

Volume Two Building Code of Australia





Australian Building <u>Co</u>des Board



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Introduction to the National Construction Code (NCC)

About the NCC

The NCC is Australia's primary set of technical design and construction provisions for buildings. As a performance-based code, it sets the minimum required level for the safety, health, amenity, accessibility and sustainability of certain buildings. It primarily applies to the design and construction of new buildings, and plumbing and drainage systems in new and existing buildings. In some cases it may also apply to structures associated with buildings and new building work or new plumbing and drainage work in existing buildings.

The Australian Building Codes Board (ABCB), on behalf of the Australian Government and each State and Territory government, produces and maintains the NCC. When determining the content of the NCC, the ABCB seeks to—

- ensure requirements have a rigorously tested rationale; and
- effectively and proportionally address applicable issues; and
- create benefits to society that outweigh costs; and
- · consider non-regulatory alternatives; and
- consider the competitive effects of regulation; and
- not be unnecessarily restrictive.

The primary users of the NCC include architects, builders, plumbers, building surveyors, hydraulic consultants, engineers and other building and plumbing related professions and trades.

Format of the NCC

The NCC is published in three volumes. The Building Code of Australia (BCA) is Volumes One and Two of the NCC and the Plumbing Code of Australia (PCA) is Volume Three of the NCC.

Components of the NCC

The NCC provides the technical provisions for the design and construction of buildings and other structures, and plumbing and drainage systems.

NCC Volume One primarily covers the design and construction of multi-residential, commercial, industrial and public assembly buildings and some associated structures.

NCC Volume Two primarily covers the design and construction of smaller scale buildings including houses, small sheds, carports and some associated structures.

NCC Volume Three covers the design, construction and maintenance of plumbing and drainage systems in new and existing buildings.

Each volume contains-

- Governing Requirements; and
- Performance Requirements; and
- compliance options to meet the NCC requirements; and
- State and Territory variations and additions.

The NCC uses building classifications to identify requirements for different intended purposes of buildings or parts of buildings. A building classification relates to the characteristics and the intended use of the building. Information on building classifications is found in Part A6 of the Governing Requirements.

Legislative arrangements and the NCC

The NCC is given legal effect through State and Territory, or other statutory authority, building and plumbing legislation. These Acts and Regulations set out the legal framework and administration mechanisms for the NCC to support the design and construction of buildings.

The dates of adoption of the NCC are determined by State and Territory building and plumbing administrations.

How to use the NCC

Each volume of the NCC is split into two main sections:

- Administrative requirements contained within the Governing Requirements.
- Technical requirements contained within the remaining sections of the NCC.

The Governing Requirements provide the rules and instructions for using and complying with the NCC. They are vital in understanding how the technical requirements of the NCC should be applied to any particular situation. The Governing Requirements are also important in understanding how the NCC fits with the building and plumbing regulatory framework within Australia.

NCC clause numbering system

The NCC uses a uniform clause numbering system across each of its three volumes. This system is called Section-Part-Type-Clause (SPTC). In each clause number—

- The first letter indicates which NCC Section sits within, or if the letter S is used, that the clause is part of a Specification. The letter S is used in place of a Section indicator because the same Specification may be called up in several different Sections of the NCC.
- The first number indicates the number of each Part within a Section, or the number of a Specification. Parts are numbered sequentially within each Section, starting at 1. Specifications are numbered sequentially across all three volumes, also starting at 1.
- The second letter indicates the clause Type. It will be either G, O, F, P, V, D or C and these are explained below.
- The second number is the clause number within each Part or Specification.

The clause Types used in the NCC are as follows:

- G = Governing requirement (mandatory)
- O = Objective (guidance)
- F = Functional Statement (guidance)
- P = Performance Requirement (mandatory)
- V = Verification Method (optional)
- D = Deemed-to-Satisfy Provision (optional)
- C = Clause in a Specification (clauses in Specifications may be mandatory or optional, depending on how the Specification is called up by the NCC).

Informative parts of the NCC (e.g. Introduction to the NCC) are not numbered and do not have numbered paragraphs. This helps make it easy to see that their content is information only and does not contain any regulatory requirements.

Introduction to NCC Volume Two

About NCC Volume Two

NCC Volume Two contains technical design and construction requirements for certain residential and non-habitable buildings and structures.

Volume Two contains the requirements for-

- Class 1 and 10a buildings (other than access requirements for people with a disability in Class 1b and 10a buildings); and
- certain Class 10b structures (other than access requirements for people with a disability in Class 10b *swimming pools*); and
- Class 10c private bushfire shelters.

Components of NCC Volume Two

NCC Volume Two contains the following Sections:

- Section A Governing Requirements
- Section H Housing:
 - Part H1 Structure
 - Part H2 Damp and weatherproofing
 - Part H3 Fire safety
 - Part H4 Health and amenity
 - Part H5 Safe movement and access
 - Part H6 Energy efficiency
 - Part H7 Ancillary provisions and additional construction requirements
- Schedules—
 - Abbreviations and symbols
 - Definitions
 - Referenced documents
 - State and Territory variations and additions

List of NCC Specifications

Table 1 sets out the number and title of each NCC Specification, along with the clauses in each NCC Volume that refer to the Specification.

 Table 1:
 List of NCC Specifications

| Spec | Title | References | | | |
|------|---|--|------------|--|--|
| no. | | Vols. One and Two | Vol. Three | | |
| 1 | Fire resistance of building elements | A5G5; A5G6; C4D15; S2C1; S9C2 | A5G5; A5G6 | | |
| 2 | Description of materials referred to in Specification 1 | A5G5; A5G6; C4D15; S1C2; S9C2 | A5G5; A5G6 | | |
| 3 | Fire hazard properties (determination) | A5G6 | A5G6 | | |
| 4 | Design of buildings in cyclonic areas | B1D3 | - | | |
| 5 | Fire-resisting construction | C2D2; C2D10; C3D6; C3D8; C3D9; C3D10; C3D11; C3D13; C4D6; C4D8; C4D13; C4D15; D2D13; E1D5; G3D6; S17C11; S18C4; S31C3 | - | | |
| 6 | Structural tests for lightweight construction | B1D4; C2D9; S5C23; S14C2; S32C2; S32C3; Housing Provisions 9.3.1 | - | | |
| 7 | Fire hazard properties (requirements) | C2D11; C2D14; S3C2; S14C2; S19C7; S32C6 | - | | |
| 8 | Performance of external walls in fire | C2D12 | - | | |
| 9 | Cavity barriers for fire-protected timber | C2D13; C4D16; S5C11; S5C20 | - | | |
| 10 | Fire protected timber | S1C2 | - | | |
| 11 | Smoke-proof walls in health-care and residential care buildings | C3D6; C3D15; C4D12; E2D11 | - | | |
| 12 | Fire doors, smoke doors, fire windows and shutters | C4D5; G3D4; S11C2; S11C3 | - | | |
| 13 | Penetration of walls, floors and ceilings by services | C4D15 | - | | |
| 14 | Non-required stairways, ramps and escalators | C2D11; D2D17 | - | | |
| 15 | Braille and tactile signs | D4D7; S27C10 | - | | |
| 16 | Accessible water entry/exit for swimming pools | D4D11 | - | | |
| 17 | Fire sprinkler systems | C1V3; C2D6; C2D13; C3D2; C3D4; C3D7; C3D8; C4D6; C4D7; C4D8; C4D9; C4D12; D2D4; D2D17; E1D4; E2D8; E2D9; E2D10; E2D11; E2D13; E2D14; E2D15; E2D16; E2D17; E2D19; E2D20; G3D1; G3D6; G6D6; I1D2; S5C10; S5C11; S5C14; S5C18; S5C19; S5C20; S5C21; S5C22; S5C24; S7C3; S7C4; S19C11; S20C3; S20C4; S20C5; S31C2 | - | | |
| 18 | Class 2 and 3 buildings not more than 25 m in effective | E1D4; S1/C2; S23C1; | - | | |

| Spec | Title | References | | | |
|-----------|--|--|---------------------|--|--|
| no. | | Vols. One and Two | Vol. Three | | |
| 19 | Fire control centres | E1D14 | - | | |
| 20 | Smoke detection and alarm systems | E2D3; E2D5; E2D7; E2D8; E2D9; E2D11; E2D13; E2D14; E2D15; E2D16; E2D17; E2D18; E2D19; E2D20; S5C19; S5C22; S17C8; S18C3; S21C7; S21C8; S22C3 | - | | |
| 21 | Smoke exhaust systems | C3D13; E2D10; E2D14; E2D15; E2D16; E2D17; E2D18; E2D19; E2D20; S20C6; S20C8 | - | | |
| 22 | Smoke-and-heat vents | E2D10; E2D14; E2D15; E2D16; E2D17; E2D18; E2D19; E2D20; S20C8 | - | | |
| 23 | Residential fire safety systems | S18C3; S18C4 | - | | |
| 24 | Lift installations | E3D2 | - | | |
| 25 | Photoluminescent exit signs | E4D8 | - | | |
| 26 | Waterproofing and water resistance requirements for building elements in wet areas | F1D6 | - | | |
| 27 | Accessible adult change facilities | F4D12; S15C1 | - | | |
| 28 | Sound insulation for building elements | F5D3; F5D4 | - | | |
| 29 | Impact sound — Test of equivalence | F5D4; S28C2 | - | | |
| 30 | Installation of boilers and pressure vessels | G2D2 | - | | |
| 31 | Fire and smoke control in buildings containing atriums | G3D4; G3D8; S14C2 | - | | |
| 32 | Construction of proscenium walls | C2D11; I1D3 | - | | |
| 33 | Additional requirements | J1V1; J1V2; J1V3 | - | | |
| 34 | Modelling parameters | J1V2; J1V3; S35C1 | - | | |
| 35 | Modelling profiles | S34C3 | - | | |
| 36 | Material properties | J3D3 | - | | |
| 37 | Calculation of U-Value and solar admittance | J3D3; J3D6 | - | | |
| 38 | Spandrel panel thermal performance | S37C3; S37C4 | - | | |
| 39 | Sub-floor thermal performance | J3D3 | - | | |
| 40 | Lighting and power control devices | J6D3; J6D4; J6D5; J6D6; J6D7 | - | | |
| 41 | Cross-connection hazards | - | B5D2; B5D3; B5D4 | | |
| 42 | Heating and cooling load limits | H6D2 | - | | |
| <u>43</u> | Bushfire protection for certain Class 9 buildings | G5D4 | = | | |

History of Adoption - NCC Volume Two

Adoption of NCC Volume Two

The adoption of each edition of NCC Volume Two (also referred to as BCA Volume Two) is set out in Table 1.

Table 1:

History of adoption of NCC Volume Two

| Edition | Common wealth | ACT | NSW | NT | QLD | SA | TAS | VIC | WA |
|----------|------------------|-------------------|--------|-------|-------------------|-------------------|-------|-------|-------|
| BCA 96 | 1 Jul | 1 Jul | 1 Jul | 7 Jan | 1 Jul | 1 Jan | 1 Jul | 1 Aug | 1 Jul |
| | 1997 | 1997 | 1997 | 1998 | 1997 | 1998 | 1997 | 1997 | 1997 |
| BCA 96 | 1 Jul | 1 Jul | 1 Jul | 7 Jan | 1 Jul | 1 Jan | 1 Jul | 1 Aug | 1 Jul |
| Amdt 1 | 1997 | 1997 | 1997 | 1998 | 1997 | 1998 | 1997 | 1997 | 1997 |
| BCA 96 | 1 Jan | 1 Jan | 27 Feb | 7 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan |
| Amdt 2 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 |
| BCA 96 | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 13 Jul | 1 Jul | 1 Jul | 1 Jul |
| Amdt 3 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 | 1998 |
| BCA 96 | 1 Jan | 17 May | 1 Feb | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan |
| Amdt 4 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 |
| BCA 96 | 1 Jul | 3 Nov | 1 Aug | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul |
| Amdt 5 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 | 1999 |
| BCA 96 | 1 Jan | 10 Feb | 1 Jan | 1 Jan | 1 Jan | 17 Jan | 1 Jan | 1 Jan | 1 Jan |
| Amdt 6 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| BCA 96 | 1 Jul | 10 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul |
| Amdt 7 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| BCA 96 | 1 Jan | 11 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan |
| Amdt 8 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 |
| BCA 96 | 1 Jul | 12 Jul | 1 Jul | 1 Jul | 1 Jul | 2 Jul | 1 Jul | 1 Jul | 1 Jul |
| Amdt 9 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 |
| BCA 96 | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan |
| Amdt 10 | 2002 | 2002 | 2002 | 2002 | 2002 | 2002 ¹ | 2002 | 2002 | 2002 |
| BCA 96 | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul |
| Amdt 11 | 2002 | 2002 ² | 2002 | 2002 | 2002 | 2002 | 2002 | 2002 | 2002 |
| BCA 96 | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan | 1 Jan |
| Amdt 12 | 2003 | 2003 | 2003 | 2003 | 2003 | 2003 | 2003 | 2003 | 2003 |
| BCA 96 | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul | 1 Jul |
| Amdt 13 | 2003 | 2003 | 2003 | 2003 | 2003 ³ | 2003 | 2003 | 2003 | 2003 |
| BCA 2004 | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| | 2004 | 2004 | 2004 | 2004 | 2004 | 2004 | 2004 | 2004 | 2004 |
| BCA 2005 | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| | 2005 | 2005 | 2005 | 2005 | 2005 | 2005 | 2005 | 2005 | 2005 |
| BCA 2006 | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| | 2006 | 2006 | 2006 | 2006 | 2006 | 2006 ⁴ | 2006 | 2006 | 2006 |
| BCA 2007 | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| | 2007 | 2007 | 2007 | 2007 | 2007 | 2007 ⁵ | 2007 | 2007 | 2007 |
| BCA 2008 | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| | 2008 | 2008 | 2008 | 2008 | 2008 | 2008 | 2008 | 2008 | 2008 |
| BCA 2009 | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| | 2009 | 2009 | 2009 | 2009 | 2009 | 2009 | 2009 | 2009 | 2009 |

| Edition | Common wealth | ACT | NSW | NT | QLD | SA | TAS | VIC | WA |
|-----------------------|------------------|---------------|---------------|---------------|---------------|-------------------|---------------|---------------|---------------|
| BCA 2010 | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| | 2010 | 2010 | 2010 | 2010 | 2010 | 2010 ⁶ | 2010 | 2010 | 2010 |
| NCC | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| 2011 | 2011 | 2011 | 2011 | 2011 | 2011 | 2011 | 2011 | 2011 | 2011 |
| NCC | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| 2012 | 2012 | 2012 | 2012 | 2012 | 2012 | 2012 | 2012 | 2012 | 2012 |
| NCC | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| 2013 | 2013 | 2013 | 2013 | 2013 | 2013 | 2013 | 2013 | 2013 | 2013 |
| NCC | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 |
| NCC | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 |
| NCC | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 |
| NCC | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May | 1 May |
| 2019 | 2019 | 2019 | 2019 | 2019 | 2019 | 2019 | 2019 | 2019 | 2019 |
| NCC 2019 Amdt 1 | 1 Jul 2020 | 1 Jul 2020 | 1 Jul 2020 | 1 Jul 2020 | 1 Jul 2020 | 1 Jul 2020 | 1 Jul 2020 | 1 Jul 2020 | 1 Jul 2020 |

Table Notes:

- 1. 1 January 2002 (except SA2 date to be advised).
- 2. 1 July 2002 (except Australian Capital Territory additions which was adopted on 21 June 2002).
- 3. 1 July 2003 (except for Parts 2.6 and 3.12 which are adopted on 1 September 2003).
- 4. 1 May 2006, except for South Australian variations P2.6.2, V2.6.2.3 and 3.12.5.4 and South Australian addition SA2 which were adopted on 1 July 2006. The adoption of South Australian variation clause 3.7.4.2 is yet to be advised.
- 5. 1 May 2007, excluding South Australian variation clause 3.7.4.2, (for the purposes of sub-clauses (1) and (2) of Schedule 18 of the Development Regulations 1993): and sub-clause c) of variation clause 3.7.4.2 (for the purpose of sub-clauses (3) and (4) of Schedule 18 of the Development Regulations 1993).
- 6. 1 May 2010 except for Parts 2.6 and 3.12, which were adopted on 1 September 2010, and the restriction on child resistant door sets in 3.9.3.0 and the additional bushfire requirements for 'excluded areas' prescribed in SA 3.7.4.2(d) and (e), which were adopted on 2 December 2010.

BCA 96 Amendment No. 1

Amendment No. 1 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 1 is to-

- include typographical changes including spelling, punctuation, cross references and layout; and
- include reference to a Certificate of Conformity issued by the ABCB in A2.2; and
- change the reference to the Standards Mark Certificate to refer to JAS–ANZ in A2.2; and
- update references to Standards.

Note: The revisions contained in Amendment No. 1 to the Housing Provisions have not been marked in the text.

BCA 96 Amendment No. 2

Amendment No. 2 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 2 is to-

• include typographical changes including spelling, punctuation, cross references and layout; and

- update references to Standards; and
- include minor technical changes.

BCA 96 Amendment No. 3

Amendment No. 3 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 3 is to-

- incorporate the outcomes of the 1997 ABCB Variations Conference; and
- update references to Standards; and
- include minor technical changes.

BCA 96 Amendment No. 4

Amendment No. 4 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 4 is to-

- update references to Standards; and
- include minor technical changes.

BCA 96 Amendment No. 5

Amendment No. 5 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 5 is to-

- update references to Standards; and
- expand on the requirements for subfloor ventilation based on climatic conditions; and
- revise the Acceptable Construction Practice for Steel framing; and
- include additional details in the Acceptable Construction Practice for fencing of swimming pools; and
- include minor technical changes.

BCA 96 Amendment No. 6

Amendment No. 6 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 6 is to-

- update references to Standards; and
- revise the Acceptable Construction Practice for Footing and Slab Construction; and
- replace Sound Transmission Class (STC) with weighted sound reduction index (R_w) within Part 3.8.6; and
- include minor technical changes.

BCA 96 Amendment No. 7

Amendment No. 7 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 7 is to-

- update references to Standards; and
- include requirements for separation of eaves and verandah spaces that are open to the roof space and common to 2 or more Class 1 buildings; and
- reinstate the Acceptable Construction Practice for buildings in bushfire-prone areas, following alignment with the 1999 version of AS 3959; and
- change the limitations on winders used in lieu of quarter and half landings within stairways; and

• include minor technical changes.

BCA 96 Amendment No. 8

Amendment No. 8 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 8 is to-

- update references to Standards; and
- include minor technical changes; and
- achieve greater consistency between both Volumes of the BCA for stair construction.

