood centres, and where appropriate shall also apply to *Commercial* and *Industrial buildings* whose *intended uses* include the manufacture, preparation, packaging or storage of food.
G3.2.2 *Buildings* used for the storage, manufacture or processing of food, including animal products, shall be constructed to safeguard the contents from contamination.	
G3.2.3 *Buildings* used for the medical treatment of humans or animals, or the reception of dead bodies, shall be constructed to avoid the spread of contamination from the *building* contents.	
PERFORMANCE	
G3.3.1 Food preparation facilities shall be hygienic and include:	
a) Space for a refrigerator, or a perishable food storage area capable of being cooled and protected from vermin and insects.	Performance G3.3.1 (a) and (b) shall apply to *Housing*, work camps, old people's homes, early childhood centres and *Commercial* or *Industrial buildings* whose *intended uses* include the handling of perishable food.

Provisions	Limits on application
(b) Means for food rinsing, utensil washing and waste water disposal.	
(c) Means for cooking food, and	Performance G3.3.1 (c) shall apply to *Housing*, work camps, old people's homes and early childhood centres.
(d) Space and a surface for food preparation.	Performance G3.3.1 (d) shall apply to *Housing*, work camps, old people's homes and early childhood centres.
G3.3.2 Spaces for food preparation and utensil washing shall have:	
(a) Interior linings and work surfaces shall be *impervious* and easily cleaned,	
(b) All *building elements* constructed with materials which are free from *hazardous substances* which could cause contamination to the *building* contents, and	Performance G3.3.2 (b) shall apply to *Housing*, work camps, old people's homes and early childhood centres, and where appropriate shall also apply to *Commercial* and *Industrial buildings* whose *intended uses* include the manufacture, preparation, packaging or storage of food.
(c) Exposed *building elements* located and shaped to avoid the accumulation of dirt.	Performance G3.3.2 (c) shall not apply to *Housing*.
G3.3.3 An *adequate* energy supply shall be provided, appropriately located for use by cooking and refrigeration appliances.	
G3.3.4 Space and facilities shall be provided within each *household unit*, or grouped elsewhere in a convenient location.	
G3.3.5 Where facilities are provided for *people with disabilities* they shall be *accessible*.	Performance G3.3.5 shall apply only to camping grounds and *accessible* accommodation units in *Communal Residential buildings*.
G3.3.6 Spaces in *buildings* shall be protected from the likelihood of contamination or vermin entering areas used for the storage, processing or preparation of food, and shall have a means of preventing contamination spreading from these areas to other spaces.	Performance G3.3.6 shall apply to *Commercial* or *Industrial buildings* whose *intended uses* include the handling of perishable food, the medical treatment of humans or animals, the slaughter of animals or the reception of dead bodies.

G4 VENTILATION

Provisions

OBJECTIVE

G4.1 The objective of this provision is to safeguard people from illness or loss of *amenity* due to lack of fresh air.

FUNCTIONAL REQUIREMENT

G4.2 Spaces within *buildings* shall be provided with *adequate* ventilation consistent with their maximum occupancy.

PERFORMANCE

G4.3.1 Spaces within *buildings* shall have means of ventilation with *outdoor air* that will provide an *adequate* number of air changes to maintain air purity.

G4.3.2 Mechanical air-handling systems shall be constructed and maintained in a manner that prevents harmful bacteria, pathogens and allergens from multiplying within them.

G4.3.3 *Buildings* shall have a means of collecting or otherwise removing, the following products from the spaces in which they are generated:

(a) Cooking fumes and odours,

(b) Steam from laundering, utensil washing, bathing and showering,

(c) Odours from sanitary and waste storage spaces,

(d) Gaseous by-products and excessive moisture from commercial or industrial processes,

(e) Poisonous fumes and gases,

(f) Flammable fumes and gases,

(g) Airborne particles,

Limits on application

Provisions	Limits on application
(h) Bacteria, viruses or other pathogens, or	
(i) Products of combustion.	
G4.3.4 Contaminated air shall be disposed of in a way which avoids creating a nuisance or hazard to people and *other property*.	
G4.3.5 The quantities of air supplied for ventilation shall meet the additional demands of any fixed *combustion appliances*.	

