Approved Document for New Zealand Building Code Durability Clause B2 Effective 1 April 2004

Prepared by the Building Industry Authority
This Approved Document is prepared by the Building Industry Authority, which is a statutory body established by the Building Act 1991.

Building Industry Authority

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Status of Approved Documents

Approved Documents are prepared by the Building Industry Authority in accordance with section 49 of the Building Act 1991. They are non-mandatory guidance documents offering only one method of compliance with specific performance criteria of the New Zealand Building Code.

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

Classified uses and defined words which are italicised in the text are explained in clauses A1 and A2 of the New Zealand Building Code.

B2: Document History

	Date	Alterations	
First published	July 1992		
Amendment 1	September 1993	p. 3, Table 1	
Second Edition	28 February 1998	Document revised – second edition issued	
Amendment 2	1 December 2000	p. ii, Document History p. v, Contents p. vi, References	p. 5, 3.2.2, 3.3, 3.4 p. 9, Index
Amendment 3	1 July 2001	p. 2, Document History, Status p. 7, References	p. 8, 5.0.1
Amendment 4	1 April 2004	p. 2, Document History p. 7, References pp. 9-10 Definitions	p. 15, 3.2.1 Comment pp. 17-22 Table 1 p. 23 Index
Amendment 5*	1 April 2004	p. 7 References p. 9 Definitions	p. 15, 3.2.1, 3.2.2, 3.2.3

Note:

*Amendment 5 regarding timber treatment is subject to a transitional provision.

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

Document Status

The most recent version of this document, as detailed in the Document History, is approved by the Building Industry Authority. It is effective from 1 April 2004 and supercedes all previous versions of this document.

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New Zealand Building Code Clause B2 Durability

This Clause is extracted from the New Zealand Building Code contained in the First Schedule of the Building Regulations 1992 and amended by the Building Regulations 1997.

FIRST SCHEDULE–*continued*

Clause B2–DURABILITY

Provisions	Limits on application
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 **B2.3.1** *Building elements* must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the *specified intended life* of the *building*, if stated, or: (a) The life of the building, being not less than 50 years, if: (i) Those *building elements* (including floors, walls, and fixings) provide structural stability to the *building*, or (ii) Those *building elements* are difficult to access or replace, or (iii) Failure of those *building elements* to comply with the *building code* would go undetected during both normal use and maintenance of the *building*. (b) 15 years if: (i) Those *building elements* (including the *building* envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) are moderately difficult to access or replace, or	Performance B2.3.1 applies from the time of issue of the applicable *code compliance certificate*. *Building elements* are not required to satisfy a durability performance which exceeds the *specified intended life* of the *building*.

FIRST SCHEDULE–*continued*

Provisions	Limits on application
(ii) Failure of those *building elements* to comply with the *building code* would go undetected during normal use of the *building*, but would be easily detected during normal maintenance.	
(c) 5 years if:	
(i) The *building elements* (including services, linings, renewable protective coatings, and *fixtures*) are easy to access and replace, and	
(ii) Failure of those *building elements* to comply with the *building code* would be easily detected during normal use of the *building*.	
B2.3.2 Individual *building elements* which are components of a *building* system and are difficult to access or replace must either:	
(a) All have the same durability, or	
(b) Be installed in a manner that permits the replacement of *building elements* of lesser durability without removing *building elements* that have greater durability and are not specifically designed for removal and replacement.	

Contents

Amend 2 Dec 2000

References

Amend 3 Jul 2001

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

			Where Quoted	
	Standards New Zealand			
	NZS 3101:-	Concrete structures standard		
	Part 1: 1995	The design of concrete structures	AS1 3.1.1	
	NZS 3602:-			
Amend 5 Apr 2004	Part 1: 1995	Timber and wood-based products for use in building	AS1 3.2.2	Amend 5 Apr 2004
Amend 4 Apr 2004	Part 1: 2003	Timber and wood-based products for use in building	AS1 3.2.1	
Amend 3 Jul 2001	NZS 3604: 1999	Timber framed buildings *Amend: 1*	AS1 3.2.3	Amend 5 Apr 2004
	NZS 4251:-	Solid plastering		
	Part 1: 1998	Cement plaster for walls, ceilings and soffits	AS1 3.3.1	
	NZS 4297: 1998	Engineering design for earth buildings	AS1 3.4.1	
Amend 2 Dec 2000	NZS 4299: 1998	Earth buildings not requiring specific design *Amend: 1*	AS1 3.4.1	

Definitions

This is an abbreviated list of definitions for words or terms particularly relevant to this Approved Document. The definitions for any other italicised words may be found in the New Zealand Building Code Handbook.