BCA 96 Amendment No. 9

Amendment No. 9 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 9 is to-

- update references to Standards; and
- include minor technical changes; and
- clarify which glazing assemblies must comply with AS 2047 and which must comply with AS 1288.

BCA 96 Amendment No. 10

Amendment No. 10 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 10 is to—

- update references to Standards; and
- update the requirements for protective coatings for steelwork in locations near saltwater; and
- align Figure 3.6.1 dealing with glazing with AS 1288; and
- extend the concession for fire separation of windows in non-habitable rooms to windows in bathrooms, laundries and toilets and also include buildings on the same allotment; and
- replace testing to AS/NZS 1530.3 for timber in bushfire areas with reference to AS/NZS 3837; and
- include minor technical changes.

BCA 96 Amendment No. 11

Amendment No. 11 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 11 is to-

- update references to Standards; and
- transfer public policy matters, with respect to structural adequacy, from the AS 1170 series to the BCA; and
- introduce new definitions and more detailed provisions on the installation of flashings and damp-proof courses; and
- include minor technical changes.

BCA 96 Amendment No. 12

Amendment No. 12 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of Amendment No. 12 is to-

- update references to Standards; and
- allow the use of either the 1989 editions or the 2002 editions of the 1170 series of standards; and
- include Energy Efficiency measures into the Housing Provisions; and
- include minor technical changes.

Note: Only substantive typographical corrections are noted in the margin.

BCA 96 Amendment No. 13

Amendment No. 13 of the 1996 edition of the BCA Volume Two was adopted as set out in Table 1.

- The purpose of Amendment No. 13 is to-
- update references to Standards; and
- refine the Energy Efficiency provisions and advise of their adoption in Western Australia and Queensland; and
- include minor technical changes.

Note: Only substantive typographical corrections are noted in the margin.

Adoption of BCA 2004 Volume Two

The 2004 edition of the BCA was adopted as set out in Table 1.

The purpose of BCA 2004 Volume Two is to—

- remove references to BCA 96; and
- clarify the method of determining the Performance Requirements that are relevant to Alternative Solutions; and
- update references to other documents; and
- revise the acceptable construction practice for footing and slab construction; and
- prohibit the use of lead on roofs used to collect potable water; and
- reform the provisions for sound insulation; and
- update the Energy Efficiency provisions; and
- include minor technical changes.

Adoption of BCA 2005 Volume Two

The 2005 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of BCA 2005 Volume Two is to-

- update references to other documents; and
- update the provisions for waterproofing of wet areas; and
- update balustrading provisions to include wire balustrades; and
- include minor technical changes.

Adoption of BCA 2006 Volume Two

The 2006 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of BCA 2006 Volume Two is to-

- update references to other documents; and
- convert the W wind speed categories to the N and C wind speed categories; and
- include a national testing regime for cladding in cyclonic areas; and
- include enhanced energy efficiency provisions; and
- include minor technical changes.

Adoption of BCA 2007 Volume Two

The 2007 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of BCA 2007 Volume Two is to-

- update references to other documents; and
- clarify that compliance with either the appropriate acceptable construction manuals or the appropriate acceptable construction practice set out in Section 3 is deemed to comply with the Performance Requirements; and
- clarify when it is appropriate to use the acceptable construction practice for the installation of glazing and when it is necessary for windows to comply with AS 2047; and
- update acceptable construction practice for the installation of glazing to align with recent changes to AS 1288; and
- update Energy Efficiency provisions including providing clarification and additional information; and
- include minor technical changes.

Adoption of BCA 2008 Volume Two

The 2008 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of BCA 2008 Volume Two is to-

- update references to other documents; and
- include lists of other legislation affecting buildings in the various States and Territories; and
- include provisions for swimming pool water recirculation systems; and
- include minor technical changes.

Adoption of BCA 2009 Volume Two

The 2009 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of BCA 2009 Volume Two is to-

- update references to other documents; and
- after expiry of the agreed transition period, except for the 1993 edition of AS 1170.4, delete all references to the older loading standards contained in the AS 1170 series and consequently, all provisions referring to them; and
- simplify the wire balustrade provisions including the addition of a Verification Method; and
- clarify the height of rooms in an attic and with a sloping ceiling; and
- clarify the provisions for the construction of sanitary compartments to enable an unconscious occupant to be removed; and
- further update the energy efficiency provisions; and
- include minor technical changes.

Adoption of BCA 2010 Volume Two

The 2010 edition of the BCA Volume Two was adopted as set out in Table 1.

The purpose of BCA 2010 Volume Two is to-

- update references to other documents; and
- delete reference to the 1993 edition of AS 1170.4 and consequently all provisions referring to it; and
- increase the stringency of the energy efficiency provisions and, as part of reducing greenhouse gas emissions, introduce provisions for lighting and the greenhouse gas intensity of the energy source for services such as water and space heaters; and
- update Part 3.7.4, as a consequence of referencing the 2009 edition of AS 3959 Construction of buildings in bushfireprone areas, including—
 - applying the provisions to a Class 10a building or deck associated with a Class 1 building; and
 - the deletion of the acceptable construction practice; and
- include minor technical changes.

Adoption of NCC 2011 Volume Two

The 2011 edition of the NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC 2011 Volume Two is to-

- update references to other documents; and
- include provisions for private bushfire shelters for Class 1 dwellings; and
- revise the definition of Class 1b buildings; and
- include minor technical changes.

Adoption of NCC 2012 Volume Two

The 2012 edition of the NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC 2012 Volume Two is to-

- update references to other documents; and
- include revised provisions aimed at reducing slips, trips and falls in buildings; and
- remove the acceptable construction practice for masonry following the referencing of AS 4773 Masonry for small buildings, and completion of a 12 month transition period; and
- restructure the acceptable construction practice for wet areas; and
- include minor technical changes.

Adoption of NCC 2013 Volume Two

The 2013 edition of the NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC 2013 Volume Two is to-

- update references to other documents; and
- include new provisions for openable windows to reduce falls in buildings; and
- include a Performance Requirement and reference a Standard for construction in flood hazard areas; and
- include minor technical changes.

Adoption of NCC 2014 Volume Two

The 2014 edition of the NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC 2014 Volume Two is to-

- update references to other documents; and
- quantify slip resistance on stair treads in Class 1 buildings; and
- relocate the energy efficiency provisions for heated water systems to NCC Volume Three; and
- expand the energy efficiency heating options for swimming pools and associated spa pools; and
- include a new acceptable construction practice for hardboard cladding; and
- include minor technical changes.

Adoption of NCC 2015 Volume Two

The 2015 edition of the NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC 2015 Volume Two is to-

- update references to other documents; and
- include a Verification Method for structural reliability; and

- include a Verification Method for weatherproofing of external walls; and
- include revised Acceptable Construction Practice for termite management systems.

Adoption of NCC 2016 Volume Two

The 2016 edition of NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC 2016 Volume Two is to-

- update references to other documents; and
- amend the "Introduction" and "General Requirements" as part of the initiative to increase the use of Performance Solutions; and
- include new Verification Methods for structural robustness and indoor air quality; and
- include changes as a result of the Acceptable Construction Practice Review project, including the provisions for termite risk management, subfloor ventilation, facilities, light and ventilation and stair construction; and
- include requirements for overflow of eaves gutters; and
- include minor technical changes.

Adoption of NCC 2019 Volume Two

The 2019 edition of NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC 2019 Volume Two is to—

- include the Governing Requirements, that result from revision of Part 1 to improve readability and are common to all volumes; and
- introduce the use of schedules that are common to all volumes; and
- include new Verification Methods; and
- include changes resulting from review of acceptable construction practice, including amendments for earthworks, masonry, roof and wall cladding, fire safety and alpine areas; and
- update references to other documents; and
- include minor technical changes.

NCC 2019 Amendment No. 1

Amendment No. 1 to the 2019 edition of NCC Volume Two was adopted as set out in Table 1.

The purpose of NCC Volume Two Amendment 1 is to-

- require that a process be followed to improve the quality of and documentation for Performance Solutions; and
- require labelling of Aluminium Composite Panels; and
- clarify that anti-ponding board requirements only apply to roofs where sarking is installed.

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| Specification 1 | Fire-resistance o | of building elements | | | | |
| | S1C1 | Scope | | | | |
| | S1C2 | Rating | | | | |
| | S1C3 | FRLs determined by calculation | | | | |
| | S1C4 | Interchangeable materials | | | | |
| | S1C5 | Columns covered with lightweight construction | | | | |
| | S1C6 | Non-loadbearing elements | | | | |
| Specification 2 | Descriptions of elements referred to in Specification 1 | | | | | |
| | <u>S2C1</u> | Scope | | | | |
| | S2C2 | Mortar for masonry | | | | |
| | S2C3 | Gypsum blocks | | | | |
| | S2C4 | Gypsum-sand mortar and plaster | | | | |
| | S2C5 | Gypsum-perlite and gypsum-vermiculite plaster | | | | |
| | S2C6 | Plaster of cement and sand or cement, lime and sand | | | | |
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| | S2C12 | Equivalent thickness | | | | |
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| | S2C14 | Walls | | | | |
| | S2C15 | Columns | | | | |

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| S2C16 | Walls |
|-------|---|
| S2C17 | Columns |
| S2C18 | Beams |
| S2C19 | Columns |
| S2C20 | Beams |
| S2C21 | Filling of column spaces |
| S2C22 | Hollow terracotta blocks |
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| S2C24 | Gypsum blocks and hollow terracotta blocks |
| S2C25 | Structural concrete and poured gypsum |
| S2C26 | Gypsum-perlite or gypsum-vermiculite plaster sprayed to contour |
| S2C27 | Measurement of thickness of column and beam protection |
| | |

Specification 3 Fire hazard properties

| S3C1 | Scope |
|------|----------------------------|
| S3C2 | General requirement |
| S3C3 | Form of test |
| S3C4 | Test specimens |
| S3C5 | Concession |
| S3C6 | Smaller specimen permitted |

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Part A1 Interpreting the NCC

Introduction to this Part

This Part explains important concepts on how the NCC must be interpreted and applied. There are certain conventions and approaches that need to be taken into account when using the NCC. This includes interpreting specific language and terms. This is critical to understanding the intended technical and legal meaning of the NCC. This Part also explains the difference between the mandatory parts of the NCC and the parts that are only explanatory or guidance in nature.

Governing Requirements

A1G1 Scope of NCC Volume One

[New for 2022]

NCC Volume One contains the requirements for-

- (a) all Class 2 to 9 buildings; and
- (b) access requirements for people with a disability in Class 1b and 10a buildings; and
- (c) <u>certain Class 10b structures including access requirements for people with a disability in Class 10b swimming</u> <u>pools.</u>

A1G2 Scope of NCC Volume Two

[New for 2022]

NCC Volume Two contains the requirements for-

- (a) <u>Class 1 and 10a buildings (other than access requirements for people with a disability in Class 1b and 10a buildings); and</u>
- (b) <u>certain Class 10b structures (other than access requirements for people with a disability in Class 10b swimming pools); and</u>
- (c) Class 10c private bushfire shelters.

A1G3 Scope of NCC Volume Three

[New for 2022]

- (1) <u>NCC Volume Three contains technical requirements for the design, construction, installation, replacement, repair, alteration and maintenance for *plumbing* and *drainage* systems in new and existing buildings.</u>
- (2) NCC Volume Three applies to these systems in all classes of buildings whenever *plumbing* and *drainage* work is carried out.
- (3) NCC Volume Three additionally applies to sites where services are constructed independently of buildings.

A1G¹<u>4</u> Interpretation

[2019: A1.0]

- (1) The following components of the NCC are non-mandatory and informative:
 - (a) Content identified as "explanatory information".
 - (b) The "Introduction-to this Part" information, located at the beginning of each Volume, Section or Part.
- (2) Words in italics must be interpreted in accordance with-

- (a) definitions provided in Schedule 21, unless the contrary intention appears; and
- (b) additional definitions in State or Territory appendices, as appropriate.
- (3) The NCC must be interpreted and applied in accordance with the following:
 - (a) A reference to a building is a reference to an entire building or part of a building (as the case requires).
 - (b) A reference to *plumbing or drainage solution*, or *product* in Volume Three is a reference to an entire installation, system or *product*, or part of an installation, system or *product* (as the case requires).
 - (c) A reference in a *Performance Requirement* to "the degree necessary" means-
 - (i) that consideration of all the criteria referred to in the *Performance Requirement* will determine the outcome appropriate to the circumstances; and
 - (ii) that in certain cases it may not be necessary to incorporate any specific measures to meet the relevant *Performance Requirement.*
 - (d) An "Application" statement is mandatory and is provided to specify where and when a requirement or provision applies.
 - (e) A "Limitation" statement is mandatory and is provided to specify where and when the application of a requirement or provision is limited to a certain circumstance.
 - (f) An "Exemption" statement is mandatory and is provided to specify where or when a requirement or provision does not need to be complied with.
 - (g) A "Note" is part of a provision or requirement and provides additional mandatory instructions.
 - (h) Figures in the NCC-
 - (i) are used to illustrate specific issues referenced in the associated text; and
 - (ii) are not to be construed as containing all design information that is *required* for that particular building element or situation.
 - (i) The defined symbols and abbreviations listed in Schedule 1.
- (4) A reference to a building class is a reference to all the sub-classifications of that class.
- (5) The following sub-classifications apply:
 - (a) Classes 1a and 1b are sub-classifications of Class 1.
 - (b) Classes 7a and 7b are sub-classifications of Class 7.
 - (c) Classes 9a, 9b and 9c are sub-classifications of Class 9.
 - (d) Classes 10a, 10b and 10c are sub-classifications of Class 10.
- (6) A reference to a sub-classification is solely to that sub-classification.

TAS A1G14(7)

Notes:

For Volume Three, if a word is not defined in Schedule 2, the meaning (if any) attributed to it under AS/NZS 3500.0 should be used unless the contrary intention appears.

Explanatory Information:

Explanatory information and Introduction to this Section information contained in the NCC or Introduction to this Part information contained in Volumes One and Two of the NCC are is non-mandatory and are is provided for guidance purposes only. This informative material should be read in conjunction with the technical provisions of the NCC. Any statements made in the informative and guidance components of the NCC should not be taken to override the NCC. Unlike the NCC, which is adopted by legislation, the informative and guidance components are not called up into legislation and they do not cover State and Territory variations and additions. Because informative and guidance components of the NCC do not have regulatory force, the ABCB accepts no responsibility for its contents when applied to specific buildings or any liability which may result from its use.

Defined words provide the precise meaning and expressions of key words used for understanding and complying with the NCC. Where a word is not defined in the NCC, the relevant common meaning of the word should be used.

Generally, a reference to a building is a reference to the whole building, regardless of classification. However, when a

provision is applicable to a specific class or classes of building, that reference to a building may be a reference to the whole building or part of the building depending on how the building is classified.

Whether a provision applies or not depends on the circumstances of the case and the circumstances in which the reference is made. For example, where a building has a single classification, a reference to a building in the NCC is understandably a reference to a whole building. However, where a building has parts of different classification, unless the contrary intention appears (i.e. there is a specific reference to the whole building), a reference to a building in the NCC is a reference to the relevant part of the building. This means that each part of the building must comply with the relevant provisions for its classification.

A number of the *Performance Requirements* of the NCC use the expression "to the degree necessary" or "appropriate to". These expressions provide flexibility by allowing appropriate authorities to determine the degree of compliance necessary in a particular case. Therefore, any part of the NCC that uses these expressions should be referenced against the requirements of the appropriate authority. For example, an *appropriate authority* might judge that an item need not be installed, or a particular level of performance be achieved.

Application, Limitation, and Exemption statements are used to identify provisions that may or may not apply in certain situations, to varying degrees.

Classes 1a and 1b, 7a and 7b, 9a, 9b and 9c, and 10a, 10b and 10c are separate classifications. In the NCC, when the designation 'a', 'b' or 'c' is not applied, the reference is to all buildings of the general class. For example, 'Class 9b' refers only to Class 9b buildings, but 'Class 9' refers to Classes 9a, 9b and 9c.

Figures are used to explain the requirements of a particular clause. To ensure the context of the requirement is clearly understood, adjacent construction elements of the building that would normally be required in that particular situation are not always shown. Accordingly, aspects of figures that are not shown should not be interpreted as meaning these construction details are not *required*. Therefore a figure must not be used as an indication of the full construction requirements in a given situation, as the only available option, or a substitute for referencing appropriate construction requirements (in other sources) for a given clause.

Part A2 Compliance with the NCC

Introduction to this Part

This Part explains the possible methods of demonstrating compliance with the NCC. It explains the various compliance pathways within the NCC and the appropriate steps that must be taken for each of these pathways.

Governing Requirements

A2G1 Compliance

[2019: A2.0, A2.1]

- (1) Compliance with the NCC is achieved by complying with-
 - (a) the Governing Requirements of the NCC; and
 - (b) the Performance Requirements.
- (2) Performance Requirements are satisfied by one of the following, as shown in Figure A2G1:
 - (a) Performance Solution.
 - (b) Deemed-to-Satisfy Solution.
 - (c) A combination of (a) and (b).

Figure A2G1: NCC compliance structure



A2G2 Performance Solution

[2019: A2.2]

- (1) A Performance Solution is achieved by demonstrating-
 - (a) compliance with all relevant Performance Requirements; or
 - (b) the solution is at least equivalent to the Deemed-to-Satisfy Provisions.
- (2) A *Performance Solution* must be shown to comply with the relevant *Performance Requirements* through one or a combination of the following *Assessment Methods*:
 - (a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, *plumbing* and *drainage product*, form of construction or design meets the relevant *Performance Requirements*.
 - (b) A Verification Method including the following:
 - (i) The Verification Methods provided in the NCC.
 - (ii) Other *Verification Methods*, accepted by the *appropriate authority* that show compliance with the relevant *Performance Requirements*.

- (c) Expert Judgement.
- (d) Comparison with the *Deemed-to-Satisfy Provisions*.
- (3) Where a *Performance Requirement* is satisfied entirely by a *Performance Solution*, in order to comply with (1) the following method must be used to determine the *Performance Requirement* or *Performance Requirements* relevant to the *Performance Solution*:
 - (a) Identify the relevant *Performance Requirements* from the Section or Part to which the *Performance Solution* applies.
 - (b) Identify *Performance Requirements* from other Sections or Parts that are relevant to any aspects of the *Performance Solution* proposed or that are affected by the application of the *Performance Solution*.
- (4) Where a *Performance Requirement* is proposed to be satisfied by a *Performance Solution*, the following steps must be undertaken:
 - (a) Prepare a *performance-based design brief* in consultation with relevant stakeholders.
 - (b) Carry out analysis, using one or more of the Assessment Methods listed in (2), as proposed by the *performance*based design brief.
 - (c) Evaluate results from (4)(b) against the acceptance criteria in the performance-based design brief.
 - (d) Prepare a final report that includes-
 - (i) all *Performance Requirements* and/or *Deemed-to-Satisfy Provisions* identified through A2G2(3) or A2G4(3) as applicable; and
 - (ii) identification of all Assessment Methods used; and
 - (iii) details of steps (4)(a) to (4)(c); and
 - (iv) confirmation that the Performance Requirement has been met; and
 - (v) details of conditions or limitations, if any exist, regarding the *Performance Solution*.