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 provision for maintaining the internal temperature at no less than 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.

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 with Clause F8 "Signs".	

G6 AIRBORNE AND IMPACT SOUND

Provisions	Limits on application
OBJECTIVE	
G6.1 The objective of this provision is to safeguard people from illness or loss of *amenity* as a result of undue noise being transmitted between abutting occupancies.	
FUNCTIONAL REQUIREMENT	
G6.2 *Building elements* which are common between occupancies, shall be constructed to prevent undue noise transmission from other occupancies or common spaces, to the *habitable spaces* of *household units.*	
PERFORMANCE	
G6.3.1 The *Sound Transmission Class* of walls, floors and ceilings, shall be no less than 55.	
G6.3.2 The *Impact Insulation Class* of floors shall be no less than 55.	

G7 NATURAL LIGHT

Provisions	Limits on application
OBJECTIVE	
G7.1 The objective of this provision is to safeguard people from illness or loss of *amenity* due to isolation from natural light and the outside environment.	
FUNCTIONAL REQUIREMENT	
G7.2 *Habitable spaces* shall provide *adequate* openings for natural light and for a visual awareness of the outside environment.	Requirement G7.2 shall apply only to *Housing*, old people's homes and early childhood centres.
PERFORMANCE	
G7.3.1 Natural light shall provide an *illuminance* of no less than 30 lux at floor level for 75% of the *standard year*.	
G7.3.2 Openings to give awareness of the outside shall be transparent and provided in suitable locations.	

G8 ARTIFICIAL LIGHT

Provisions	Limits on application
OBJECTIVE	
G8.1 The objective of this provision is to safeguard people from injury due to lack of *adequate* lighting.	
FUNCTIONAL REQUIREMENT	
G8.2 Spaces within *buildings* used by people, shall be provided with *adequate* artificial lighting which, when activated in the absence of sufficient natural light, will enable safe movement.	Requirement G8.2 shall apply to: (a) All *exitways* in *Multi-unit Dwellings, Group Dwellings* and *Communal Residential, Communal Non-residential, Commercial* and *Industrial buildings.* (b) All *access routes* except those in *Outbuildings* and *Ancillary buildings,* and (c) All common spaces within *Multi-unit Dwellings, Group Dwellings*, and *Communal Residential* and *Communal Non-residential buildings.*
PERFORMANCE	
G8.3 *Illuminance* at floor level shall be no less than 20 lux.	Performance G8.3 shall not apply in emergencies, for which *Illuminance* requirements are given in Clause F6 "Lighting for Emergency".

G9 ELECTRICITY

Provisions	Limits on application
OBJECTIVE	
G9.1 The objective of this provision is to ensure that:	
(a) In *buildings* supplied with electricity, the *electrical installation* has safeguards against outbreak of *fire* and personal injury, and	
(b) *People with disabilities* are able to carry out normal activities and processes within *buildings*.	Objective G9.1(b) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
G9.2 Where provided in a *building*, *electrical installations* shall be safe for their *intended use*.	
PERFORMANCE	
G9.3.1 The *electrical installation* shall incorporate systems to:	
(a) Protect people from contact with parts of the installation which are live during normal operation, and to prevent parts of the installation or other *building elements* becoming live during fault conditions,	
(b) Permit the safe isolation of the installation and of electrical fittings and appliances,	
(c) Safeguard people from excessive temperatures resulting from either normal operation of electrical equipment, or from currents which could exceed the installation rating,	
(d) Safeguard people from injury which may result from electromechanical stress in electrical components caused by currents in excess of the installation rating,	

Provisions	Limits on applications
(e) Protect *building elements* from risk of ignition, impairment of their physical or mechanical properties, or function, due to temperature increases resulting from heat transfer or electric arc,	
(f) Operate safely in its intended environment, and	
(g) Safeguard against ignition of the surrounding atmosphere where it is potentially flammable or explosive.	
G9.3.2 An *electrical installation* supplying an *essential service* shall:	
(a) Maintain the supply for a time appropriate to that service, and	
(b) Be capable of being isolated from the supply system, independently of the remainder of the installation.	
G9.3.3 An *electrical installation* connected to an *electrical supply system*, shall contain safeguards which protect the safety features of the external supply.	
G9.3.4 In *buildings* intended for use by *people with disabilities*, light switches and plug socket outlets shall be *accessible* and usable.	Performance G9.3.4 shall not apply to Housing, *Outbuildings, Ancilliary buildings,* and to *Industrial buildings* where no more than 10 people are employed.