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

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

Amend 4 Apr 2004

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

Building has the meaning ascribed to it by the Building Act 1991.

Building certifier means a *person* approved as a *building certifier* by the Authority under Part VII of the Building Act 1991.

Building code means the *building code* made under Part VI of the Building Act 1991, being the *building code* set out in the First Schedule to the Building Regulations.

Amend 4 Apr 2004

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.

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

Amend 4 Apr 2004

Code compliance certificate means a certificate to that effect issued by a *territorial authority* or a *building certifier* pursuant to section 43 of the Building Act 1991.

Amend 5 Apr 2004

Damp-proof course (DPC) A narrow strip (generally up to 300 mm wide) of *durable vapour barrier* placed between *building elements* to prevent the passage of moisture from one element to another.

Damp-proof membrane (DPM) A sheet material, coating or vapour barrier, having a low water vapour transmission, and used to prevent water and water vapour movement through concrete in contact with the ground. (Also known as a concrete underlay.)

Amend 4 Apr 2004

Durable Resistant to wear and decay.

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

Amend 4 Apr 2004

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

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

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

Amend 4 Apr 2004

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

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.

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

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.

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.

Amend 4 Apr 2004

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*.

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.

Unprotected area in relation to an *external wall* of a *building*, means any part of the *external wall* which is not *fire* rated or has less than the required *FRR*.

COMMENT:

Unprotected area includes non-*fire* rated windows, doors, or other openings, and non-*fire* rated *external wall construction*.

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*.)

Amend 4 Apr 2004

Water heater A device for heating water.

Verification Method B2/VM1

1.0 Durability Evaluation

1.0.1 Verification that the durability of a *building element* complies with the NZBC B2.3.1 and B2.3.2 will be by proof of performance and shall take into account the expected in-service exposure conditions by one or more of the following:

a) In-service history,

b) Laboratory testing,

c) Comparable performance of similar *building elements.*

1.1 In-service history

1.1.1 Verification of durability based on in-service history of a *building element*, including materials, components and systems shall take into account but not be limited to:

a) Length of service,

b) Environment of use,

c) Intensity of use,

d) Any reaction with adjacent materials,

e) Limitations in performance,

f) Degree of degradation, and

g) Changes in formulation.

1.2 Laboratory testing

1.2.1 Verification of durability based on successful performance in a laboratory test shall be accompanied by an assessment of the tests performed, their relevance to field and service conditions, and in particular:

a) Types of degradation mechanisms likely to be induced by testing,

b) The degradation mechanisms likely in service,

c) Details of methods of assessment,

d) Variability of results, and

e) The relevance of the test to the *building element* under study.

1.3 Similar materials

1.3.1 For the purposes of evaluation, a *building element* may be considered as similar to another *building element* with proven performance, if both are subject to the same controls for composition and overall performance. Examples of such controls are Approved Documents or Standards. Where such a direct comparison is not possible, the *building element* shall be independently assessed to determine the degree of similarity.

1.3.2 Assessment shall take into account but not be limited to:

a) Product composition,

b) Method and quality assurance of manufacture,

c) Degradation mechanisms,

d) Local environment,

e) Conditions of use,

f) Required maintenance, and

g) Performance in use.

COMMENT:

Environment

1. To be acceptable, any opinion in support of the assessed durability for a *building element* shall clearly identify the conditions of use and the environment under which that durability will be achieved. If the *building element* can be reasonably expected to be used in circumstances which will reduce the durability, any limitations in use shall be clearly identified and evaluated.

2. Circumstances which need to be considered include, but are not limited to:

   a) Maintenance required to achieve the required durability (e.g. painting, cleaning, replacing high wear items such as washers),

   b) Installation details of the total system (e.g. fixings, flashings, jointing materials),

   c) Compatibility with other materials (e.g. galvanic corrosion, plasticiser migration),

d) Locality or macroclimatic effects (e.g. coastal or thermal areas, wet or damp ground conditions),

e) Microclimatic effects (e.g. sheltered areas on *buildings* such as eaves),

f) External environment influences (e.g. local industrial operations such as fertiliser works), and

g) Internal environment (e.g. swimming pools, chemical processing areas, sauna rooms).