A2G3 Deemed-to-Satisfy Solution

[2019: A2.3]

- (1) A solution that complies with the *Deemed-to-Satisfy Provisions* is deemed to have met the *Performance Requirements*.
- (2) A *Deemed-to-Satisfy Solution* can show compliance with the *Deemed-to-Satisfy Provisions* through one or more of the following *Assessment Methods*:
 - (a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, *plumbing* and *drainage product*, form of construction or design meets a *Deemed-to-Satisfy Provision*.
 - (b) Expert Judgement.

A2G4 A combination of solutions

[2019: A2.4]

- (1) *Performance Requirements* may be satisfied by using a combination of *Performance Solutions* and *Deemed-to-Satisfy Solutions*.
- (2) When using a combination of solutions, compliance can be shown through the following, as appropriate:
 - (a) A2G2 for assessment against the relevant Performance Requirements.
 - (b) A2G3 for assessment against the relevant *Deemed-to-Satisfy Provisions*.
- (3) Where a Performance Requirement is satisfied by a Performance Solution in combination with a Deemed-to-Satisfy Solution, in order to comply with (1), the following method must be used to determine the Performance Requirement or Performance Requirements relevant to the Performance Solution:
 - (a) Identify the relevant *Deemed-to-Satisfy Provisions* of each Section or Part that are to be the subject of the *Performance Solution*.
 - (b) Identify the Performance Requirements from the same Sections or Parts that are relevant to the identified

Deemed-to-Satisfy Provisions.

(c) Identify *Performance Requirements* from other Sections or Parts that are relevant to any aspects of any *Performance Solution* proposed or that are affected by the application of the *Deemed-to-Satisfy Provisions* that are the subject of the *Performance Solution*.

Explanatory Information:

To comply with the NCC, a solution must achieve compliance with the Governing Requirements and the *Performance Requirements*. The Governing Requirements contain requirements about how the *Performance Requirements* must be met.

Performance Requirements outline the minimum necessary standards different buildings or building elements must attain. The *Performance Requirements* are the only NCC technical provisions that must be satisfied.

In some instances, State and Territory variations and additions may also be applicable to certain *Performance Requirements*.

A solution may be partly a *Performance Solution* and partly a *Deemed-to-Satisfy Solution*. However, no matter what method is chosen, building proponents need to always meet the *Performance Requirements* of the NCC.

A2G2(2)(b)(ii) provides for the use of *Verification Methods* that are not listed in the NCC. A *Verification Method* may include—

- a calculation, using analytical methods or mathematical models; or
- a test, using a technical procedure, either on-site or in a laboratory, to directly measure the extent to which the *Performance Requirements* have been met; or
- an inspection (and inspection report); or
- any other acceptable form of certification.

Any Verification Method used must be acceptable to the appropriate authority.

A Performance Solution must comply with all applicable Performance Requirements of the NCC. A Performance Solution provides a tailored solution to meet the intended objective of the Performance Requirements. A Performance Solution must comply with all relevant Performance Requirements and must be verified using one or a combination of the following Assessment Methods:

- Evidence of suitability.
- Verification Method .
- Expert Judgement.
- Comparison with the Deemed-to-Satisfy Provisions.

For example, building proponents who wish to know what has to be done to satisfy the fire safety *Performance Requirements* for a particular building can either follow the *Deemed-to-Satisfy Provisions* or develop a *Performance Solution*. Guidance on how to develop *Performance Solutions* can be found on the ABCB website at: www.abcb.gov.au. The ABCB Resource Library contains information on the development of *Performance Solutions* for both building and plumbing.

A *Deemed-to-Satisfy Solution* is achieved by following all appropriate *Deemed-to-Satisfy Provisions* in the NCC. The *Deemed-to-Satisfy Provisions* are prescriptive (i.e. like a recipe book, they tell you how, what and in which location things must be done). They include materials, components, design factors, and construction methods that, if used, are deemed to meet the *Performance Requirements*, hence the term "Deemed-to-Satisfy".

A Deemed-to-Satisfy Solution may be verified using one or a combination of the following Assessment Methods:

- Evidence of suitability.
- Expert Judgement.

Some *Performance Requirements* are without *Deemed-to-Satisfy Solutions*. Compliance with these *Performance Requirements* must be achieved by using a *Performance Solution*.

When designing a building or plumbing or drainage system, both *Performance Solutions* and *Deemed-to-Satisfy Solutions* can be used to achieve compliance with *Performance Requirements*. A combination of solutions may be used to satisfy a single *Performance Requirement*. This may include occasions where a specific *Performance Requirement* covers a number of elements of a building or *plumbing* or *drainage* system.

No NCC provision can be considered in isolation. Any departure from the Deemed-to-Satisfy Provisions for a

A2G4

Performance Solution needs to be assessed against the relevant *Performance Requirements* within the relevant NCC Section or Part. Additionally, the proposed *Performance Solution* may also impact on other *Performance Requirements* in other Sections or Parts. Thus, these additional *Performance Requirements* need to be considered in relation to the subject *Performance Solution*. A2G2(3) and A2G4(3) set out the methods for determining which *Performance Requirements* are relevant.

It is important that a holistic approach is used when determining the appropriate *Performance Requirements*.

More information on NCC compliance methods is located at www.abcb.gov.au.

A2G4(2)(a) references A2G2. Therefore, when using a combination of *Performance Solutions* and *Deemed-to-Satisfy Solutions* it is necessary to comply with A2G2(4) where a *Performance Requirement* is proposed to be satisfied by a *Performance Solution*.

Part A3 Application of the NCC in States and Territories

Introduction to this Part

This Part explains applying the NCC in accordance with State or Territory legislation. The NCC has legal effect through references in relevant State or Territory building and plumbing legislation.

Although the NCC is a nationally consistent code, there are some situations where a State or Territory enforces a variation, addition or deletion to it. This Part also explains how these variations, additions and deletions apply.

Governing Requirements

A3G1 State and Territory compliance

[2019: A3.0]

(1) For application within a particular State or Territory, the Volumes of the NCC comprise inclusively of-

- (a) Sections A to J and associated schedules of Volume One; and
- (b) Sections A and H and associated schedules of Volume Two; and
- (c) Sections A to E and associated schedules of Volume Three.
- (2) State and Territory variations, additions and deletions must be complied with in conjunction with the NCC.
- (3) The NCC is subject to, and may be overridden by, State or Territory legislation.
- (4) State and Territory variations, additions and deletions are contained in the following Schedules:
 - (a) Schedule 3: Commonwealth of Australia.
 - (b) Schedule 4: Australian Capital Territory.
 - (c) Schedule 5: New South Wales.
 - (d) Schedule 6: Northern Territory.
 - (e) Schedule 7: Queensland.
 - (f) Schedule 8: South Australia.
 - (g) Schedule 9: Tasmania.
 - (h) Schedule 10: Victoria.
 - (i) Schedule 11: Western Australia.
- (5) State and Territory variations and deletions are identified throughout the NCC.

Explanatory Information:

The NCC is given legal effect by building regulatory legislation in each State and Territory. This legislation consists of an Act of Parliament and subordinate legislation which empowers the regulation of certain aspects of building and plumbing, and contains the administrative provisions necessary to give effect to the legislation.

Although the NCC is a national code, in some instances it is necessary for a State or Territory to vary or apply additional requirements specific to their jurisdiction. A3G1(2) highlights that these variations, additions or deletions must be applied in conjunction with the NCC provisions. Typically, these variations, additions or deletions override the requirements contained within the NCC.

Any provision of the NCC may be overridden by, or subject to, State or Territory legislation. The NCC must therefore be read in conjunction with that legislation. Any queries on such matters should be referred to the State or Territory authority responsible for building and plumbing regulatory matters.

Where a requirement or provision of the NCC is subject to a State or Territory variation, addition, or deletion, a reference to the appropriate provision in the applicable State or Territory schedule is included with that requirement or provision.

Part A4 Referenced documents

Introduction to this Part

This Part explains how documents referenced in the NCC are adopted and applied. The NCC itself does not contain details of every design and construction requirement for a building or *plumbing* or *drainage* system. As such, the NCC calls upon or "references" other documents with this information. These are called NCC referenced documents. Examples of such documents are Australian Standards, ABCB protocols, ABCB standards and other publications.

There are multiple types of referenced documents. A primary referenced document is one referenced in Schedule <u>32</u> of the NCC. A secondary referenced document is one referenced in a primary referenced document. Other referenced documents are referenced by secondary and subsequently referenced documents.

Governing Requirements

A4G1 Referenced documents

[2019: A4.0]

- (1) A reference in the NCC to a document refers to the edition or issues and any amendment listed in Schedule $\frac{32}{2}$.
- (2) A document referenced in the NCC is only applicable in the context in which the document is quoted.

TAS A4G1(3)

- (3) Where a new edition, issue or amendment of a primary referenced document is not listed in Schedule 32, the new edition, issue or amendment is not referenced for the purpose of the NCC.
- (4) Any document referenced in a primary referenced document is known as a secondary referenced document.
- (5) A reference in a primary referenced document to a secondary or other referenced document is a reference to the document as it existed at the time of publication of the primary referenced document.

Applications:

A4G1 applies to documents referenced in the ABCB Housing Provisions in the same way as for documents referenced within any other part of the NCC.

Exemptions:

If the secondary or other referenced document is also a primary referenced document, A4G1(5) does not apply.

A4G2 Differences between referenced documents and the NCC

[2019: A4.1]

The NCC overrules any difference between the NCC (including the ABCB Housing Provisions) and a primary referenced document, including any secondary referenced document.

Applications:

A4G2 applies to documents referenced in the ABCB Housing Provisions in the same way as for other documents referenced by Volumes One, Two or Three of the NCC.

A4G3 Adoption of referenced documents

[2019: A4.2]

The NCC does not require compliance with requirements in relation to the following matters where they are prescribed in a referenced document:

- (a) The rights, responsibilities or obligations between the manufacturer, supplier or purchaser.
- (b) The responsibilities of any tradesperson or other building operative, architect, engineer, authority, or other person or body.
- (c) The submission for approval of any material, building component, form or method of construction, to any person, authority or body other than those empowered under State or Territory legislation to give that approval.
- (d) The submission of a material, product, form of construction or design to any person, authority or body for opinion.
- (e) Any departure from the NCC, rule, specification or provision at the sole discretion of the manufacturer or purchaser, or by arrangement or agreement between the manufacturer and purchaser.

Applications:

A4G3 applies to documents referenced in the ABCB Housing Provisions in the same way as for documents referenced within Volumes One, Two or Three of the NCC.

Explanatory Information:

Schedule <u>32</u> is only mandatory to *Deemed-to-Satisfy Provisions*, Specifications, *Verification Method* and Schedule <u>32</u>. However, referenced documents are only applicable to the NCC provision that references the document.

A proponent undertaking a *Performance Solution* can use any element or edition of any document, if they help satisfy the *Performance Requirements*. They do not need to use the documents listed in Schedule <u>32</u>.

Schedule 32 lists the specific edition of the Standard or other document adopted, including any amendments considered appropriate for Schedule 32, the *Deemed-to-Satisfy Provisions*, Specifications or *Verification Methods*. Other editions of (or amendments to) the referenced document are not adopted and have no standing under the NCC.

A primary referenced document may refer to a secondary referenced document. A4G1(5) stipulates that the secondary referenced document is the edition of the document that existed at the time of publication of the primary referenced document. When another edition of (or amendment to) a secondary referenced document is released, subject to the exemption to A4G1, that edition (or amendment) is not adopted for the purposes of the primary referenced document.

A4G2 means that contractual matters or clauses defining responsibilities of various parties, and matters not appropriate for adoption in the NCC are not included when a document is called up in the NCC.

Part A5 Documentation of design and construction

Introduction to this Part

This Part explains the evidence needed to show that the NCC requirements are met and the solution is "fit for purpose". It covers the use of materials, products, forms of construction and designs. It details separate requirements for the BCA and PCA.

Examples of evidence to be prepared and retained include certificates, reports, calculations and any other documents or information showing compliance with the NCC requirements.

Governing Requirements

A5G1 Suitability

[2019: A5.0]

- (1) A building and *plumbing* or *drainage* installation must be constructed using materials, products, *plumbing products*, forms of construction and designs fit for their intended purpose to achieve the relevant requirements of the NCC.
- (2) For the purposes of (1), a material, product, *plumbing product*, form of construction or design is fit for purpose if it is—
 - (a) supported by evidence of suitability in accordance with-
 - (i) A5G2; and
 - (ii) A5G3 or A5G4 as appropriate; and
 - (b) constructed or installed in an appropriate manner.

Explanatory Information:

A5G1 relates to the quality of work and materials needed to construct a building to meet NCC requirements. This means that—

- all people involved with construction must work skilfully in accordance with good trade practice; and
- all materials must be of a quality to fulfil their function/s within the building.

A5G1 only applies to matters normally covered by the NCC.

While A5G1 outlines quality of work and material demands, sometimes additional conditions may be required by-

- other Commonwealth, State or Territory legislation; and
- contracts that include either specific quality requirements, or requirements for specific materials and the like.

Explanatory Information: Example

Permit authorities would ordinarily not apply A5G1 to such matters as-

- plastering other than for fire rating, waterproofing of wet areas, and sound insulation; or
- painting other than that required for weatherproofing an *external wall*.

When determining which form of evidence will be used, it is important to consider the appropriateness of the evidence, as some forms of evidence may be more suitable to materials and products and others to designs and forms of construction. The requirement to consider appropriateness of the evidence is specified in A5G2(1).

A5G2 Evidence of suitability – Volumes One, Two and Three

[2019: A5.1]

- (1) The form of evidence used must be appropriate to the use of the material, product, *plumbing product*, form of construction or design to which it relates.
- (2) Any copy of documentary evidence submitted must be a complete copy of the original certificate, report or document.

Explanatory Information:

For further guidance, refer to the ABCB Handbook for Evidence of Suitability.

All copies of documents provided as evidence must be unabridged copies of the originals. No part can be left incomplete.

A5G3 Evidence of suitability – Volumes One and Two (BCA)

[2019: A5.2]

- (1) Subject to A5G5, A5G6 and A5G7, evidence to support that the use of a material, product, form of construction or design meets a *Performance Requirement* or a *Deemed-to-Satisfy Provision* may be in the form of any one, or any combination of the following:
 - (a) A current CodeMark Australia or CodeMark Certificate of Conformity.
 - (b) A current Certificate of Accreditation.
 - (c) A current certificate, other than a certificate described in (a) and (b), issued by a *certification body* stating that the properties and performance of a material, product, form of construction or design fulfil specific requirements of the BCA.
 - (d) A report issued by an Accredited Testing Laboratory that-
 - (i) demonstrates that a material, product or form of construction fulfils specific requirements of the BCA; and
 - (ii) sets out the tests the material, product or form of construction has been subjected to and the results of those tests and any other relevant information that has been relied upon to demonstrate it fulfils specific requirements of the BCA.
 - (e) A certificate or report from a professional engineer or other appropriately qualified person that-
 - (i) certifies that a material, product, form of construction or design fulfils specific requirements of the BCA; and
 - (ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon to demonstrate it fulfils specific requirements of the BCA.
 - (f) Another form of documentary evidence, such as but not limited to a *Product Technical Statement*, that—
 - (i) demonstrates that a material, product, form of construction or design fulfils specific requirements of the BCA; and
 - (ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon to demonstrate it fulfils specific requirements of the BCA.
- (2) Evidence to support that a calculation method complies with an ABCB protocol may be in the form of any one, or any combination of the following:
 - (a) A certificate from a professional engineer or other appropriately qualified person that-
 - (i) certifies that the calculation method complies with a relevant ABCB protocol; and
 - (ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice and other publications have been relied upon.
 - (b) Another form of documentary evidence that correctly describes how the calculation method complies with a relevant ABCB protocol.

Applications:

A5G3 is only applicable to NCC Volumes One and Two (BCA).

Explanatory Information:

A5G3 represents the minimum level of documentary evidence needed to show that a material, product, form of construction or design meets the relevant NCC requirements. The evidence can be required by:

- an appropriate authority;
- a party to a construction contract; or
- a person certifying compliance with the NCC.

If a building proponent does not produce exactly what is required, the evidence may be rejected.

It should be noted that design may refer to engineering design, architectural design as well as product and material design.

A5G3(1)(f) allows for the use of alternative forms of documentary evidence to those included in A5G3(1)(a) to (e), as long as they comply with certain specified conditions.

An example of this arises when an authority carries out an inspection of a building site. The inspection alone would not be acceptable as evidence. However, if the authority compiled a written report detailing findings and conclusions from the inspection, then it may comply with the requirements of A5G3(1)(f).

A *Product Technical Statement* detailing the characteristics and merits of a particular product or system is also an example of another form of documentary evidence.

There is significant reliance by industry on the use of calculation methods, including software programs, for demonstrating compliance with the NCC. While there is no formal recognition of specific methods, A5G3(2) allows suitable evidence to be submitted to demonstrate that a calculation method (including a software program) complies with a relevant ABCB protocol that establishes the characteristics of a suitable calculation method.

Current documentary evidence, such as a certificate or report, containing provision references relating to NCC 2019 remains valid despite amended provision references in NCC 2022. Documentary evidence prepared after the NCC 2022 adoption date is to reflect NCC 2022 provision references.

If under a *Deemed-to-Satisfy Provision* a building element is *required* to have an FRL, then A5G3 may be used to provide evidence to show that the FRL has been determined in accordance with Specification 1 and 2.

In the case of a test report from an Accredited Testing Laboratory, the report may be either-

- the test report referred to in clause 2.16.2 of AS 1530.4 (also referred to as a full test report); or
- the regulatory information report referred to in clause 2.16.3 of AS 1530.4 (also referred to as a short-form report).

In both cases the report must be an unabridged copy of the original report. A test certificate referred to in clause 2.16.4 of AS 1530.4 on its own is not suitable for showing compliance with the NCC.

If a proposal uses a *Deemed-to-Satisfy Provision* that requires a building element to have *fire hazard properties*, then A5G3 may be used to provide evidence to support the proposal and show that the *fire hazard properties* have been determined in accordance with A5G6.