G10 PIPED SERVICES

Provisions

OBJECTIVE

G10.1 The objective of this provision is to safeguard people from injury or illness caused by extreme temperatures or *hazardous substances* associated with *building* services.

FUNCTIONAL REQUIREMENT

G10.2 In *buildings* provided with potentially *hazardous* services containing hot, cold, flammable, corrosive or toxic fluids, the installations shall be constructed to provide *adequate* safety for people.

PERFORMANCE

G10.3.1 Piping systems shall be constructed to avoid the likelihood of:

(a) Significant leakage or damage during normal or reasonably foreseeable abnormal conditions,

(b) Detrimental contamination of the contents by other substances,

(c) Adverse interaction between services, or between piping and electrical systems, and

(d) People having contact with pipes which could cause them harm.

G10.3.2 Provision shall be made for the ready removal of moisture or condensate in gas pipes.

G10.3.3 Pipes shall be protected against corrosion in the environment of their use.

G10.3.4 Piping systems shall be identified with markings if the contents are not readily apparent from the location or associated equipment.

Limits on application

Provisions	Limits on application
G10.3.5 Enclosed spaces shall be constructed to avoid the likelihood of accumulating vented or leaking gas.	
G10.3.6 Piped systems shall have isolation devices which permit the installation or individual items of apparatus to be isolated from the supply system, for maintenance, testing, fault detection and repair.	

G11 GAS AS AN ENERGY SOURCE

Provisions

OBJECTIVE

G11.1 The objective of this provision is to:

(a) Safeguard people from injury arising from the use of gas as an energy source,

(b) Safeguard people and *other property* from the risk of *fire* or explosion, and

(c) Safeguard people from loss of *amenity* due to the gas supply being inadequate for the *intended use*.

FUNCTIONAL REQUIREMENT

G11.2 In *buildings* where gas is used as an energy source, the supply system shall be safe and *adequate* for its *intended use*.

PERFORMANCE

G11.3.1 Supply systems shall be *constructed* to maintain a safe pressure range appropriate to the appliances and the type of gas used.

G11.3.2 The gas supply to all appliances in a single ventilated space, shall be fitted with an automatic cut-off activated by failure of any continuous forced ventilation system used for combustion, ventilation or safe operation of a fixed gas appliance.

G11.3.3 A flued fixed gas appliance shall have no adverse interaction with any other flued appliance.

G11.3.4 Supply systems shall have isolation devices which permit the whole installation, or individual items of apparatus, to be isolated from the supply for maintenance, testing, fault detection or repair.

Limits on application

Provisions

G11.3.5 Where gas is supplied from an external source, the supply system within *buildings* shall be constructed to avoid the likelihood of:

(a) Contamination of the external supply from other gas sources within the *building*,

(b) Adverse effects on the pressure of the external supply, and

(c) The external supply pipe acting as an earthing conductor.

G11.3.6 The location and installation of meters and service risers shall meet the requirements of the *network utility operator.*

Limits on application

G12 WATER SUPPLIES

Provisions	Limits on application
OBJECTIVE	
G12.1 The objective of this provision is to:	
(a) Safeguard people from illness caused by infection from contaminated water or food,	
(b) Safeguard people from injury due to the explosion of a pressure vessel or from contact with excessively hot water,	
(c) Safeguard people from loss of *amenity* arising from a lack of hot water for personal hygiene, or from a water supply which is offensive in appearance or odour, and	
(d) Ensure that *people with disabilities* are able to carry out normal activities and functions within *buildings*.	Objective G12.1(d) shall apply only to those *buildings* to which section 25 of the Disabled Persons Community Welfare Act 1975 applies.
FUNCTIONAL REQUIREMENT	
G12.2 *Buildings,* provided with drinking water outlets, *sanitary fixtures* or *sanitary appliances*, shall have a safe and *adequate* piped water supply.	
PERFORMANCE	
G12.3.1 Piped water supplies intended for human consumption, food preparation, utensil washing or oral hygiene shall be potable.	
G12.3.2 Piped water supply and outlets provided with non-potable water shall be clearly identified.	
G12.3.3 *Sanitary fixtures* and *sanitary appliances* shall be provided with hot water when intended to be used for:	
(a) Utensil washing, and	
(b) Personal washing, showering or bathing.	Performance G12.3.3(b) shall apply only to *Housing*, old people's homes and early childhood centres.