Acceptable Solution B2/AS1

1.0 Durability Applications

1.0.1 This acceptable solution applies to materials and components required to satisfy the performances specified in other NZBC clauses.

COMMENT:
All *building* work shall comply with the NZBC. This means that *building elements*, both individually and as part of a system, shall meet all the performances required by the applicable NZBC clauses and shall continue to do so for the required durability period. In some cases, *building elements* (e.g. decorative coatings and trim) are not required to satisfy an NZBC performance criterion. Such *building elements* will then have no B2 durability requirement. However, where a *building element* serves two purposes, only one of which must satisfy the NZBC, it shall have the durability appropriate to its location and use. For example, a decorative finish applied to a *building element* required by the NZBC to have an impervious easily cleaned surface will need to satisfy the 5 year durability performance.

1.1 Approved documents

1.1.1 *Building elements*, including materials, components and systems, complying with a publication referenced in the Approved Documents, satisfy B2 requirements only when the conditions of use stated in the publication and Approved Documents prevail.

COMMENT:
It is not practicable within the Approved Documents to cover all possible combinations, uses and conditions which may be applied to a *building element*. In special circumstances and where elements are called up but are used outside the scope of the Approved Document application, durability shall be verified by B2/VM1.

1.2 Assessing required durability

1.2.1 Evaluation of *building elements* shall be based on the following concepts:

a) **Difficult to access or replace** – applies to *building elements* where access or replacement involves significant removal or alteration of other *building elements*. Examples are works involving the removal of masonry or concrete *construction*, or structural elements or repair of buried tanking membranes. A 50 year durability is required.

b) **Moderately difficult to access or replace** – applies to *building elements* where access or replacement involves the removal or alteration of other *building elements*. Examples are the replacement of services reticulation in wall cavities and skillion roofs, or of plant and hotwater cylinders built into roof spaces without adequately sized access openings. A 15 year durability is required.

c) **Easy to access and replace** – applies to *building elements* where access or replacement involves little alteration or removal of other *building elements*. Examples are linings, trim, light fittings, hotwater cylinder elements and door hardware, or where specific provision for removal has been made. A 5 year durability is required.

d) **Failure to comply with the NZBC would go undetected during both normal use and maintenance of the building** – applies where the *building elements* are hidden from view with no provision for inspection access, and failure would not be apparent until significant damage had occurred to other *building elements*. Examples are building paper behind a masonry veneer cladding, and insulation in a skillion roof. A 50 year durability is required.

e) **Failure to comply with the NZBC would go undetected during normal use of the building but would be easily detected during normal maintenance** – applies where normal maintenance will identify faults unlikely to be observed by *building* occupants until significant damage has occurred. Examples are degradation of exterior claddings on roofs and walls, sealant filled joints, flashings, services with specific provision for inspection access, chimneys and flues. A 15 year durability is required.

f) **Failure to comply with the NZBC would be easily detected during normal use of the building** – applies where the failure is obvious to the *building* occupants. Examples are exposed *building elements* which are damaged or inoperative such as protective finishes, essential signs, sticking doors, slip resistant surfaces, stair treads and surface-run *building* services equipment. A 5 year durability is required.

1.2.2 Figure 1 provides a means of assessing the durability requirements for *building elements*.

1.3 Examples of durability requirements

1.3.1 Table 1 is an acceptable solution establishing durability requirements of nominated *building elements*.

2.0 Maintenance

2.1 Normal maintenance

2.1.1 Normal maintenance is that work generally recognised as necessary to achieve the expected durability for a given *building element*. The extent and nature of that maintenance will depend on the material, or system, its geographical location and position within the *building*, and can involve the replacement of components subject to accelerated wear.

2.1.2 It is the responsibility of the person specifying the *building element* to determine normal maintenance requirements. These may be based on the manufacturer's recommendations and may also include periodic inspections of elements not readily observable without a specific effort (e.g. access to roof or subfloor spaces).