Refer to the guidance provided in the Guide to Volume One for further information on *fire hazard properties* which includes—

- Flammability Index; and
- Spread-of-Flame Index; and
- Smoke-Developed Index; and
- a material's group number, and
- smoke growth rate index.

The *Deemed-to-Satisfy Provisions* of the BCA contain a number of provisions requiring a ceiling to have a *resistance to the incipient spread of fire* to the space above itself. A5G7 sets out the method of determining the incipient spread of fire. The method is based on the method of determining the FRL of a building element and use of the *Standard Fire Test*.

A5G4 Evidence of suitability – Volume Three (PCA)

[2019: A5.3]

TAS A5G4(1)

- Any product that is intended for use in contact with drinking water must comply with the relevant requirements of AS/NZS 4020, <u>verified</u> in the form of either—
 - (a) A test report provided by an certification body or Accredited Testing Laboratory, in accordance with AS/NZS 4020; or
 - (b) A WaterMark licence issued in accordance with $(\underline{32})$, if it includes compliance with AS/NZS 4020.
- (2) Any copper alloy product that is intended for use in contact with drinking water must have a weighted average lead content of no more than 0.25% verified in the form of either—
 - (a) a test report provided by an Accredited Testing Laboratory, in accordance with NSF/ANSI 372; or
 - (b) a WaterMark licence issued in accordance with (3), if it includes compliance with NSF/ANSI 372.
- (23) A product of a type listed on the WaterMark Schedule of Products is deemed to be fit for its intended purpose if it has a WaterMark Licence issued in accordance with the WaterMark Scheme Rules.

TAS A5G4(34)

- (34) A product of a type listed on the Watermark Schedule of Excluded Products requires evidence of suitability in the form of—
 - (a) a current certificate issued by a *certification body* stating that the properties and performance of a *product* can meet the requirements of the PCA; or
 - (b) a report issued by an Accredited Testing Laboratory that-
 - (i) demonstrates that the *product* complies with the relevant requirements of the PCA; and
 - (ii) sets out the tests the *product* has been submitted to and the results of those tests and any other relevant information that has been relied upon to demonstrate suitability for use in a *plumbing* or *drainage* installation.
- (4<u>5</u>) Any *product* that is not covered by (<u>3</u>2) or (<u>4</u>3) must be subjected to a risk assessment in accordance with the WaterMark Scheme Rules.

TAS A5G4(56)

- (56) Evidence to support that a design or system meets the relevant PCA *Performance Requirements* must be in the form of any one or any combination of the following:
 - (a) The design or system complies with a *Deemed-to-Satisfy Provision*.
 - (b) The design or system is a Performance Solution from a professional engineer or a recognised expert that-
 - (i) certifies that the design or system complies with the relevant requirements of the PCA; and
 - (ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon.
 - (c) Any other form of documentary evidence that-
 - (i) demonstrates that a design or system complies with the relevant requirements of the PCA; and
 - (ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon.

TAS A5G4(1011) TAS A5G4(67) TAS A5G4(78) TAS A5G4(89) TAS A5G4(910)

Applications:

A5G4 is only applicable to NCC Volume Three (PCA).

Explanatory Information:

A5G4(1) requires any *product* intended for use in contact with *drinking water* to comply with AS/NZS 4020. Compliance is achieved by passing the relevant tests set out in the Standard.

Evidence of compliance must then be provided in accordance with A5G4(1), under which there are two options. The first, at A5G4(1)(a), recognises test reports and certificates that cover compliance with AS/NZS 4020 only. The second, at A5G4(1)(b), recognises *WaterMark Licences* where compliance with AS/NZS 4020 is a requirement of the relevant *product* Standard or WaterMark Technical Specification.

For *products* that are of a type listed on the *WaterMark Schedule of Products*, A5G4(2) requires that these *products* have a *WaterMark Licence*. A *WaterMark Licence* reflects that the *product* has been certified and authorised in accordance with the WaterMark Scheme Rules.

For *products* that are not subject to WaterMark certification (i.e. excluded *products*), evidence that can be used to support that the *product* is fit for its intended purpose is provided in A5G4(3). This may include demonstrating compliance with a *product* specification referenced in the *WaterMark Schedule of Excluded Products*, where one is available.

A5G4(4) provides that any product that is not listed on the *WaterMark Schedule of Products* or the *WaterMark Schedule of Excluded Products* must be subjected to a risk assessment in accordance with the WaterMark Scheme Rules. The risk assessment will determine whether the product in question requires certification and authorisation, or if it should be listed as an "excluded product". This in turn will determine the form of evidence of suitability applicable to the *product*.

Applications:

Products captured by A5G4(2) include:

- (a) <u>Copper alloy fittings.</u>
- (b) Stainless-steel braided hoses.
- (c) <u>Valves (such as valves for isolation, backflow prevention, alteration of pressure and temperature).</u>
- (d) <u>Taps and mixers.</u>
- (e) <u>Water meters.</u>
- (f) Pumps (for use with cold and heated water services).
- (g) <u>Water heaters.</u>
- (h) Residential water filtration equipment.
- (i) <u>Water dispensers (such as boiling and cooling units, drinking fountains and bottle fillers).</u>

Exemptions:

- (1) Products that are used exclusively for non-drinking uses such as manufacturing, industrial processing, irrigation or any other uses where water is not anticipated to be used for human consumption are excluded from the requirements of A5G4(2).
- (2) Products excluded by A5G4(2) include:
 - (i) Shower heads for bathing and emergency showers, eye wash and/or face wash equipment.
 - (ii) <u>Pumps used for irrigation, fire-fighting or other non-drinking water purposes.</u>
 - (iii) Fire-fighting water services and equipment including residential fire sprinklers.
 - (iv) Appliances, including washing machines and dishwashers.
 - (v) <u>Commercial boilers associated with heating, ventilation and air-conditioning systems.</u>
 - (vi) Sanitary fixtures (such as toilets, cistern inlet valves, bidets, urinals.
 - (vii) Non-drinking water systems (such as recycled water systems).

Explanatory Information: What is WaterMark?

The *WaterMark Certification Scheme* is a mandatory certification scheme for *plumbing* and *drainage products* to ensure that these *products* are fit for purpose and appropriately authorised for use in a *plumbing* or *drainage* system.

The PCA, through Part A5, requires certain *plumbing* and *drainage products* to be certified and authorised for use in a *plumbing* or *drainage* system. These products are certified through the *WaterMark Certification Scheme* and listed on

the WaterMark Product Database.

The *WaterMark Certification Scheme* is governed by the WaterMark Scheme Rules, which are available for download from the ABCB website at: www.abcb.gov.au. These rules set out the requirements for risk assessments, evaluation, certification, and the drafting of WaterMark Technical Specifications.

When a *product* is listed on the *WaterMark Schedule of Products* then, for it to be certified and authorised, the *product* must—

- be tested by an Accredited Testing Laboratory; and
- comply with an approved *product* specification (either a relevant existing *product* Standard or a WaterMark Technical Specification); and
- be manufactured in accordance with an approved Quality Assurance Program; and
- carry a scope of use.

Products that comply fully with the applicable requirements of the *WaterMark Certification Scheme* are then eligible to be certified by a *WaterMark Conformity Assessment Body* and listed on the WaterMark Product Database. Certified *products* are identifiable by the WaterMark certification trade mark, shown in Figure A5G4 below, that must be displayed on the *product* upon granting of a *WaterMark Licence*.

Figure A5G4 (explanatory): WaterMark Certification Scheme Trademarks



A5G5 Fire-resistance of building elements

[2019: A5.4]

Where a *Deemed-to-Satisfy Provision* requires a building element to have an FRL, it must be determined in accordance with Specifications 1 and 2.

A5G6 Fire hazard properties

[2019: A5.5]

Where a *Deemed-to-Satisfy Provision* requires a building component or assembly to have a *fire hazard property* it must be determined as follows:

- (a) For *average specific extinction area, critical radiant flux* and *Flammability Index*, as defined in Specifications 1 and 2.
- (b) For Smoke-Developed Index and Spread-of-Flame Index, in accordance with Specification 3.
- (c) For a material's group number or smoke growth rate index (SMOGRA_{RC}), in accordance with S7C4(2).

A5G7 Resistance to the incipient spread of fire

[2019: A5.6]

A ceiling is deemed to have a resistance to the incipient spread of fire to the space above itself if-

- (a) it is identical with a prototype that has been submitted to the *Standard Fire Test* and the *resistance to the incipient spread of fire* achieved by the prototype is confirmed in a report from an *Accredited Testing Laboratory* that—
 - (i) describes the method and conditions of the test and form of construction of the tested prototype in full; and
- (ii) certifies that the application of restraint to the prototype complies with the Standard Fire Test; or
- (b) it differs in only a minor degree from a prototype tested under (a) and the *resistance to the incipient spread of fire* attributed to the ceiling is confirmed in a report from an *Accredited Testing Laboratory* that—
 - (i) certifies that the ceiling is capable of achieving the *resistance to the incipient spread of fire* despite the minor departures from the tested prototype; and
 - (ii) describes the materials, construction and conditions of restraint that are necessary to achieve the *resistance to the incipient spread of fire.*

A5G8 Labelling of Aluminium Composite Panels

[2019: A5.7]

An Aluminium Composite Panel must be labelled in accordance with SATS 5344.

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Part A6 Building classification

Introduction to this Part

The NCC groups buildings and structures by the purpose for which they are designed, constructed or adapted to be used, rather than by the function or use they are put to, assigning each type of building or structure with a classification. This Part explains how each building classification is defined and used in the NCC.

The building classifications are labelled "Class 1" through to "Class 10". Some classifications also have sub-classifications, referred to by a letter after the number (e.g. Class 1a).

The technical building requirements for Class 2 to 9 buildings are mostly covered by Volume One of the NCC and those for Class 1 and 10 are mostly covered by Volume Two of the NCC. Volume Three of the NCC covers *plumbing* and *drainage* requirements for all building classifications.

A building may have parts that have been designed, constructed or adapted for different purposes. In most cases, each of these parts is a separate classification. A building (or part of a building) may also have more than one such purpose and may be assigned more than one classification.

Governing Requirements

A6G1 Determining a building classification

[2019: A6.0]

- (1) The classification of a building or part of a building is determined by the purpose for which it is designed, constructed or adapted to be used.
- (2) Each part of a building must be classified according to its purpose and comply with all the appropriate requirements for its classification.
- (3) A room that contains a mechanical, thermal or electrical facility or the like that serves the building must have the same classification as the major part or principal use of the building or *fire compartment* in which it is situated.
- (4) Unless another classification is more suitable an *occupiable outdoor area* must have the same classification as the part of the building to which it is associated.

Exemptions:

- (1) For A6G1(1) where a part of a building has been designed, constructed or adapted for a different purpose and is less than 10% of the *floor area* of the *storey* it is situated on, the classification of the other part of the *storey* may apply to the whole *storey*.
- (2) A6G1(3) does not apply to an *electricity network substation*.

Limitations:

Exemption (1) does not apply where the minor use of a building is a laboratory or a Class 2, 3, or 4 or 9b *early childhood* <u>centre</u>part of a building.

Explanatory Information:

Classification is a process for understanding risks in a building or part, according to its use. It must be correctly undertaken to achieve NCC aims as appropriate to each building in each circumstance.

It is possible for a single building to have parts with different classifications. Part of a building can also have more than one classification. Where there is any conflict between what requirements the part should comply with, the more stringent requirement applies.

Where it is unclear which classification should apply, *appropriate authorities* have the discretion to decide. They base their decision on an assessment of the building proposal.

They will look at what classification the building most closely resembles. They will also take into account the likely *fire load*, plus, the likely consequences of any risks to the safety, health and amenity of people using the building.

Appropriate authorities will also look at any relevant court decisions or determinations of the State or Territory body responsible for considering appeals on building classification matters.

It should be noted that appeals body determinations and, in some States and Territories, certain court decisions are usually not precedent creating. Such decisions are determined on a case-by-case basis.

It should also be noted that State and Territory authorities responsible for building regulatory matters may have issued advice, interpretations or guidelines to assist practitioners in applying the correct classification to a building or part. Advice on such matters should be sought from the relevant authority.

Under Exemption (1) to A6G1, if 10% or less of the *floor area* of a *storey* is used for a purpose which could be classified differently to the remainder of that *storey*, that part may be classified as being the same as the remainder. Laboratories and *sole-occupancy units* in Class 2, 3 or 4 parts are excluded from this concession (see Limitation to A6G1). The reason is that laboratories are considered to have a high *fire hazard* potential and classifying them with the remainder of the building could, in a majority of cases, endanger occupancy *units* in Class 2, 3 or 4 parts to be regarded as another Class such as Class 6 and then not have any fire or sound insulation between the units and any other classification which may have a high *fire load* and could endanger the occupants of the Class 2, 3 or 4 part.

If Exemption (1) to A6G1 is used, it should be remembered that it will still be necessary to use the occupant numbers in Volume One Table D2D18 for the particular use of the area. Likewise, the lighting and equipment levels, people occupancy and load profiles for the area of minor use for the purposes of Volume One Section J must be in accordance with the use of the area.

If the *storey* has a very large *floor area*, the 10% or less concession area may also be large, even though the rest of the building is classifiable as a building which ordinarily has a lower risk potential. An example of the application of this area concession could be as follows:

- If a single *storey* factory has an office that takes up 8% of the whole *storey's floor area*, the entire building (including the office) can be classified as being Class 8.
- However, if that office area takes up 12% of the *storey's floor area*, that area must be classified as Class 5, and the remainder of the building as Class 8.

Under A6G1(3) a plant room, machinery room, lift motor room or *boiler* room, have the same classification as the part of the building they are in. These kinds of rooms do not need to be ancillary or subordinate to the part of the building they are in, that is, the 10% criterion is not applicable.

There are specific provisions for these kinds of rooms. For example, Volume One Section C requires some of them to be fire separated from the remainder of the building (e.g. see C3D14 with regard to elements of the electricity supply system).

A6G2 Class 1 buildings

[2019: A6.1]

- (1) A Class 1 building is a dwelling.
- (2) Class 1 includes the following sub-classifications:
 - (a) Class 1a is one or more buildings, which together form a single dwelling including the following:
 - (i) A detached house.
 - (ii) One of a group of two or more attached dwellings, each being a building, separated by a *fire-resisting* wall, including a row house, terrace house, town house or villa unit.
 - (b) Class 1b is one or more buildings which together constitute-
 - (i) a boarding house, guest house, hostel or the like that-
 - (A) would ordinarily accommodate not more than 12 people; and
 - (B) have a total area of all floors not more than 300 m² (measured over the enclosing walls of the building or buildings); or
 - (ii) four or more single dwellings located on one allotment and used for short-term holiday accommodation.

(3) See Figures A6G2a, A6G2b and A6G2c.



Figure A6G2a: Identification of Class 1 buildings

Elevation





(a) 3 Class 1 buildings on 3 separate allotments



(b) 3 Class 1 buildings on 2 separate allotments

Plan view

 \square



Figure A6G2c: Domestic allotment — classification of buildings and structures

Limitations:

For A6G2, a Class 1 building cannot be located above or below another dwelling or another Class of building, other than a *private garage*.

Explanatory Information:

Class 1 buildings are covered in Volumes Two and Three of the NCC. Class 1 buildings are not located above or below another dwelling, or another class of building other than a *private garage*.

A *sole-occupancy unit* used for residential purposes located over another *sole-occupancy unit* used for residential purposes will always be a Class 2 or Class 3 building (depending on the circumstances). It cannot be a Class 1 building.

A single Class 1 dwelling can be made up of more than one building. For example, it may include what is ordinarily called a house, plus one or more habitable 'outbuildings' such as sleepouts. Note that a habitable building such as a sleepout cannot be classified as a Class 10 building.

The height or number of storeys of a Class 1 building makes no difference to its classification.

Class 1b buildings used for short-term holiday accommodation include cabins in caravan parks, tourist parks, farm stay, holiday resorts and similar tourist accommodation. This accommodation itself is typically rented out on a commercial basis for short periods and generally does not require the signing of a lease agreement. Short-term accommodation can also be provided in a boarding house, guest house, hostel, bed and breakfast accommodation or the like.

Unlike a Class 1b building described in A6G2(2)(a), a Class 1b building described in A6G2(2)(b) does not have any *floor area* limitation. Therefore, if 4 or more single dwellings are located on the one allotment and used for short-term holiday accommodation, each single dwelling would be classified as a Class 1b building regardless of the *floor area* of each dwelling or the combined *floor area* of all of the dwellings.

See also Volume One D4D2(3) which contains an explanation of what is considered be "one allotment".

The Class 1b classification can attract concessions applicable to Class 3 buildings. These concessions allow people to rent out rooms in a house, or run a bed and breakfast, without having to comply with the more stringent Class 3 requirements. The reasoning is that the smaller size of the building and its lower number of occupants represents reduced fire risks.

Apart from their use, the primary difference between Class 1a and Class 1b buildings is that the latter is required to have a greater number of smoke alarms and in some circumstances, access and features for people with a disability.

A6G3 Class 2 buildings

[2019: A6.2]

- (1) A Class 2 building is a building containing two or more *sole-occupancy units*.
- (2) Each sole-occupancy unit in a Class 2 building must be a separate dwelling.

Explanatory Information:

A Class 2 building is one that includes more than one dwelling, each of which is generally solely occupied by one or more people to the exclusion of others.

Such buildings must not be otherwise classified as a Class 1 or Class 3 building or Class 4 part. See explanatory Figure A6G3a for a typical configuration of Class 1 and Class 2 buildings.

Where a sole-occupancy residential unit is located above another sole-occupancy residential unit, the building containing the units can be either a Class 2 or a Class 3 building, depending on the other circumstances of the building proposal.

Class 2 buildings can be single *storey* attached dwellings. Where there is any common space below such dwellings, they are Class 2 (and cannot be Class 1) irrespective of whether the space below is a *storey* or not (see explanatory Figure A6G3b).

Class 2 buildings can be attached to buildings of another Class. The attached Class 2 buildings need not be attached to one another, and need not be more than a single *storey*.

When two or more dwellings are attached to another Class, they cannot be Class 4 parts, as any building can only contain one Class 4 dwelling.

Figure A6G3a (explanatory): Section showing a typical configuration of Class 1 and Class 2 buildings (with non-combustible roof coverings)



Elevation



A6G4 Class 3 buildings

[2019: A6.3]

- (1) A Class 3 building is a residential building providing long-term or transient accommodation for a number of unrelated persons.
- (2) Class 3 buildings include the following:
 - (a) A boarding house, guest house, hostel, lodging house or backpacker accommodation.
 - (b) A residential part of a hotel or motel.
 - (c) A residential part of a *school*.
 - (d) Accommodation for the aged, children, or people with disability.
 - (e) A residential part of a health-care building which accommodates members of staff.
 - (f) A residential part of a *detention centre*.
 - (g) A residential care building.