Provisions	Limits on application
G12.3.4 Where hot water is provided to *sanitary fixtures* and *sanitary appliances*, used for personal hygiene, it shall be delivered at a temperature which avoids the likelihood of scalding.	
G12.3.5 *Water supply systems* shall be installed in a manner which: (a) Avoids the likelihood of potable water contamination within both the system and the *water main*, (b) Provides water to *sanitary fixtures* and *sanitary appliances* at flow rates which are *adequate* for the correct functioning of those *fixtures* and appliances under normal conditions, (c) Avoids the likelihood of leakage, (d) Allows reasonable access for maintenance of mechanical components, and (e) Allows the system and any backflow prevention devices to be isolated for testing and maintenance.	
G12.3.6 Vessels used for producing or storing hot water shall be provided with safety devices which: (a) Relieve excessive pressure during both normal and abnormal conditions, and (b) Limit temperatures to avoid the likelihood of flash steam production in the event of rupture.	
G12.3.7 *Storage water heaters* shall be capable of being controlled to produce, at the outlet of the *storage water heater*, an *adequate* daily water temperature to prevent the growth of legionella bacteria.	
G12.3.8 Water supply taps shall be *accessible* and usable for *people with disabilities*.	Performance G12.3.8 shall not apply to *Housing*, *Outbuildings*, *Ancillary buildings*, and to *Industrial buildings* where no more than 10 people are employed.

G13 FOUL WATER

Provisions

Limits on application

OBJECTIVE

G13.1 The objective of this provision is to:

(a) Safeguard people from illness due to infection or contamination resulting from personal hygiene activities, and

(b) Safeguard people from loss of *amenity* due to the presence of unpleasant odours or the accumulation of offensive matter resulting from *foul water* disposal.

FUNCTIONAL REQUIREMENT

G13.2 *Buildings,* in which *sanitary fixtures* and *sanitary appliances* using water-borne waste disposal are installed, shall be provided with an *adequate* plumbing and drainage system to carry *foul water* to appropriate *outfalls.*

PERFORMANCE

G13.3.1 The *plumbing system* shall be constructed to:

(a) Convey *foul water* from *buildings* to a drainage system,

(b) Avoid the likelihood of blockage and leakage,

(c) Avoid the likelihood of foul air and gases entering *buildings*, and

(d) Provide reasonable access for maintenance and clearing blockages.

G13.3.2 The drainage system shall:

(a) Convey *foul water* to an appropriate *outfall,*

(b) Be constructed to avoid the likelihood of blockage,

Provisions

(c) Be supported, jointed and protected in a way that will avoid the likelihood of penetration of roots or the entry of ground water,

(d) Be provided with reasonable access for maintenance and clearing blockages,

(e) Be ventilated to avoid the likelihood of foul air and gases accumulating in the drainage system and *sewer*, and

(f) Be constructed to avoid the likelihood of damage from superimposed loads or normal ground movement.

G13.3.3 Where a *sewer* connection is available, the drainage system shall be connected to the *sewer*, and the connection shall be made in a manner that avoids damage to the *sewer* and is to the approval of the *network utility operator*.

G13.3.4 Where no *sewer* is available, an *adequate* on-site disposal system shall be provided for *foul water* in the same manner as detailed in Clause G14 "Industrial Liquid Waste".

Limits on application

G14 INDUSTRIAL LIQUID WASTE

Provisions

OBJECTIVE

G14.1 The objective of this provision is to safeguard people from injury or illness caused by infection or contamination resulting from industrial liquid waste.

FUNCTIONAL REQUIREMENT

G14.2 *Buildings* in which industrial liquid waste is generated shall be provided with *adequate* spaces and facilities for the safe and hygienic collection, holding, treatment and disposal of the waste.