2.1.3 Basic normal maintenance tasks shall include but not be limited to:

a) Where applicable, following manufacturers' maintenance recommendations,

b) Washing down surfaces, particularly exterior *building elements* subject to wind driven salt spray,

c) Re-coating interior and exterior protective finishes,

d) Replacing sealant, seals and gaskets in joints,

e) Replacing valves, washers and similar high wear components in easily accessed service equipment and other *building elements*,

f) Cleaning and replacing filters in *building* services systems,

g) The regular servicing of boilers, cooling towers, lifts, escalators, emergency lighting and *fire* protection equipment, and

h) The maintenance of signs for access, *escape routes*, emergency equipment and *hazardous* areas.

COMMENT:

Maintenance does not include such things as upgrading *building elements* to meet the demands of new technology or the increased environmental expectations of users.

2.2 Scheduled maintenance

2.2.1 Scheduled maintenance comprises the inspection, maintenance and reporting procedures for *building elements* required to have a *compliance schedule* in terms of section 44 of the Building Act. By those procedures the *building elements* concerned are effectively deemed to have a durability of the life of the *building* because they are required to perform as designed at all times. The relevant maintenance procedures may include total replacement.

3.0 Generic Materials

3.1 Concrete

3.1.1 NZS 3101: Part 1 Section 5 is an acceptable solution subject to the following modifications:

a) Where this Standard has provisions that are non specific or in unquantified terms (such as shall be evaluated, modified, specified or the like), these do not form part of the

acceptable solution and must be treated as an alternative solution.

b) The word "should" is to be read as "shall" in Notes 1 and 2 of Table 5.1.

3.2 Timber

Amend 5 Apr 2004

3.2.1 Part 1 of NZS 3602: 2003 is an acceptable solution for meeting the durability requirements of timber *building elements*.

COMMENT:

The use of different timbers or timber treatments to those referred to in NZS 3602 may still comply with the *building code* in particular applications. Where the use of a different timber or timber treatment is proposed, this would be an alternative solution and evidence must be provided to the *territorial authority* or *building certifier* that the intended use will meet the *building code*. For example, if imported hard-wood is to be used to surface a deck, evidence that the timber was durable for a minimum of 15 years in the expected exposure conditions is required.

Amend 4 Apr 2004

3.2.2 From 1 April 2004 to 31 March 2005 nothing in Paragraph 3.2.1 shall apply to the issue of *code compliance certificates* or building certificates under sections 43 or 56(3) of the Building Act 1991, but the previous acceptable solution Part 1 of NZS 3602: 1995 will continue to apply as an acceptable solution until 31 March 2005.

Amend 5 Apr 2004

3.2.3 NZS 3604 is an acceptable solution for meeting the durability requirements of *buildings* within its scope, except that any reference to NZS 3602 shall be read as having been amended in accordance with Paragraphs 3.2.1 and 3.2.2 above.