Limitations:

For A6G4, a Class 3 building is not a Class 1 or 2 building but may be a mixture of Class 3 and another Class.

Explanatory Information:

Class 3 buildings provide accommodation for unrelated people. The length of stay is unimportant.

Some exceptions to this classification include: certain bed and breakfast accommodation, boarding houses, guest houses, hostels, or lodging houses and the like which fall within the concession provided for Class 1b buildings.

Also, any sized building can be classified as Class 1 or Class 2 if it is used to house any number of unrelated people who jointly own or rent it, or share it on a non-rental basis with an owner or tenant.

It is not unusual for a manager's, owner's or caretaker's dwelling attached to a Class 3 building to be thought of as a Class 4 part of the Class 3 building. However, a Class 4 part of a building can only be part of a Class 5-9 building.

Accordingly, such dwellings are either classified as Class 1, Class 2 or Class 3, depending on the circumstances of the building proposal. However, a building could be a mixture of Class 3 and another Class.

Class 3 buildings include-

• the residential parts of hotels and motels; and

A6G3

- it is recommended the local building regulatory body be consulted.); and workers' quarters, including shearers' or fruit pickers' accommodation, or hotel workers' accommodation.

to be a *sole-occupancy unit*; and

backpackers' accommodation; and

be Class 1, Class 2 or Class 3 buildings; and

A6G5 **Class 4 buildings**

Class 4 is a dwelling in a Class 5, 6, 7, 8 or 9 building if it is the only dwelling in the building.

Explanatory Information:

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Class 4 classification applies to some types of accommodation located within a Class 5-9 building. The most common include a caretaker's flat within a building; and accommodation over or otherwise connected to a shop.

A Class 4 part cannot be located within a Class 1, Class 2 or Class 3 building. There can only be one Class 4 dwelling in a building. If there are two or more dwellings, they are Class 1, Class 2, or possibly Class 3. These Class 1, Class 2 or Class 3 parts need not be attached to one another, nor be more than a single storey.

Where a Class 4 part of a building is rented out for accommodation purposes, it retains its Class 4 classification. However, if any other part of the principal building is used for accommodation, for example, the attached shop is converted into an additional flat, both flats become classifiable as Class 2 or, depending on their use, possibly Class 3.

Class 5 buildings A6G6

A Class 5 building is an office building used for professional or commercial purposes.

Explanatory Information:

Class 5 buildings include professional chambers or suites, lawyers' offices, government offices, advertising agencies and accountants' offices.

NSW A6G7

SA A6G7

A6G7 Class 6 buildings

(1) A Class 6 building is a shop or other building used for the sale of goods by retail or the supply of services direct to the public.

- (2) Class 6 buildings include the following:
 - (a) an eating room, cafe, restaurant, milk or soft-drink bar.
 - (b) a dining room, bar area that is not an assembly building, shop or kiosk part of a hotel or motel.
 - (c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment.
 - (d) market or sale room, showroom, or service station.

hotel or motel caretakers', managers' or owners' flats, noting that under certain circumstances such dwellings could

dormitory accommodation, in schools or elsewhere, noting that a dormitory is generally (but not always) considered

a building which houses elderly people or other people who require special care. (In some States or Territories it is

not acceptable for a Class 1b building to be used to house elderly people or other people who require special care

bed and breakfast accommodation, a boarding house, guest house, hostel, or lodging house; and

[2019: A6.4]

[2019: A6.5]

[2019: A6.6]

Explanatory Information:

A Class 6 building is a building where goods or services are directly sold or supplied to the public. Examples of a Class 6 building may include—

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- a place where food or drink may be purchased such as a café or restaurant; or
- a dining room, bar area that is not an assembly building, shop or kiosk part of a hotel or motel; or
- a hairdresser's or barber's shop, public laundry, veterinarian; or
- supermarket or sale room, florist, showroom, or *service station*.

Service stations are Class 6 buildings. These are outlets used for the servicing of cars and the selling of fuel or other goods. The expression '*service station*' is not intended to cover buildings where panel beating, auto electrical, muffler replacement, tyre replacement and the like are solely carried out. Such buildings should be classified as Class 6, Class 7 or Class 8 buildings as the *appropriate authority* sees fit.

A6G8 Class 7 buildings

- (1) A Class 7 building is a storage-type building.
- (2) Class 7 includes the following sub-classifications:
 - (a) Class 7a a *carpark*.
 - (b) Class 7b a building that is used for storage, or display of goods or produce for sale by wholesale.

Explanatory Information:

There are three basic types of Class 7 building. The first is a *carpark* as defined in the NCC. The second is a building used for storage, often referred to as a 'warehouse'. The third is a building used for the display of goods or produce for sale by wholesale. 'Wholesale' means sale to people in the trades or in the business of 'on-selling' goods and services to another party (including the public).

A6G9

Class 8 buildings

[2019: A6.8]

- (1) A Class 8 building is a process-type building.
- (2) Class 8 buildings include the following:
 - (a) A laboratory.
 - (b) A building in which the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce for sale takes place.

Explanatory Information:

The most common way to describe a Class 8 building is as a 'factory'. However, this can give a simplistic impression of the types of building which can fall within this classification.

For example—

- some laboratories, despite their often small size, have been included as Class 8 buildings principally because of their high *fire hazard*; and
- buildings used for altering or repairing (except service stations, which are specifically included in A6G7 as Class 6 buildings); and
- potteries; and
- food manufacturers (but not restaurants, which are specifically included in A6G7 as Class 6 buildings); and
- buildings used for the packing or processing of produce, such as a farm or horticultural building.

A6G7

[2019: A6.7]

A6G10 Class 9 buildings

[2019: A6.9]

A6G9

- (1) A Class 9 building is a building of a public nature.
- (2) Class 9 includes the following sub-classifications:
 - (a) Class 9a a *health-care building* including any parts of the building set aside as laboratories, and includes a *health-care building* used as a *residential care building*.
 - (b) Class 9b an assembly building including a trade workshop or laboratory in a primary or secondary school.
 - (c) Class 9c a residential care building.

Exemptions:

A6G10(2)(b) excludes any parts of the building that are of another Class.

Explanatory Information:

Class 9a buildings are *health-care buildings*, including day-care surgeries or procedure units and the like. See definition of *health-care building*. Laboratories that are part of a Class 9a building are Class 9a, despite the general classification of laboratories as Class 8 buildings.

These buildings can include—

- Class 9b buildings are assembly buildings.
- theatres, cinemas and halls, churches, schools, early childhood centres, kindergartens, preschools and childminding centres; and
- indoor cricket, tennis, basketball centres and sport stadiums; and
- nightclubs, discotheques, bar areas providing live entertainment and/or containing a dance floor, public halls, dance halls and other places of entertainment; and
- snooker halls; and
- bus and railway stations.

Regarding the Exemption to A6G10(2)(b), a building could be a mixture of Class 9b and another Class, or a Class 9b building could contain parts that are of another Class, but be taken as a Class 9b building because of A6G1 Exemption (1).

Class 9c buildings are *residential care buildings* that may contain residents who have various care level needs.

The Class 9c classification recognises that many residents progress through a continuum of care needs from low to high. Many older people enter residential care with low care needs (typically Class 3 facilities) but, as they age, require higher levels of care. In the past, such progression often necessitated the transfer of a hostel resident (Class 3) to a nursing home (Class 9a). This frequently had negative consequences for the health and well-being of the resident, for whom the hostel accommodation was home. It also led, at times, to the separation of couples with differing care needs.

Building designers should note that Class 3 buildings include hostels for the accommodation of the aged, and Class 9a buildings include nursing homes. It is important to be aware, however, that construction of Class 3 or 9a buildings may restrict the options available to the operators of a facility in relation to the profile of the residents they wish to accommodate. Where the potential exists for residents of varying care needs to be accommodated, consideration of the Class 9c provisions may be appropriate. The Class 9c classification allows for any mix of low and high care residents and is intended to allow the mix to change as the residents' care needs change over time, without the need to obtain any further consent or approval from the *appropriate authority*.

Multi-care level facilities are for residents who may require the full range of care services outlined by the Aged Care Act. Hence, it is not intended to restrict the resident type and provides maximum flexibility for service providers, residents and the community.

The NCC provisions for Class 9c buildings are based on minimal on duty on-site staff being available at any time. However, it is recognised that the staff numbers vary throughout the course of any one day, due to the care needs of the residents and the functioning of the facility. It is also recognised that the specific care needs of the residents may result in a greater minimum number of staff.

A6G11 Class 10 buildings and structures

[2019: A6.10]

- (1) A Class 10 building is a non-habitable building or structure.
- (2) Class 10 includes the following sub-classifications:
 - (a) Class 10a is a non-habitable building including a *private garage*, carport, shed or the like.
 - (b) Class 10b is a structure that is a fence, mast, antenna, retaining wall or free-standing wall or *swimming pool* or the like.
 - (c) Class 10c is a private bushfire shelter.

Explanatory Information:

Class 10a buildings are non-habitable buildings. See Figure A6G11 for an indication of some Class 10 building configurations.

Class 10b structures are non-habitable structures. There is no requirement for Class 10 buildings to be appurtenant to a building of any other Class, for example, a small shed standing on its own on an allotment and a toilet block in a park.

A habitable 'outbuilding' which is appurtenant to another building is generally part of that building. Again, habitable 'outbuildings' cannot be classified as Class 10 buildings.

Typical outbuilding classifications include the following:

- A sleepout on the same allotment as a Class 1 building is part of the Class 1 building.
- A detached entertainment room on the same allotment as a Class 1 building, perhaps associated with a *swimming pool*, is part of the Class 1 building.
- A small toolshed, used for trade-related hobbies for non-commercial purposes or home repairs, on the same allotment as a Class 1 building, would be classified as a Class 10 building.

Provisions relating to Class 10c structures are only intended to address *private bushfire shelter* associated with a single Class 1a dwelling. These provisions are contained in Volume Two of the NCC.

Some States or Territories may exempt some Class 10 buildings or structures (often on the basis of height or size) from the need to have a building permit. Queries on this matter should be referred to the State or Territory body responsible for regulatory matters.

Figure A6G11 (explanatory): Examples of Class 10 buildings and structures



A6G12 Multiple classifications

[2019: A6.11]

A building (or part of a building) may be designed, constructed or adapted for multiple purposes and have more than one classification.

Applications:

For A6G12, a building (or part of a building) must comply with all the relevant requirements that apply to each of the classifications for that building (or part of a building).

Explanatory Information: Difficult classifications — Class 2 or Class 3?

There is a fine line between a Class 2 building containing apartments or flats and a Class 3 motel building with units containing bathroom, laundry and cooking facilities, which may both be made available for short term holiday rental. When does a Class 3 motel unit become a Class 2 holiday flat and vice versa?

In general, an assessment will be based on the most likely use of the building by appropriate authorities.

Class 3 buildings, where the occupants are generally unfamiliar with the building and have minimum control over the safety of the building, represent a higher risk level and therefore require higher safety levels. In a case where the classification is unclear, a decision should be made according to the perceived risks inherent in the use of the building.

In general, an assessment will be based on the most likely use of the building by appropriate authorities.

Class 3 buildings, where the occupants are generally unfamiliar with the building and have minimum control over the safety of the building, represent a higher risk level and therefore require higher safety levels. In a case where the classification is unclear, a decision should be made according to the perceived risks inherent in the use of the building.

Explanatory Information: Difficult classifications — Class 6 or Class 7?

Class 7 buildings include those used to sell goods on the wholesale market, whereas Class 6 buildings are used to sell goods to the public.

Some establishments claim to sell goods to both the wholesale and retail markets. As a rule, however, if the general public has access to the building, it is considered a 'shop', and therefore a Class 6 building.

Explanatory Information: Difficult classifications — Hotel bars: Class 6 or 9b?

As can be seen from the definition of a Class 6 building, it includes a hotel bar which is not an *assembly building*. The bar includes the bar area and associated standing and seating areas. This clarifies that the bar extends beyond the serving area to include standing and sitting areas where patrons may drink alcohol or other beverages and consume food. The exclusion of an *assembly building* means that a bar providing live entertainment or containing a dance floor is not considered to be Class 6, it must be considered as Class 9b. However, when that use is minor compared with the remainder of the bar, such as a piano bar or the like where patrons only listen to music and there is no dance floor, the *appropriate authority* should exercise judgement on the predominant use and therefore the appropriate classification of the bar.

A Class 9b building is an *assembly building* which is defined to include a building where people may assemble for entertainment, recreational or sporting purposes.

A building may have more than one classification (see A6G12).

Explanatory Information: Buildings used for farming purposes

Buildings used for farming-type purposes are often very diverse in nature, occupancy, use and size. In some States or Territories, *appropriate authorities* may classify farm buildings as Class 10a, which covers non-habitable buildings. They would only make this decision if a classification of Class 7 or Class 8 would not be more appropriate.

When making their decision they consider the building's size, purpose, operations and the extent to which people are employed in the building. For example, it may be appropriate to classify a shed which is used to store a tractor as a Class 10a building.

The NCC has definitions of farm building and farm shed which are certain Class 7 and 8 buildings used for farming

purposes. Concessions to specific *Deemed-to-Satisfy Provisions* apply to *farm buildings* and *farm sheds* in recognition of their often low risk features, and it is recommended that reference is made to the definitions of *farm building* and *farm shed* for further guidance which may assist determination of an appropriate NCC classification.

For example, if people are likely to be employed to stack materials/produce in a storage building or remove materials/produce from a storage building then a classification of Class 7b may be appropriate. Depending upon whether the criteria in the definition of *farm shed* or *farm building* have been met, the associated *Deemed-to-Satisfy Provisions* in NCC Volume One Part I3 may apply.

Similarly if people are likely to be employed to pack or process materials/produce within a building, or employed to feed, clean or collect produce from animals or plants within a building then a classification of Class 8 may be appropriate. Depending upon whether the criteria in the definition of *farm shed* or *farm building* have been met, the associated *Deemed-to-Satisfy Provisions* in NCC Volume One Part I3 may apply.

However identification of low *fire load*, low occupant risk and low risk of fire spread should not be used as justification for choosing a less stringent building classification for a building under the *Deemed-to-Satisfy Provisions*. For example, if the intended use of a building is to grow or store a large amount of tomatoes, such as a large greenhouse, and there is likely to be only one to two persons in the building at any time, it is considered inappropriate to classify the building as a Class 10a under the *Deemed-to-Satisfy Provisions* and a classification of Class 7 or Class 8 would be more appropriate.

The *Deemed-to-Satisfy Provisions* for a Class 7 or Class 8 *farm building* or *farm shed* do not prevent the ability to consider or develop a *Performance Solution* for a particular building where the requirements may not be considered appropriate or are viewed as too stringent. Similarly if a Class 7 or 8 building used for farming purposes does not meet all the criteria to be considered a *farm building* or *farm shed* under the *Deemed-to-Satisfy Provisions*, this would not limit the ability to develop a *Performance Solution* which could contain features similar to those allowed under the *Deemed-to-Satisfy Provisions* for *farm buildings* or *farm sheds*.

For example, if a Class 8 commercial poultry building meets all the criteria to be considered a farm building under the *Deemed-to-Satisfy Provisions* other than the maximum *floor area* criteria, a *Performance Solution* could be developed to demonstrate that the concessions for a farm building under the *Deemed-to-Satisfy Provisions* are appropriate.

In regards to a *farm building* or *farm shed* where the purpose of the building is to park farm vehicles when not in use, as well as perhaps clean or polish the vehicle(s), it may be appropriate that this type of building is classified as a Class 7a.

However, a number of *farm buildings* and *farm sheds* are often not only used for the storage of farm vehicles, but to store supplies such as fuel, grain or hay. A Class 7a classification may still be appropriate where the majority of the shed's space is intended to be designated for the parking of vehicles. However, it may be more appropriate to classify some types of buildings as Class 7b, rather than Class 7a where a mixed use shed is intended.

Under A6G12 each part of a building (including the entire building) may have more than one classification. This means, for example, that it is permissible to classify part of a building as a Class 6/7 building, or a Class 5/6 building, or whatever is appropriate.

It is expected that this approach may be taken by a builder who is uncertain of what the precise use of a building will be after its sale, or to maximise the flexibility of the building's use.

Under the Application to A6G12, where a building has more than one classification the more stringent Class requirements will apply.

Part A7 United buildings

Introduction to this Part

This Part explains how multiple buildings can be considered as a united building. Where adjacent buildings are joined through openings in walls, they need not meet additional requirements if they jointly comply with the NCC as a single building.

Governing Requirements

A7G1 United buildings

[2019: A7.0]

Buildings are deemed united when two or more buildings adjoining each other are connected and used as one building.

Applications:

- (1) For A7G1, two or more buildings are a united building if they are connected through openings in the walls dividing them and together comply with all the requirements of the NCC as though they are a single building.
- (2) A7G1 only applies to Class 2 to 9 buildings.

A7G2 Alterations in a united building

[2019: A7.1]

If, after *alterations* or any other building work, two or more of the buildings in A7G1 cease to be connected through openings in the dividing walls, each of those buildings not now connected must comply with all the requirements for a single building.

Explanatory Information:

It is not unusual for authorities to receive plans proposing the connecting of two or more buildings. Connecting buildings could be achieved by breaking openings through walls, or by joining the buildings by a tunnel, bridge or covered walkway.

When connected, if the buildings jointly comply with all the requirements of the NCC applying as if they were a single building, they become a united building.

United buildings are not *required* to comply with additional NCC provisions. For example, any new openings do not require any form of fire protection not *required* of a single building.

Note, however, an *external wall*, which as a result of an interconnection becomes an *internal wall*, must comply with the requirements for an *internal wall*.

Interconnected buildings that do not jointly comply with all the requirements applicable to a single building, remain as separate buildings.

This raises the possible need for fire doors, or other forms of protection to be fitted to connecting openings.

Explanatory Information: Multiple allotments or ownership

The NCC does not concern itself with actually prohibiting or permitting the uniting of buildings in separate ownership or on separate allotments. Such matters are dealt with by the relevant local bodies.

Explanatory Information: Example of connection by bridge

In this example, Building A is connected to Building B by bridge C. There are four different options for designing such a proposal.

The first is a united building:

A, B and C are considered as a single structure and comply with the NCC.

The second is three separate buildings:

A, B and C are a fire-source feature to each of the others, and are separated by fire walls with the openings protected at the points of connection. In this case, C may require independent support and separate egress to a road or open space, that is not through Buildings A or B. In this case, attention should also be paid to the length of the bridge, as regards distance of travel to an exit.