PERFORMANCE

G14.3.1 Industrial liquid waste shall be conveyed to storage containers and within disposal systems in a way which will:

(a) Transfer wastes from *buildings* safely and hygienically,

(b) Avoid the likelihood of blockage and leakage,

(c) Avoid the likelihood of foul air and gases entering *buildings*, and

(d) Provides reasonable access for clearing of blockages.

G14.3.2 Facilities for the storage, treatment, and disposal of industrial liquid waste shall be constructed:

(a) With *adequate* capacity for the volume of waste and the frequency of disposal,

(b) With *adequate* vehicle access for collection if required,

(c) To avoid the likelihood of contamination of any potable water supplies in compliance with Clause G12 "Water Supplies",

Limits on application

Provisions	Limits on application
(d) To avoid the likelihood of contamination of soils, ground water and waterways except as permitted by a resource consent given under the Resource Management Act 1991.	
(e) From materials which are impervious both to the waste for which disposal is required, and to water,	
(f) To avoid the likelihood of foul air and gases accumulating within or entering into *buildings*,	
(g) To avoid the likelihood of unauthorised access by people, and	
(h) To permit easy cleaning and maintenance.	

G15 SOLID WASTE

Provisions	Limits on application
OBJECTIVE	
G15.1 The object of this provision is to safeguard people from injury or illness caused by infection or contamination from solid waste.	
FUNCTIONAL REQUIREMENT	
G15.2 *Buildings* shall be provided with space and facilities for the collection, and safe hygienic holding prior to disposal, of solid waste arising from the *intended use* of the *buildings*.	Requirement G15.2 shall not apply to *Detached Dwellings*, *household units* of *Multi-unit Dwellings*, *Outbuildings* or *Ancilliary buildings* if there is independent access or private open space at ground level.
PERFORMANCE	
G15.3.1 Where provision is made within *buildings* for the collection and temporary holding of solid waste, the spaces provided shall be: (a) Of sufficient size for the volume of waste and frequency of disposal, (b) Provided with reasonable access for the depositing and collection of the waste, (c) Capable of maintaining sanitary conditions having regard to the types of waste and storage containers, and (d) Capable of maintaining the appropriate temperature for the type of waste stored.	
G15.3.2 Where a rubbish chute is provided, it shall be located and constructed to: (a) Convey the solid waste to an appropriate storage container, (b) Avoid the likelihood of blockage or leakage, (c) Permit easy cleaning and maintenance, (d) Avoid the likelihood of foul air or gases accumulating or entering the *building*,	

Provisions	Limits on application
(e) Avoid the likelihood of the spread of *fire* beyond the refuse chute,	
(f) Have openings that allow waste to be safely deposited in the chute, and	
(g) Restrict access by children, animals and vermin.	
G15.3.3 Where it is acceptable to the *network utility operator,* solid waste which has been suitably treated for disposal to a *sewer* may be discharged via a *foul water drain* complying with Clause G13 "Foul Water".	

H ENERGY EFFICIENCY

H1 ENERGY EFFICIENCY

Provisions	Limits on application
OBJECTIVE	
H1.1 The objective of this provision is to facilitate efficient use of energy.	
FUNCTIONAL REQUIREMENT	
H1.2 *Buildings,* throughout their lives, shall have provision for ensuring efficient energy use in controlling indoor temperature when that energy is sourced from a public electricity supply, or any other depletable energy resource.	
PERFORMANCE	
H1.3.1 The *building* envelope shall be *constructed* to ensure that the *building performance index* shall not exceed 0.13 kWh.	Performance H1.3.1 applies only to *Housing.*
H1.3.2 Where any space within a *building* is intended to have a controlled temperature, *construction* of *building elements* affecting energy use shall take account of:	Performance H1.3.2 shall not apply to *Housing, Outbuildings, Ancillary buildings,* or *buildings* with a floor area of less than 50 m^2.
(a) Thermal resistance to heat loss through the *building* envelope,	
(b) Heat gains (including solar radiation) through the building envelope,	
(c) Airtightness,	
(d) The contribution to space heating of heat losses from *building* services (including hot water systems, and lighting),	
(e) Control systems for heating and ventilating, and for other services, and	
(f) Utilisation of waste heat from internal processes.	