Amend 5 Apr 2004

3.3 Solid plastering

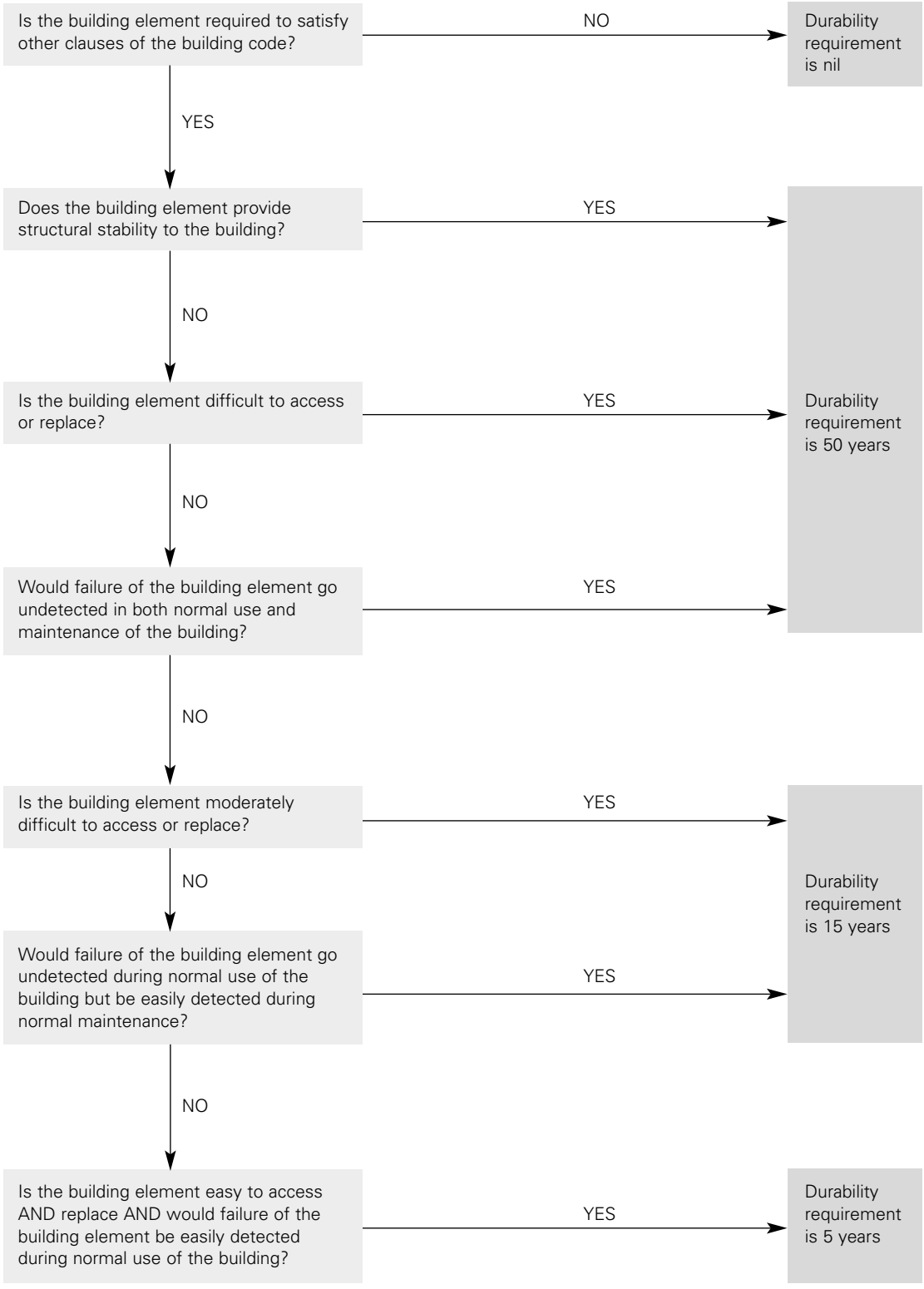
3.3.1 NZS 4251: Part 1 is an acceptable solution for meeting the durability requirements of cement plasters for walls, ceilings and soffits within its scope.

3.4 Earth buildings

Amend 2 Dec 2000

3.4.1 NZS 4297 and NZS 4299 are acceptable solutions for meeting the durability requirements of earth *buildings* within their scope.

Figure 1: Assessment of Durability Requirement
Paragraph 1.2.2



Note:

Building elements shall not be required to satisfy a durability performance which exceeds the *specified intended life* of the *building*

Table 1: Durability Requirements of Nominated Building Elements

Note: Clause B2.3.2 requires that all hidden elements have at least the same durability as that of the element that covers it (i.e. must have the same expected life) which may be more than the requirement in clause B2.3.1. For example, the reason that a brick tie has a requirement of not less than 50 years in this table, instead of the 15 year requirement for *cladding*, is that the brick veneer that hides it has an expected durability of 50 years or more.