The third option is the bridge as a portion of Building A:

In this option, A and C are one building, meeting all requirements of the NCC as a single or united building. B is a separate building, with suitable fire separation, including fire-doors at the point of interconnection. Bridge C could be supported off Building A, but not off Building B.

The fourth option is having the bridge as a portion of Building B

In this option, B and C are one building, meeting all requirements of the NCC as a single or united building. A is a separate building, with suitable fire separation, including fire doors at the point of interconnection. Bridge C could be supported off Building B, but not off Building A.

In some cases, C will link A and B across a public road, including laneways and the like. Special approvals may be required from various *appropriate authorities*. However, in such cases—

- if C is supported by means other than off A and B, such support will generally only be permitted if there is no obstruction of the public road; and
- care will need to be taken in calculating the distance of travel to an exit if travel is required to be over C and the road is wide; and
- fire-separation may be necessary at each end of the bridge.
- If the last stipulation is the case, the following matters need consideration:
- The bridge would probably need to be of fire-rated construction because *combustible* construction could provide a ready path for the transfer of fire, and *non-combustible* construction could, in a major fire, distort and collapse onto the road.
- The designer needs to take care that the bridge does not negate the fire separation between the *storeys* of the building.

Part A8 Quantification of the fire safety Performance Requirements

Introduction to this Part

This Part includes the quantified metrics that must be used to interpret the fire safety *Performance Requirements* listed in A8G1 that are not quantified or say to the degree necessary. The degree necessary is the degree that achieves the requirements of this part.

Governing Requirements

A8G1 Application of Part

[New for 2022]

- (1) <u>A8G2 of this Part applies to the interpretation of *Performance Requirements*C1P1, C1P2, C1P3, C1P4, C1P5, C1P6, C1P7, C1P8, C1P9, D1P4, D1P5, D1P6, D1P7, E1P1, E1P2, E1P3, E1P4, E1P6, E2P1, E2P2, E3P2, E4P1, E4P2, E4P3, G4P1, G4P2, G4P3, and G4P4.</u>
- (2) <u>A8G3 of this Part applies to the interpretation of *Performance Requirements*C1P1, C1P2, C1P3, C1P8, C1P9, and <u>E1P4.</u></u>
- (3) This Part does not apply where—
 - (a) <u>a Performance Solution is achieved by a demonstrating that the solution is at least equivalent to the Deemed-to-Satisfy Provisions in accordance with A2G2(1)(b); or</u>
 - (b) the Assessment Method used to assess a Performance Solution is shown to comply with the relevant Performance Requirements in accordance with A2G2(2)(d).

A8G2 Fire safety

[New for 2022]

As a result of a fire occurring within a building, the risk of exposure of occupants to untenable conditions must not exceed the values provided in Table A8G2a and Table A8G2b, with consideration of—

- (a) hazards, building characteristics and occupant characteristics including-
 - (i) <u>function or use of the building; and</u>
 - (ii) fire load; and
 - (iii) potential fire intensity; and
 - (iv) height of the building; and
 - (v) <u>number of storeys; and</u>
 - (vi) location in alpine areas; and
 - (vii) proximity to other property; and
 - (viii) size of any fire compartment/floor area; and
 - (ix) other elements providing structural support; and
 - (x) number, mobility and other occupant characteristics; and
 - (xi) travel distance; and
 - (xii) exit above and below ground; and
- (b) prevention/intervention measures against hazards as applicable including-
 - (i) control of linings, materials and assemblies to maintain tenable conditions for evacuation; and
 - (ii) occupant intervention using firefighting equipment (fire hose reels and fire extinguishers); and

- (iii) <u>automatic fire suppression; and</u>
- (iv) *fire brigade* intervention, including—
 - (A) fire brigade access; and
 - (B) fire hydrants; and
 - (C) fire control centres; and
 - (D) automatic notification of fire brigade; and
 - (E) emergency lifts; and
- (c) means of managing the consequences, including-
 - (i) maintaining building structural stability; and
 - (ii) avoiding spread of fire to exits; and
 - (iii) protection from spread of fire and smoke to allow for orderly evacuation as appropriate or as part of defend in place strategies or provisions of temporary refuges for occupants requiring assistance to evacuate; and
 - (iv) behaviour of concrete external wallsin fire; and
 - (v) barrier protection from high hazard service equipment; and
 - (vi) protection of emergency equipment; and
 - (vii) fire protection of openings and penetrations; and
 - (viii) provision of exits; and
 - (ix) construction of exits; and
 - (x) provision of fire isolated exits; and
 - (xi) provisions for paths of travel to, through and from exits; and
 - (xii) evacuation lifts; and
 - (xiii) automatic warning for sleeping occupants; and
 - (xiv) safe evacuation routes; options for consideration include one or more of the following if necessary:
 - (A) smoke detection; and
 - (B) smoke management systems; and
 - (C) automatic suppression; and
 - (xv) visibility in an emergency including emergency lighting; and
 - (xvi) identification of exits including exit signage; and
 - (xvii) emergency warning and intercom systems.

Table A8G2a: Allowable individual risk of exposure to untenable conditions

| Building Class Group | <u>Individual risk per annum (lower</u> tolerable limit <u>)</u> | <u>Individual risk per annum (upper</u> tolerable limit <u>)</u> |
|---|---|---|
| Residential/care (building classification 2, 3, 4, 9a or 9c) | <u>5.0 x 10⁻⁶</u> | <u>5.0 x 10⁻⁴</u> |
| Other classes (building classification 5, 6, 7a, 7b, or 9b) | <u>1.0 x 10⁻⁶</u> | <u>1.0 x 10⁻⁴</u> |

Table A8G2b: Allowable societal risk of exposure to untenable conditions

| Number of people exposed to untenable conditions | <u>Societal risk per annum (lower</u> tolerable limit <u>)</u> | <u>Societal risk per annum (upper</u> tolerable limit <u>)</u> |
|---|---|---|
| <u>≥5</u> | <u>8.9x10⁻⁷</u> | <u>8.9x10⁻⁵</u> |
| <u>≥10</u> | <u>3.2x10⁻⁷</u> | <u>3.2x10⁻⁵</u> |
| <u>≥20</u> | <u>1.1 x10⁻⁷</u> | <u>1.1 x10⁻⁵</u> |

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| Number of people exposed to untenable conditions | <u>Societal risk per annum (lower</u> tolerable limit) | <u>Societal risk per annum (upper</u> tolerable limit) |
|---|---|---|
| <u>≥50</u> | <u>2.8 x10⁻⁸</u> | <u>2.8 x10⁻⁶</u> |
| <u>≥100</u> | <u>1.0 x10⁻⁸</u> | <u>1.0 x10⁻⁶</u> |
| <u>≥200</u> | <u>3.5 x10-9</u> | <u>3.5 x10⁻⁷</u> |
| <u>≥500</u> | <u>8.9x10⁻¹⁰</u> | <u>8.9x10⁻⁸</u> |
| <u>≥1000</u> | <u>3.2x10⁻¹⁰</u> | <u>3.2x10⁻⁸</u> |

Explanatory Information:

If the lower tolerable limits (individual and societal) are not exceeded by the proposed *Performance Solution* the *individual* and *societal risk* criteria can be considered to be satisfied.

If the upper tolerable limits (individual or societal) are exceeded by the proposed *Performance Solution* the *individual* or *societal risk* criteria have not been satisfied and modifications to the proposed solution will be required.

If the *individual* and/or *societal risks* presented by the proposed *Performance Solution* lie between the lower and upper allowable risks the proposed *Performance Solution* can be considered to be satisfactory if it can be demonstrated that the *individual* and / or *societal risk* presented by the *Performance Solution* is less than or equal to that presented by a similar *Deemed-to-Satisfy* compliant *reference building* that is considered to represent a tolerable risk.

A8G3 Spread of fire

[New for 2022]

- (1) <u>A building must avoid the spread of fire between buildings such that:</u>
 - (a) the probability of a reportable fire in a building causing heat fluxes greater than the values listed Table A8G3a must not exceed 0.001 at the stated distance from the boundary on an adjacent allotment or at the distances between buildings on the same allotment; and
 - (b) the probability of a building not being able to *withstand* the heat flux in Table A8G3a for a period of 30 minutes must not exceed 0.01; and
 - (c) <u>the probability that the external façade of a building cannot *withstand* the following exposures from *reportable* <u>fires must not exceed 0.001:</u></u>
 - (i) <u>Flames venting through an opening from an enclosure fire within the building.</u>
 - (ii) <u>Burning items adjacent to the structure such as a vehicle, waste bin, or collection of combustible rubbish</u> <u>depending on the use and access to adjacent areas.</u>
 - (iii) <u>A fire occurring on a balcony.</u>
- (2) <u>A building must avoid the spread of fire within the building such that when a *reportable fire* occurs, the probability of <u>fire spread does not exceed</u></u>
 - (a) 0.01 to spread outside of a sole-occupancyunit for Class 2, 3 and 4 buildings; and
 - (b) 0.01 to spread between storeys; and
 - (c) the values in Table A8G3b.

Table A8G3a: Maximum heat flux

| <u>Maximum heat flux(kW/m²)</u> | <u>Distance from Boundary (m)</u> | Distance between buildings on the same allotment (m) |
|---------------------------------|-----------------------------------|--|
| 80 | <u>0</u> | <u>0</u> |
| <u>40</u> | 1 | 2 |
| 20 | 3 | <u>6</u> |
| 10 | <u>6</u> | 12 |

Table A8G3b: Fire spread limits to manage fire spread

| Building Classification | <u>Floor area</u> | <u>Volume</u> | <u>Maximum probability of</u> <u>spread beyond specified</u> <u>floor area</u> and volume |
|---|---------------------------|---------------------------|---|
| <u>5, 9b</u> | <u>3000m²</u> | <u>18000m³</u> | <u>0.01</u> |
| <u>6,7,8, 9a,9c</u> | <u>2000m²</u> | <u>12000m³</u> | <u>0.01</u> |
| <u>5-9</u> | <u>18000m²</u> | <u>21000m³</u> | <u>0.001</u> |
| <u>9a patient care areas and</u> <u>9c</u> | <u>1000m²</u> | = | 0.01 |

Specification 1 Fire-resistance of building elements

S1C1 Scope

[2019: Sch. 5: 1]

This Specification sets out the procedures for determining the FRL of building elements.

S1C2 Rating

[2019: Sch. 5: 2]

A building element meets the requirements of this Specification if—

- (a) it is listed in, and complies with Tables S1C2a to S1C2n of this Specification; or
- (b) it is identical with a prototype that has been submitted to the *Standard Fire Test*, or an equivalent or more severe test, and the FRL achieved by the prototype without the assistance of an active fire suppression system is confirmed in a report from an *Accredited Testing Laboratory* which—
 - (i) describes the method and conditions of the test and the form of construction of the tested prototype in full; and
 - (ii) certifies that the application of restraint to the prototype complied with the Standard Fire Test; or
- (c) it differs in only a minor degree from a prototype tested under (b) and the FRL attributed to the building element is confirmed in a report from an *Accredited Testing Laboratory* which—
 - (i) certifies that the building element is capable of achieving the FRL despite the minor departures from the tested prototype; and
 - (ii) describes the materials, construction and conditions of restraint which are necessary to achieve the FRL; or
- (d) it is designed to achieve the FRL in accordance with-
 - (i) AS/NZS 2327, AS 4100 and AS/NZS 4600 if it is a steel or composite structure; or
 - (ii) AS 3600 if it is a concrete structure; or
 - (iii) AS 1720.4 if it is a timber element other than *fire-protected timber*; or
 - (iv) AS 3700 if it is a masonry structure; or
- (e) the FRL is determined by calculation based on the performance of a prototype in the *Standard Fire Test* and confirmed in a report in accordance with S1C3; or
- (f) for *fire-protected timber*, it complies with Specification 10 where applicable.

Table S1C2a: FRLs Deemed to be achieved by walls — masonry

| Masonry type | Minimum thickness (mm) of principal material for FRLs | | | | |
|------------------|---|-------------|-----------------|-----------------|-----------------|
| | 60/60/60 | 90/90/90 | 120/120/1 20 | 180/180/1 80 | 240/240/2 40 |
| Ashlar | - | - | - | - | 300 |
| Calcium silicate | See clause | S1C2(d)(iv) | | | |
| Concrete | | | | | |
| Fired Clay |] | | | | |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2b: FRLs Deemed to be achieved by walls — concrete

| Concrete type | Minimum thickness (mm) of principal material for FRLs | | | | |
|---------------|---|----------|-------------|-------------|-------------|
| | 60/60/60 | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| No fines | - | - | - | 150 | 300 |
| Prestressed | See clause S1C2(d)(iv) | | | | |
| Reinforced | | | | | |
| Plain | - | - | - | 150 | 170 |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2c: FRLs Deemed to be achieved by walls — gypsum

| Gypsum type | Minimum thickness (mm) of principal material for FRLs | | | | | |
|---|---|----------|-----------------|-----------------|-----------------|--|
| | 60/60/60 | 90/90/90 | 120/120/1 20 | 180/180/1 80 | 240/240/2 40 | |
| Solid gypsum blocks | 75 | 90 | 100 | 110 | 125 | |
| Gypsum — perlite or Gypsum vermiculite-plaster on metal lath and channel (non- <i>loadbearing</i> walls only) | 50 | 50 | 65 | - | - | |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2d: FRLs Deemed to be achieved by concrete columns

| Column type | Minimum thickness (mm) of principal material for FRLs | | | | |
|-------------|---|-------------|-----------------|-----------------|-----------------|
| | 60/60/60 | 90/90/90 | 120/120/1 20 | 180/180/1 80 | 240/240/2 40 |
| Prestressed | See clause | S1C2(d)(ii) | | | |
| Reinforced | | | | | |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2e:FRLs Deemed to be achieved by hot-rolled steel columns (including a fabricated column)
exposed on no more than 3 sides

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | |
|---|---|----------|-------------|-------------|-------------|
| | 60/60/60 | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| Concrete Cast in-situ — loadbearing | 25 | 30 | 40 | 55 | 75 |
| Concrete Cast in-situ — non- <i>loadbearing</i> unplastered | 25 | 30 | 40 | 50 | 75 |
| Concrete Cast in-situ — non- <i>loadbearing</i> plastered 13 mm | 25 | 25 | 30 | 40 | 50 |
| Gypsum Cast in-situ | - | - | - | - | 50 |
| Gypsum — perlite or Gypsum-vermiculite plaster— sprayed to | 20 | 25 | 35 | 50 | 55 |

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | | | |
|--|---|--|----|----|----|--|--|
| | 60/60/60 | 0/60/60 90/90/90 120/120/120 180/180 240/240/240 | | | | | |
| Gypsum — perlite or Gypsum-vermiculite plaster— sprayed on metal lath | 20 | 20 | 25 | 35 | 45 | | |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2f:FRLs Deemed to be achieved by hot-rolled steel columns (including a fabricated column)exposed on no more than 3 sides and with column spaces filled

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | | |
|--|---|----------|-----------------|-----------------|-----------------|--|
| | 60/60/60 | 90/90/90 | 120/120/1 20 | 180/180/1 80 | 240/240/2 40 | |
| Solid calcium-silicate masonry | 50 | 50 | 50 | 50 | 65 | |
| Solid clay masonry | 50 | 50 | 50 | 65 | 90 | |
| Solid concrete masonry | 50 | 50 | 50 | 65 | 90 | |
| Solid gypsum blocks | 50 | 50 | 50 | 50 | 65 | |
| Hollow terracotta blocks — plastered 13 mm | 50 | 50 | 50 | 65 | 90 | |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2g:FRLs Deemed to be achieved by hot-rolled steel columns (including a fabricated column)
exposed on no more than 3 sides and with column spaces unfilled

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | | |
|--|---|----------|-----------------|-----------------|-----------------|--|
| | 60/60/60 | 90/90/90 | 120/120/1 20 | 180/180/1 80 | 240/240/2 40 | |
| Solid calcium-silicate masonry | 50 | 50 | 50 | - | - | |
| Solid clay masonry | 50 | 50 | 65 | - | - | |
| Solid concrete masonry | 50 | 50 | 65 | - | - | |
| Solid gypsum blocks | 50 | 50 | 50 | - | - | |
| Hollow terracotta blocks — plastered 13 mm | 50 | 50 | 65 | - | - | |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2h:FRLs Deemed to be achieved by hot-rolled steel columns (including a fabricated column)
exposed on no more than 4 sides

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | |
|--|---|--------|---------|---------|---------|
| | 60/_/_ | 90/_/_ | 120/_/_ | 180/_/_ | 240/_/_ |
| Concrete Cast in-situ — <i>loadbearing</i> | 25 | 40 | 45 | 65 | 90 |
| Concrete Cast in-situ — non- <i>loadbearing</i> unplastered | 35 | 30 | 40 | 50 | 65 |
| Concrete Cast in-situ — non- <i>loadbearing</i> plastered 13 mm | 25 | 25 | 30 | 40 | 50 |
| Gypsum Cast in-situ | - | - | - | - | 50 |
| Gypsum — perlite or Gypsum-vermiculite plaster — | 25 | 30 | 40 | 55 | 65 |

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| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | r FRLs |
|--|---|--------|---------|---------|---------|
| | 60/_/_ | 90/_/_ | 120/_/_ | 180/_/_ | 240/_/_ |
| Gypsum — perlite or Gypsum-vermiculite plaster — sprayed on metal lath | 20 | 20 | 30 | 40 | 50 |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2i:FRLs Deemed to be achieved by hot-rolled steel columns (including a fabricated column)
exposed on no more than 4 sides and with column spaces filled

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | |
|--|---|--------|---------|---------|---------|
| | 60/–/– | 90/_/_ | 120/_/_ | 180/—/— | 240/—/— |
| Solid calcium-silicate masonry | 50 | 50 | 50 | 65 | 75 |
| Solid clay masonry | 50 | 50 | 50 | 75 | 100 |
| Solid concrete masonry | 50 | 50 | 50 | 75 | 100 |
| Solid gypsum blocks | 50 | 50 | 50 | 65 | 75 |
| Hollow terracotta blocks — plastered 13 mm | 50 | 50 | 50 | 75 | 100 |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2j:FRLs Deemed to be achieved by hot-rolled steel columns (including a fabricated column)
exposed on no more than 4 sides and with column spaces unfilled

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | |
|--|---|--------|---------|---------|---------|
| | 60/_/_ | 90/—/— | 120/–/– | 180/—/— | 240/—/— |
| Solid calcium-silicate masonry | 50 | 50 | 50 | - | - |
| Solid clay masonry | 50 | 50 | 65 | - | - |
| Solid concrete masonry | 50 | 50 | 65 | - | - |
| Solid gypsum blocks | 50 | 50 | 50 | - | - |
| Hollow terracotta blocks — plastered 13 mm | 50 | 50 | 65 | - | - |

Table Notes:

For the purposes of this table, each element must meet the requirements of Specification 2.

Table S1C2k: FRLs Deemed to be achieved by concrete beams

| Concrete type | Minimum thickness (mm) of principal material for FRLs | | | | | |
|---------------|---|--------|---------|---------|---------|--|
| | 60/_/_ | 90/_/_ | 120/_/_ | 180/—/— | 240/—/— | |
| Prestressed | See clause S1C2(d)(ii) | | | | | |
| Reinforced | | | | | | |

Table S1C2I:

FRLs Deemed to be achieved by hot-rolled steel beams (including an open-web joist, girder, truss, etc.) exposed on no more than 3 sides

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | |
|--|---|--------|---------|---------|---------|
| | 60/_/_ | 90/_/_ | 120/_/_ | 180/—/— | 240/—/— |
| Concrete — cast in-situ | 25 | 30 | 40 | 50 | 65 |
| Gypsum — perlite or Gypsum-vermiculite plaster — | 20 | 25 | 35 | 50 | 55 |

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| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | |
|--|---|--------|---------|---------|---------|
| | 60/_/_ | 90/—/— | 120/_/_ | 180/_/_ | 240/—/— |
| Gypsum — perlite or Gypsum-vermiculite plaster — sprayed on metal lath | 20 | 20 | 25 | 35 | 45 |

Table S1C2m:FRLs Deemed to be achieved by hot-rolled steel beams (including an open-web joist,
girder, truss, etc.) exposed on 4 sides

| Fire protection | Minimum thickness (mm) of principal material for FRLs | | | | | |
|--|---|--------|---------|---------|---------|--|
| | 60/_/_ | 90/—/— | 120/_/_ | 180/—/— | 240/—/— | |
| Concrete — cast in-situ | 25 | 40 | 45 | 60 | 90 | |
| Gypsum — perlite or Gypsum-vermiculite plaster — sprayed to contour | 20 | 30 | 40 | 55 | 65 | |
| Gypsum — perlite or Gypsum-vermiculite plaster — sprayed on metal lath | 20 | 20 | 35 | 40 | 50 | |

Table S1C2n: FRLs Deemed to be achieved by floor, roof or ceiling

| Floor, roof or ceiling type | Minimum thickness (mm) of principal material for FRLs | | | | |
|-----------------------------|---|-----------|-------------|-------------|-------------|
| | 60/60/60 | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| Prestressed | See Clause S1 | C2(d)(ii) | | | |
| Reinforced | | | | | |

S1C3 FRLs determined by calculation

[2019: Sch. 5: 3]

If the FRL of a building element is determined by calculation based on a tested prototype-

- (a) the building element may vary from the prototype in relation to-
 - (i) length and height if it is a wall; and
 - (ii) height if it is a column; and
 - (iii) span if it is a floor, roof or beam; and
 - (iv) conditions of support; and
 - (v) to a minor degree, cross-section and components; and
- (b) the report must demonstrate by calculation that the building element would achieve the FRL if it is subjected to the regime of the *Standard Fire Test* in relation to—
 - (i) structural adequacy (including deflection); and
 - (ii) *integrity*; and
 - (iii) insulation; and
- (c) the calculations must take into account-
 - (i) the temperature reached by the components of the prototype and their effects on strength and modulus of elasticity; and
 - (ii) appropriate features of the building element such as support, restraint, cross-sectional shape, length, height, span, slenderness ratio, reinforcement, ratio of surface area to mass per unit length, and fire protection; and
 - (iii) features of the prototype that influenced its performance in the *Standard Fire Test* although these features may not have been taken into account in the design for dead and live load; and
 - (iv) features of the conditions of test, the manner of support and the position of the prototype during the test, that might not be reproduced in the building element if it is exposed to fire; and

(v) the design load of the building element in comparison with the tested prototype.

S1C4 Interchangeable materials

[2019: Sch. 5: 4]

- (1) Concrete and plaster An FRL achieved with any material of Group A, B, C, D or E as an ingredient in concrete or plaster, applies equally when any other material of the same group is used in the same proportions:
 - (a) Group A: any portland cement.
 - (b) Group B: any lime.
 - (c) Group C: any dense sand.
 - (d) Group D: any dense calcareous aggregate, including any limestone or any calcareous gravel.
 - (e) Group E: any dense siliceous aggregate, including any basalt, diorite, dolerite, granite, granodiorite or trachyte.
- (2) Perlite and vermiculite An FRL achieved with either gypsum-perlite plaster or gypsum-vermiculite plaster applies equally for each plaster.

S1C5 Columns covered with lightweight construction

[2019: Sch. 5: 5]

If the *fire-resisting* covering of a steel column is *lightweight construction*, the construction must comply with <u>Volume One</u> C2D9 and C4D17.

S1C6 Non-loadbearing elements

[2019: Sch. 5: 6]

If a non-*loadbearing* element is able to be used for a purpose where the *Deemed-to-Satisfy Provisions* prescribe an FRL for *structural adequacy*, *integrity* and *insulation*, that non-*loadbearing* element need not comply with the *structural adequacy* criteria.

| Spec | ification 2 Descriptions of elements referred to in Specification 1 |
|---------------------|---|
| \$201 | Soono |
| <u>5201</u> | Scope [New for 2022] |
| This Spe | cification sets out the descriptions of elements referred to in Tables S1C2a to S1C2n of Specification 1. |
| | |
| S2C2 | Mortar for masonry |
| | [2019: Sch. 5 (Annex): 1.1] |
| Masonry or compo | units of ashlar, calcium silicate, concrete or fired clay (including terracotta blocks) must be laid in cement mortar osition mortar complying with the relevant provisions of AS 3700. |
| S2C3 | Gypsum blocks |
| | [2019: Sch. 5 (Annex): 1.2] |
| Gypsum | blocks must be laid in gypsum-sand mortar or lime mortar. |
| | |
| S2C4 | Gypsum-sand mortar and plaster |
| | [2019: Sch. 5 (Annex): 1.3] |
| Gypsum | -sand mortar and gypsum-sand plaster must consist of either— |
| (a) | not more than 3 parts by volume of sand to 1 part by volume of gypsum; or |
| (b) | if lime putty is added, not more than 2.5 parts by volume of sand to 1 part by volume of gypsum and not more than 5% of lime putty by volume of the mixed ingredients. |
| | |
| S2C5 | Gypsum-perlite and gypsum-vermiculite plaster |
| | [2019: Scn. 5 (Annex): 1.4] |
| Gypsum | -perlite or gypsum-vermiculite plaster must be applied— |
| (a) | in either one or 2 coats each in the proportions of 1 m ³ of perlite or vermiculite to 640 kg of gypsum if the <i>required</i> thickness of the plaster is not more than 25 mm; and |
| (b) | in 2 coats if the <i>required</i> thickness is more than 25 mm, the first in the proportions of 1 m ³ of perlite or vermiculite to 800 kg of gypsum and the second in the proportions of 1 m ³ of perlite or vermiculite to 530 kg of gypsum. |

S2C6 Plaster of cement and sand or cement, lime and sand

[2019: Sch. 5 (Annex): 1.5]

Plaster prescribed in Tables S1C2a to S1C2n-

- (a) must consist of cement and sand or cement, lime and sand; and
- (b) may be finished with gypsum, gypsum-sand, gypsum-perlite or gypsum-vermiculite plaster or with lime putty.

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S2C7 Plaster reinforcement

[2019: Sch. 5 (Annex): 1.6]

If plaster used as fire protection on walls is more than 19 mm thick—

(a) it must be reinforced with expanded metal lath that-

- (i) has a mass per unit area of not less than 1.84 kg/m²; and
- (ii) has not fewer than 98 meshes per metre; and
- (iii) is protected against corrosion by galvanising or other suitable method; or
- (b) it must be reinforced with 13 mm x 13 mm x 0.7 mm galvanised steel wire mesh securely fixed at a distance from the face of the wall of not less than ⅓ of the total thickness of the plaster.

S2C8 Ashlar stone masonry

[2019: Sch. 5 (Annex): 2]

Ashlar masonry must not be used in a part of the building containing more than 2 storeys, and must not be of-

- (a) aplite, granite, granodiorite, quartz dacite, quartz diorite, quartz porphyrite or quartz porphyry; or
- (b) conglomerate, quartzite or sandstone; or
- (c) chert or flint; or
- (d) limestone or marble.

S2C9 Dimensions of masonry

[2019: Sch. 5 (Annex): 3]

The thicknesses of masonry of calcium-silicate, concrete and fired clay are calculated as set out in S2C10 to S2C12.

S2C10 Solid units

[2019: Sch. 5 (Annex): 3.1]

For masonry in which the amount of perforation or coring of the units does not exceed 25% by volume (based on the overall rectangular shape of the unit) the thickness of the wall must be calculated from the manufacturing dimensions of the units and the specified thickness of the joints between them as appropriate.

S2C11 Hollow units

For masonry in which the amount of perforation or coring of the units exceeds 25% by volume (based on the overall rectangular shape of the unit) the thickness of the wall must be calculated from the equivalent thicknesses of the units and the specified thickness of the joints between them as appropriate.

S2C12 Equivalent thickness

[2019: Sch. 5 (Annex): 3.3]

[2019: Sch. 5 (Annex): 3.2]

The equivalent thickness of a masonry unit is calculated by dividing the net volume by the area of one vertical face.

S2C13 Height-to-thickness ratio of certain walls

[2019: Sch. 5 (Annex): 5]

The ratio of height between lateral supports to overall thickness of a wall of ashlar, no-fines concrete, unreinforced concrete, solid gypsum blocks, gypsum-perlite or gypsum-vermiculite plaster on metal lath and channel, must not exceed—

- (a) 20 for a *loadbearing* wall; or
- (b) 27 for a non-loadbearing wall.

S2C14 Walls

[2019: Sch. 5 (Annex): 6.1]

If a wall of ashlar, solid gypsum blocks or concrete is plastered on both sides to an equal thickness, the thickness of the wall for the purposes of Tables S1C2a to S1C2n (but not for the purposes of S2C5) may be increased by the thickness of the plaster on one side.

S2C15 Columns

[2019: Sch. 5 (Annex): 6.2]

- (1) Where Tables S1C2a to S1C2n indicate that column-protection is to be plastered, the tabulated thicknesses are those of the principal material.
- (2) The thicknesses referred to in (1) do not include the thickness of plaster, which must be additional to the listed thickness of the material to which it is applied.

S2C16 Walls

[2019: Sch. 5 (Annex): 7.1]

In walls fabricated of gypsum-perlite or gypsum-vermiculite plaster on metal lath and channel-

- (a) the lath must be securely wired to each side of 19 mm x 0.44 kg/m steel channels (used as studs) spaced at not more than 400 mm centres; and
- (b) the gypsum-perlite or gypsum-vermiculite plaster must be applied symmetrically to each exposed side of the lath.

S2C17 Columns

[2019: Sch. 5 (Annex): 7.2]

(1) For the fire protection of steel columns with gypsum-perlite or gypsum-vermiculite on metal lath-

- (a) the lath must be fixed at not more than 600 mm centres vertically to steel furring channels, and-
 - (i) if the plaster is to be 35 mm thick or more at least 12 mm clear of the column; or
 - (ii) if the plaster is to be less than 35 mm thick at least 6 mm clear of the column; or
- (b) the plaster may be applied to self-furring lath with furring dimples to hold it not less than 10 mm clear of the column.
- (2) For the purposes of (1), the thickness of the plaster must be measured from the back of the lath.

S2C18 Beams

[2019: Sch. 5 (Annex): 7.3]

For the fire protection of steel beams with gypsum-perlite or gypsum-vermiculite on metal lath-

- (a) the lath must be fixed at not more than 600 mm centres to steel furring channels and at least 20 mm clear of the steel; and
- (b) the thickness of the plaster must be measured from the back of the lath.

S2C19 Columns

[2019: Sch. 5 (Annex): 8.1]

[2019: Sch. 5 (Annex): 8.2]

A column incorporated in or in contact on one or more sides with a wall of solid masonry or concrete at least 100 mm thick may be considered to be exposed to fire on no more than 3 sides.

S2C20 Beams

A beam, open-web joist, girder or truss in direct and continuous contact with a concrete slab or a hollow block floor or roof may be considered to be exposed to fire on no more than 3 sides.

S2C21 Filling of column spaces

[2019: Sch. 5 (Annex): 9]

- (1) The spaces between the fire-protective material and the steel (and any re-entrant parts of the column itself) must be filled solid with a fire-protective material like concrete, gypsum or grout.
- (2) The insides of hollow sections, including pipes, need not be filled.

S2C22 Hollow terracotta blocks

[2019: Sch. 5 (Annex): 10]

The proportion of cored holes or perforations in a hollow terracotta block (based on the overall rectangular volume of the unit) must not exceed the following:

- (a) For blocks up to 75 mm thick -35%.
- (b) For blocks more than 75 mm but not more than 100 mm thick -40%.
- (c) For blocks more than 100 mm 50%.

S2C23 Masonry

Masonry of calcium-silicate, fired clay and concrete for the protection of steel columns must have steel-wire or mesh reinforcement in every second course and lapped at the corners.

S2C24 Gypsum blocks and hollow terracotta blocks

[2019: Sch. 5 (Annex): 11.2]

[2019: Sch. 5 (Annex): 11.1]

Gypsum blocks and hollow terracotta blocks for the protection of steel columns must have steel-wire or mesh reinforcement in every course and lapped at corners.

S2C25 Structural concrete and poured gypsum

[2019: Sch. 5 (Annex): 11.3]

If a steel column or a steel beam is to be protected with structural concrete or poured gypsum, the concrete or gypsum must be reinforced with steel-wire mesh or steel-wire binding placed about 20 mm from its outer surface, and—

- (a) for concrete or gypsum less than 50 mm thick, the steel wire must be-
 - (i) at least 3.15 mm in diameter; and
 - (ii) spaced at not more than 100 mm vertically; or
- (b) for concrete or gypsum not less than 50 mm thick, the steel wire must be either-
 - (i) of a diameter and spacing in accordance with (a); or
 - (ii) at least 5 mm in diameter and spaced at not more than 150 mm vertically.

S2C26 Gypsum-perlite or gypsum-vermiculite plaster sprayed to contour

[2019: Sch. 5 (Annex): 11.4]

- (1) If a steel column or steel beam is protected with either gypsum-perlite or gypsum-vermiculite plaster sprayed to contour and the construction falls within the limits of Tables S2C26a and S2C26b, the plaster must be reinforced with—
 - (a) expanded metal lath complying with S2C7; or
 - (b) galvanised steel wire mesh complying with S2C7.
- (2) The reinforcement must be placed at a distance from the face of the plaster of at least 1/3 of the thickness of the plaster and must be securely fixed to the column or beam at intervals of not more than the relevant listing in Tables S2C26a and S2C26b.
- (3) For the purposes of Tables S2C26a and S2C26b-
 - (a) "vertical" includes a surface at not more than 10° to the vertical; and
 - (b) "horizontal" includes a surface at not more than 10° to the horizontal; and
 - (c) "underside" means the underside of any horizontal or non-vertical surface.

Table S2C26a: Reinforcement of gypsum-perlite or gypsum-vermiculite plaster sprayed to contour — vertical members with H or I cross-section

| Surface to be protected | Reinforcement required if smaller dimension of surface exceeds (mm) | Max spacing of fixings of the mesh to surface (mm) |
|------------------------------------|---|--|
| Vertical | 450 | 450 |
| Non-vertical | 300 | 300 |
| Underside | 300 | 300 |
| Upper side of a horizontal surface | Not required | N/A |

Table S2C26b: Reinforcement of gypsum-perlite or gypsum-vermiculite plaster sprayed to contour — vertical members with other shapes

| Surface to be protected | Reinforcement required if smaller dimensions of surface exceeds (mm) | Max spacing of fixings of the mesh to surface (mm) |
|------------------------------------|--|--|
| Vertical | Any size | 450 |
| Non-vertical | Any size | 300 |
| Undersize | Any size | 300 |
| Upper side of a horizontal surface | Not required | N/A |

S2C27 Measurement of thickness of column and beam protection

[2019: Sch. 5 (Annex): 12.1]

The thickness of the fire protection to steel columns and steel beams (other than fire protection of gypsum-perlite or gypsum-vermiculite plaster sprayed on metal lath or sprayed to contour) is to be measured from the face or edge of the

steel, from the face of a splice plate or from the outer part of a rivet or bolt, whichever is the closest to the outside of the fire-protective construction, except that—

- (a) if the thickness of the fire protection is 40 mm or more, rivet heads may be disregarded; and
- (b) if the thickness of the fire protection is 50 mm or more-
 - (i) any part of a bolt (other than a high-tensile bolt) may be disregarded; and
 - (ii) a column splice plate within 900 mm of the floor may encroach upon the fire protection by up to a ¼ of the thickness of the fire protection; and
- (c) the flange of a column or beam may encroach by up to 12 mm upon the thickness of the fire protection at right angles to the web if—
 - (i) the column or beam is intended to have an FRL of 240/240/240 or 240/-/-; and
 - (ii) the flange projects 65 mm or more from the web; and
 - (iii) the thickness of the edge of the flange (inclusive of any splice plate) is not more than 40 mm.

Specification 3 Fire hazard properties S3C1 Scope [2019: Sch. 6: 1] This Specification sets out the procedures for determining the fire hazard properties of assemblies tested to AS/NZS 1530.3. Assemblies S3C2 General requirement [2019: Sch. 6: 2.1] The fire hazard properties of assemblies and their ability to screen their core materials as required under Specification 7 must be determined by testing in accordance with S3C3 to S3C6. Form of test S3C3 [2019: Sch. 6: 2.2] Tests must be carried out in accordance with-(a) for the determination of the Spread-of-Flame Index and Smoke-Developed Index — AS/NZS 1530.3; and (b) for the determination of the ability to prevent ignition and to screen its core material from free air — AS 1530.4. S3C4 Test specimens [2019: Sch. 6: 2.3] Test specimens must incorporate— (a) all types of joints; and (b) all types of perforations, recesses or the like for pipes, light switches or other fittings, which are proposed to be used for the member or assembly of members in the building.

S3C5 Concession

S3C4 does not apply to joints, perforations, recesses or the like that are larger than those in the proposed application and have already been tested in the particular form of construction concerned and found to comply with the conditions of the test.

S3C6 Smaller specimen permitted

[2019: Sch. 6: 2.5]

[2019: Sch. 6: 2.4]

A testing laboratory may carry out the test specified in S3C3(b) at pilot scale if a specimen (which must be not less than 900 mm x 900 mm) will adequately represent the proposed construction in the building, but the results of that test do not apply to construction larger than limits defined by the laboratory conducting the pilot examination.