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Acoustic elements		Covered by or integral with structural elements or bracing panels	✓		
		Behind non-structural *claddings* or linings	✓		
		Surface mounted		✓	
Balustrade	(Refer to safety barrier)				
Battens (Cavity battens for wall	Battens	Where wall *cladding* durability requirement is 15 years		✓	
cladding systems) *(See note at top of table)*		Where wall *cladding* provides bracing	✓		
Bracing Elements		All – includes the bracing element and fixings	✓		
Building wraps (See also wind barriers)	Roof underlay	Access requires removal of roof tiles or structural elements	✓		
(See note at top of table)		Where roof *cladding* durability requirement is 15 years		✓	
	Wall underlay	Where wall *cladding* durability requirement is not less than 50 years (e.g. providing bracing, or where the *cladding* is very durable e.g. brick veneer)	✓		
		Where wall *cladding* durability requirement is 15 years		✓	
	Wind barriers	Providing bracing (i.e. rigid wind barriers)	✓		
		Not providing bracing (non-rigid wind barriers)		✓	
Cladding	Roof	Structural	✓		
(including jointing systems)		Non-structural		✓	
	Wall	Structural including bracing elements	✓		
		Non-structural		✓	
Curtain walling	Frames and fixings	All *buildings*	✓		
	Gaskets, glazing or panelling and beads			✓	
	Internal hardware				✓
Damp-proof course (DPC)	*DPCs* under timber members	Under structural framing	✓		
		Under non-structural framing		✓	
Damp-proof membranes (DPM) *(See note at top of table)*	Damp-proofing generally	*DPMs* under concrete floor slabs	✓		

Amend 4
Apr 2004

Table 1: Durability Requirements of Nominated Building Elements (cont'd)

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Damp-proof membranes (DPM) (Continued)	Damp-proofing generally	*DPMs* applied to the top of concrete slabs		✓	
		DPMs behind retaining walls used for landscaping		✓	
		DPMs designed for ready access and replacement		✓	
		DPM behind tiles	Same durability as the tile covering it		
	Water-proofing of basements	Tanking, except those designed for ready access	✓		
		Tanking designed for ready access		✓	
Decking (timber)	Decking	Structural (e.g. bracing diaphragm)	✓		
		Non-structural strip decking		✓	
	Sub-floor structure	All	✓		
Demountable Partitions	Partition including frame, fixings, and linings	All			✓
Doors (including frame)	Non fire rated doors	Internal			✓
		External		✓	
		Furniture and hardware			✓
	Fire rated doors	Internal		✓	
		External		✓	
		Furniture and hardware			✓
Electrical work *(See note at top of table)*	Wiring	Buried in or under concrete slabs or behind structural linings without ducts	✓		
		Concealed behind linings or in complex ducts or conduit, or surface mounted in conduit		✓	
		Wires in easy to access ducts			✓
	Fittings	Concealed and moderately difficult to access or replace	✓		
		Surface mounted			✓
	Ducting or conduit	Difficult to access or replace	✓		
		Moderately difficult to access or replace		✓	
Fire rated walls		Structural walls including bracing elements	✓		
		All others		✓	
Fixings	Nails and screws	Used to fix structural or difficult to replace *building elements*	✓		
		Under water-proof membranes	✓		
		Under roofing membranes	✓		
		Used to fix non-structural or moderately difficult to replace *building elements*		✓	
	Bolts	Used to fix structural or difficult to access or replace *building elements* including structural elements of decks and barriers	✓		

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Apr 2004

Table 1: Durability Requirements of Nominated Building Elements (cont'd)

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Fixings (Continued)	Bolts	Used to fix non-structural or moderately difficult to replace *building elements*		✓	
	Brick ties and fixings	All	✓		
	Proprietary fixings	Used to fix structural or difficult to replace *building elements*	✓		
		Used to fix non-structural or moderately difficult to replace *building elements*		✓	
	Adhesives	Used to fix structural or difficult to replace *building elements*	✓		
		Used to fix non-structural or moderately difficult to replace *building elements*		✓	
	Face fixings	Used to fix accessories, door furniture and hardware			✓
Flashings *(See note at top of table)*	Roof, wall or window	All flashings to roof *cladding*, *flues* and other roof penetrations		✓	
		Requires the removal of *cladding* above the roof to be replaced	✓		
		Hidden flashings such as behind brick veneer, stucco or spandrel panels	✓		
		Visible and does not require the removal of the *cladding* to be replaced		✓	
		Requires the removal of the *cladding* to be replaced	✓		
Flooring – sheet or strip *(See note at top of table)*		Floor bracing diaphragm	✓		
		Flooring laid under bottom plates	✓		
		Flooring laid between bottom plates		✓	
Floor coverings		Protective or acoustic coverings			✓
Flue systems	All *flue* systems	Those built into the floor, wall, ceiling or roof		✓	
		Those exposed to view or penetrating the floor, wall, ceiling or roof through a sleeve			✓
Framing	(refer to wall framing or to roof framing as appropriate)				
Guttering and downpipes *(See note at top of table)*		Gutters or downpipes incorporated within the structure (e.g. down-pipes cast into a column or boxed in behind *claddings*), or secret gutters (e.g. hidden verge or valley gutters)	✓		
		Internal or valley gutters, fascia gutters or built-in downpipes		✓	
		External gutters and downpipes			✓
Heating Appliances	Solid fuel	Freestanding			✓
		Inbuilt		✓	
	Gas	Freestanding			✓
		Inbuilt		✓	
	Electric	Permanently wired			✓

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Table 1: Durability Requirements of Nominated Building Elements (cont'd)

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Insulation	Sub-floor		✓		
	Walls		✓		
	Ceiling or roof	Skillion roof	✓		
		Accessible ceiling or roof space	✓		
Interior wall linings		Structural linings (e.g. bracing elements)	✓		
		Shower linings (excluding behind tiled showers)		✓	
		Linings behind tiled showers	Same durability as tile covering it		
		Easy to access and replace			✓
Lintels	Steel angle (brick veneer)	All situations	✓		
	Flat steel	All situations	✓		
Plumbing and piping	Piping and fittings	Cast into concrete	✓		
		Under slabs	✓		
		Installed in a masonry cavity and not ducted or provided with maintenance access	✓		
		Concealed behind wall linings or installed in maintenance ducting		✓	
		Surface mounted and easy to replace			✓
	Valves	Concealed or moderately difficult to replace		✓	
		Surface mounted and easy to replace			✓
	Fixtures				✓
	Outlets				✓
Protective Coatings		Paint systems that are difficult to access or replace	✓		
		Roofing membranes		✓	
		Paint systems that are easy to access and replace			✓
Roof framing including trusses, purlins, tile battens and bracing members			✓		
Roofing tile battens			✓		
Safety barrier (balustrade, baluster, and handrail)	Support posts, *handrails*		✓		
	Balusters			✓	
Septic tanks		Built into or under the structure of a *building*	✓		
		Easy to access units (e.g. in-ground but accessible)		✓	
		Effluent field		✓	

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Apr 2004

Table 1: Durability Requirements of Nominated Building Elements (cont'd)

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Stairs and ladders (for *balustrades* refer to safety barriers)	Stringers		✓		
	Treads	Difficult to replace	✓		
		Moderately difficult to replace		✓	
	Ladders including rungs			✓	
Tiling	Walls and floors (including showers)	Tiling in wet areas		✓	
	Walls and floors	Decorative finish only	No durability requirement under the *building code*		
Under-floor heating	Heating coils	Buried in concrete slabs	✓		
		Accessible coils		✓	
	Cables and fittings	Buried in concrete slabs	✓		
		Accessible cables and fittings		✓	
Vapour barriers		Behind structural elements or difficult to access and replace	✓		
		Behind non-structural internal linings		✓	
		High gloss paint finish			✓
Ventilation	Plant	All		✓	
	Ducting	Built-in ducting		✓	
		Easy to access and replace			✓
	Fittings				✓
Vermin proofing		Built into structure	✓		
		Moderately difficult to access or replace		✓	
		To drained ventilated cavity	Same durability as the *cladding* covering it		
Water heaters	Continuous flow heaters	Moderately difficult to access or replace (e.g. installed in cupboard)		✓	
		Easy to access or replace (e.g. on internal or *external wall*)			✓
	Storage water heaters	Moderately difficult to access or replace (e.g. installed in cupboard)		✓	
		Easy to access but moderately difficult to replace		✓	
Wall framing including dwangs or nogging	Timber or steel	Load-bearing framing	✓		
		Easy to access lined, non-load-bearing partitions		✓	
		Easy to access unlined, non-structural partitions or non-load-bearing demountable partitions			✓
	Structural Steel	All	✓		
Windows	Frame and interior reveals	Structural units	✓		
		External window/door joinery		✓	
		Internal window joinery			✓

Amend 4
Apr 2004

Table 1: Durability Requirements of Nominated Building Elements (cont'd)

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Windows (Continued)	Gaskets, glazing and glazing beads	Moderately difficult to access or replace		✓	
	Hardware				✓

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Index B2/VM1 & AS1

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