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| H5P2 Fall prevention barriers | H5P1 | Movement to and within a building | |
| Varification Mathada | H5P2 | Fall prevention barriers | |
| Vernication Methods | Verification Method | ds | |

Part H5

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| | H5V1 | Wire barriers | |
|---------|------------------------------|--|--|
| | Deemed-to-Satisfy Provisions | | |
| | H5D1 | Deemed-to-Satisfy Provisions | |
| | H5D2 | Stairway and ramp construction | |
| | H5D3 | Barriers and handrails | |
| Part H6 | Energy efficiency | | |
| | Objectives | | |
| | H6O1 | Objective | |
| | Functional Statements | | |
| | H6F1 | Greenhouse gas emissions | |
| | Performance Requirements | | |
| | H6P1 | Building | |
| | H6P2 | Services | |
| | Verification Methods | | |
| | H6V1 | Application of H6V2 and H6V3 | |
| | H6V2 | Verification using a reference building | |
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| | Deemed-to-Satisfy Provisions | | |
| | H6D1 | Deemed-to-Satisfy Provisions | |
| | H6D2 | Application of Part H6 | |
| Part H7 | Ancillary provision | ons and additional construction requirements | |
| | Objectives | | |
| | H7O1 | Objective | |
| | Functional Statements | | |
| | H7F1 | Swimming pool access | |
| | H7F2 | Heating appliances | |
| | H7F3 | Alpine areas | |
| | H7F4 | Bushfire areas | |
| | H7F5 | Private bushfire shelters | |
| | Performance Requirements | | |
| | H7P1 | Swimming pool access | |
| | H7P2 | Swimming pool reticulation systems | |
| | H7P3 | Heating appliances | |
| | H7P4 | Buildings in alpine areas | |
| | H7P5 | Buildings in bushfire prone areas | |
| | H7P6 | Private bushfire shelters | |
| | Verification Methods | | |
| | H7V1 | Combustion appliances | |
| | | | |
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| Deemed-to-Satisfy P | provisions |
|----------------------|---|
| H7D1 | Deemed-to-Satisfy provisions |
| H7D2 | Swimming pools |
| H7D3 | Construction in alpine areas |
| H7D4 | Construction in bushfire prone areas |
| H7D5 | Boilers, pressure vessels <u>H</u> heating appliances, fireplaces, chimneys and flues |
| Livable housing d | <u>esign</u> |
| Objectives | |
| <u>H801</u> | Objective |
| Functional Statement | ts |
| <u>H8F1</u> | Livable housing design |
| Performance Require | ements |
| <u>H8P1</u> | Livable housing design |
| Deemed-to-Satisfy P | Provisions |
| <u>H8D1</u> | Deemed-to-Satisfy Provisions |
| <u>H8D2</u> | Livable housing design |
| Heating and cooli | ng loads |
| S42C1 | Scope |
| S42C2 | Heating and cooling loads |
| | S |
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Part H1 Structure

Introduction to this Part

This Part focusses on minimising risk of structural failure in buildings; structural requirements for buildings in flood hazard areas; and, minimising risk of injuries caused by people colliding with glass panels, windows and doors.

Objectives

H101

Objective

[2019: 02.1]

The Objective is to-

- (a) safeguard people from injury caused by structural failure; and
- (b) safeguard people from loss of amenity caused by structural behaviour; and
- (c) protect other property from physical damage caused by structural failure; and
- (d) safeguard people from injury that may be caused by failure of, or impact with, glazing.

Functional Statements

H1F1 Functional Statements

[2019: F2.1]

- (1) A building or structure is to withstand the combination of loads and other actions to which it may be reasonably subjected.
- (2) Glazing is to be installed in a building to avoid undue risk of injury to people.

Performance Requirements

H1P1 Structural stability and resistance

[2019: P2.1.1]

- (1) A building or structure, during construction and use, with appropriate degrees of reliability as specified in Table H1P1, must—
 - (a) perform adequately under all reasonably expected design actions; and
 - (b) withstand extreme or frequently repeated design actions; and
 - (c) be designed to sustain local damage, with the structural system as a remaining stable and not being damaged to an extent disproportionate to the original local damage; and
 - (d) avoid causing damage to other properties,

by resisting the actions to which it may reasonably be expected to be subjected.

- (2) The actions to be considered to satisfy (1) include but are not limited to-
 - (a) permanent actions (dead loads); and
 - (b) imposed actions (live loads arising from occupancy and use); and
 - (c) wind action; and

- (d) earthquake action; and
- (e) snow action; and
- (f) liquid pressure action; and
- (g) ground water action; and
- (h) rainwater action (including ponding action); and
- (i) earth pressure action; and
- (j) differential movement; and
- (k) time dependent effects (including creep and shrinkage); and
- (I) thermal effects; and
- (m) ground movement caused by-
 - (i) swelling, shrinkage or freezing of the subsoil; and
 - (ii) landslip or subsidence; and
 - (iii) siteworks associated with the building or structure; and
- (n) construction activity actions; and
- (o) termite actions.
- (3) The structural resistance of materials and forms of construction must be determined using five percentile characteristic material properties with appropriate allowance for—
 - (a) known construction activities; and
 - (b) type of material; and
 - (c) characteristics of the site; and
 - (d) the degree of accuracy inherent in the methods used to assess the structural behaviour; and
 - (e) action effects arising from the differential settlement of foundations, and from restrained dimensional changes due to temperature, moisture, shrinkage, creep and similar effects.
- (4) Glass installations that are at risk of being subjected to human impact must have glazing that-
 - (a) if broken on impact, will break in a way that has a lower than 0.13% chance of penetrating adult skin is not likely to cause injury to people; and
 - (b) resists a 541J reasonably foreseeable human impact without breaking; and
 - (c) is visually distinct with: protected or marked in a way that will reduce the likelihood of human impact.
 - (i) markings within the visual range of the occupants which achieve a 30% *luminance contrast* to both the floor and visual background, and of sizes no less than—
 - (A) <u>in parts of a building *required* to be *accessible*, 75,000 mm² of glass marked per metre of width, for the full width of the installation; or</u>
 - (B) in parts of a building not required to be accessible, 20,000 mm² of glass marked per metre of width; or
 - (ii) other measures which achieve an equivalent level of visual impact.

Table H1P1:Maximum acceptable annual probability of structural failure of buildings members and
connection (1 in ...)

| Building parts, | Failure behaviour | Resistance | Structure Importance Level | | | |
|--|--|-----------------|----------------------------|---------------|---------------|------------|
| <u>connections</u> | | | 1 | 2 | <u>3</u> | <u>4</u> |
| <u>Substantive</u> parts of a | <u>Brittle or fatigue</u> or sudden failure | <u>N/A</u> | 14,000 | <u>21,000</u> | <u>N/A</u> | <u>N/A</u> |
| <u>building or</u> <u>structure</u> | <u>Gradualductile</u> failure | <u>N/A</u> | <u>9,000</u> | <u>14,000</u> | <u>32,000</u> | 70,000 |
| Members and | <u>Connections or</u> | <u>Single</u> | 3,000 | <u>4,300</u> | <u>9,000</u> | 21,000 |
| <u>connections that</u> | <u>non-transient</u> <u>Mu</u> | <u>Multiple</u> | 2,100 | <u>3,000</u> | <u>6,000</u> | 14,000 |

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| Building parts, | Failure behaviour Resist | Resistance | Structure Impo | ture Importance Level | | |
|---|--|-----------------|----------------|-----------------------|--------------|--------------|
| <u>connections</u> | paurs | 1 | 2 | <u>3</u> | <u>4</u> | |
| provide primary building support | actions or brittle or fatigue or sudden failure | | | | | |
| | <u>Members subject</u> to transient actions with | <u>Single</u> | <u>1,500</u> | <u>2,100</u> | <u>4,300</u> | <u>9,000</u> |
| | <u>gradualductile</u> failure | <u>Multiple</u> | <u>1,000</u> | <u>1,500</u> | <u>3,000</u> | <u>6,300</u> |
| <u>Members and</u> <u>connections that</u> <u>do not provide</u> <u>primary building</u> <u>support</u> | <u>Connections or</u> <u>non-transient</u> | <u>Single</u> | 900 | <u>1,300</u> | <u>2,700</u> | <u>5,600</u> |
| | or fatigue or sudden failure | <u>Multiple</u> | <u>800</u> | <u>1,200</u> | <u>2,400</u> | <u>5,000</u> |
| | <u>Members subject</u> to transient actions with | <u>Single</u> | <u>800</u> | <u>1,100</u> | <u>2,100</u> | <u>4,500</u> |
| | <u>gradualductile</u> failure | <u>Multiple</u> | 700 | <u>1,000</u> | <u>1,900</u> | <u>4,000</u> |

Table Notes:

- (A) <u>The values in Table H1P1 are reliability-based, accounting for uncertainties in design parameters,</u> <u>but excluding accidents and gross human errors.</u>
- (B) The values are maximum acceptable notional probabilities of failure, not target values.
- (C) Larger numbers in Table H1P1 represent more conservative (safer) designs than smaller numbers.
- (D) If the structural failure of buildings, structures, members or connections is sudden, without providing timely clear warning of impending catastrophic collapse and without sufficient time to evacuate, failure should be treated as brittle.
- (E) <u>Serviceability considerations may dictate stringency greater than the requirements of Table H1P1.</u>

Explanatory Information:

Because materials, structural behaviour and design actions are variable, practical designs must aim for target values of reliability, which must be more conservative (safer) than these values.

For example, an *Importance Level* 4 building with a maximum acceptable probability of failure of 1 in 400,000 is more conservative (safer) than an *Importance Level* 2 building with a maximum acceptable probability of failure of 1 in 7,000.

QLD H1P2

SA H1P2

H1P2 Buildings in flood areas

[2019: P2.1.2]

- (1) A building in a *flood hazard area* must be designed and constructed, to the degree necessary, to resist flotation, collapse or significant permanent movement resulting from the action of hydrostatic, hydrodynamic, erosion and scour, wind and other actions during the *defined flood event*.
- (2) The actions and requirements to be considered to satisfy (1) include but are not limited to-
 - (a) flood actions; and
 - (b) elevation requirements; and
 - (c) foundation and footing requirements; and
 - (d) requirements for enclosures below the *flood hazard level*; and

- (e) requirements for structural connections; and
- (f) material requirements; and
- (g) requirements for utilities; and
- (h) requirements for occupant egress.

Limitations:

H1P2 only applies to a Class 1 building.

QLD H1P3

Verification Methods

H1V1 Structural reliability

[2019: V2.1.1]

- (1) This *Verification Method* is only applicable to components with a resistance coefficient of variation of at least 10% and not more than 40%.
- (2) For components with a calculated resistance coefficient of variation value less than 10%, then a minimum value of 10% should be used.
- (3) Compliance with H1P1(1), (2) and (3) is verified for the design of a structural component for strength when-
 - (a) the capacity reduction factor ϕ satisfies $\phi \leq Average(\phi G, \phi Q, \phi W, ...)$, where $\phi G, \phi Q, \phi W, ...$ are capacity reduction factors for all relevant actions and must contain at least permanent (G), imposed (Q) and wind (W) actions; and
 - (b) the capacity reduction factors $\phi G, \phi Q, \phi W$, are calculated for target reliability indices for permanent action βTG
 - for imposed action βTQ , for wind action βTW ,... in accordance with the equation:

$$\beta = In\left[\left(\frac{\overline{R}}{\overline{S}}\right)\sqrt{\frac{CS}{CR}}\right]/\sqrt{In(CR.CS)}, \text{ where}$$

(i)
$$\left(\frac{\overline{R}}{\overline{S}}\right) = \frac{(\varphi)}{(\overline{S})} \left(\frac{\overline{R}}{RN}\right)$$
; and

$$CR = 1 + V_R^2$$

(ii)
$$CS = 1 + V_S^2$$
, where—

- (A) $\frac{\kappa}{RN}$ = ratio of mean resistance to nominal; and
- (B) \overline{SN} = ratio of mean action to nominal; and
- (C) CS = correction factor for action; and
- (D) CR = correction factor for resistance; and
- (E) VS = coefficient of variation of the appropriate action as given in Table H1V1a; and
- (F) VR = coefficient of variation of the resistance; and
- (G) γ = appropriate load factor as given in AS/NZS 1170.0; and
- (H) ϕ = capacity factor for the appropriate action; and

- (c) the annual target reliability indices βTG , βTQ , βTW ,... are established as follows:
 - (i) For situations where it is appropriate to compare with an equivalent Deemed-to-Satisfy product, a resistance model must be established for the equivalent Deemed-to-Satisfy product and βTW , βTG , βTW must be calculated for the equivalent Deemed-to-Satisfy product in accordance with the equation given at (b).
 - (ii) The target reliability indices βTG , βTQ , βTW ,... thus established, must be not less than those given in Table H1V1b minus 0.5.
 - (iii) For situations where it is not appropriate to compare with an equivalent Deemed-to-Satisfy product, the target reliability index β must be as given in Table H1V1b.
- (4) The resistance model for the component must be established by taking into account variability due to material properties, fabrication and construction processes and structural modelling.

| Design Action | Ratio of mean action to nominal | Coefficient of variation of the action |
|--|---------------------------------|--|
| Permanent Action ($\gamma G = 1.35$) | $(\overline{G}/GN) = 1.00$ | <i>VG</i> = 0.10 |
| Imposed Action ($\gamma Q = 1.50$) | $(\overline{Q}/QN) = 0.50$ | VQ = 0.43 |
| Wind Action ($\gamma W = 1.00$) (Non-cyclonic) | $(\overline{W}/WN) = 0.33$ | <i>VW</i> = 0.49 |
| Wind Action $(\gamma W = 1.00)$ (Cyclonic) | $(\overline{W}/WN) = 0.16$ | <i>VW</i> = 0.71 |
| Snow Action ($\gamma S = 1.00$) | $(\overline{S}/SN) = 0.29$ | VS = 0.57 |
| Earthquake Action ($\gamma E = 1.00$) | $(\overline{E}/EN) = 0.05$ | <i>VE</i> = 1.98 |

Table H1V1a: Annual action models

Table H1V1b: Annual target reliability indices (β)

| Type of action | Target reliability index β |
|----------------------------------|----------------------------|
| Permanent action | 4.3 |
| Imposed action | 4.0 |
| Wind, snow and earthquake action | 3.7 |

Table Notes:

- 1. Table H1V1b is applicable for components that exhibit brittle failure similar to concrete as specified in AS 3600.
- 2. For components with creep characteristics similar to timber as specified in AS 1720.1, the target reliability index for permanent action shall be increased to 5.0.
- 3. The above target reliability indices are based on materials or systems that exhibit creep or brittle failure characteristics similar to timber and concrete.
- 4. Table H1V1b may also be applicable to materials or systems that exhibit creep or brittle failure differently to steel, timber or concrete provided that the creep and/or brittle nature of the material or system are properly accounted for in the design model.
- 5. The above target reliability indices are also applicable for materials or systems that exhibit ductile failure characteristics.

H1V2 Structural robustness

[2019: V2.1.2]

- (1) Compliance with H1P1(1)(c) is verified for structural robustness if (2) and (3) are complied with.
- (2) The structure is assessed such that the building remains stable and the resulting collapse does not extend further than the immediately adjacent storeys upon the notional removal in isolation of—

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- (a) any supporting column; or
- (b) any beam supporting one or more columns; or
- (c) any segment of a load bearing wall of length equal to the height of the wall.
- (3) It is demonstrated that if a supporting structural component is relied upon to carry more than 25% of the total structure, a systematic risk assessment of the building is undertaken and critical high risk components are identified and designed to cope with the identified hazard or protective measures chosen to minimise the risk.

Explanatory Information:

H1V2 is a means to verify structural robustness of a building or structure in order to meet the requirements of H1P1(1)(c). For further guidance, refer to the ABCB Handbook for Structural Robustness.

Deemed-to-Satisfy Provisions

H1D1 **Deemed-to-Satisfy Provisions**

- (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements H1P1 and H1P2 are satisfied by complying with H1D2 to H1D11.
- (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

H1D2 Structural provisions

A Class 1 or Class 10 building must be constructed in accordance with-

- (a) Section 2 of the Housing Provisions; or
- (b) the relevant provisions of H1D3 to H1D11 relating to structural elements; or
- (c) any combination thereof.

H1D3 Site preparation

[2019: 3.1.1, 3.1.2, 3.1.4]

- (1) Performance Requirement H1P1 is satisfied for earthworks associated with the construction of a building or structure if they are in accordance with Part 3.2 of the ABCB Housing Provisions, provided that the site is classified as A, S, M, H or E in accordance with 4.2.2 of the ABCB Housing Provisions Part 4.4 and the work is undertaken in normal site conditions.
- (2) Performance Requirement H1P1 is satisfied for an earth retaining structure associated with the construction of a building or structure if it is designed and constructed in accordance with AS 4678.

QLD H1D3(3)

(3) Compliance with Part 3.4 of the ABCB Housing Provisions satisfies *Performance Requirement* H1P1 for termite risk management.

Explanatory Information: "Normal" site conditions

"Normal" site conditions relates to parameters such as-

- the site conditions not being significantly modified by the removal of previous buildings or other structures; and •
- the moisture conditions on site being as a result of seasonal and climatic changes; and
- the site conditions not being subject to unusual moisture conditions caused by drains, dams, channels, ponds or

[New for 2022]

[2019: 3.0.1]

tanks which are to be maintained or removed; and

- large trees have not been recently removed from the *site* in the area where the building is to be constructed; and
- other similar matters.

Further information regarding normal and abnormal site conditions can be found in AS 2870.

Explanatory Information: Earth retaining structures

AS 4678 contains requirements for earth retaining structures between 800 mm and 15 m in height, and does not apply to structures which are founded in exceptional *site* conditions (e.g. landslips), are subjected to sustained cyclic loading or are used for the purposes of water-retaining (e.g. dams and reservoirs).

It should be noted that H1D3(2) is only one way of achieving compliance with H1P1. Other ways of complying include the following:

- (a) The relevant structural design manuals in H1D2.
- (b) The relevant provisions of other Parts of the Housing Provisions relating to earth retaining structures.
- (c) A *Performance Solution* that uses one of the other NCC *Assessment Methods* which verifies that compliance with H1P1 will be achieved.

Explanatory Information: Termite risk management

The intent of these requirements is to provide for a termite management system that deters termites from gaining entry to a building via a concealed route. The installation of a termite management system will not stop termite activity from occurring on the *site*.

H1D4 Footings and slabs

[2019: 3.2.0, 3.2.1]

NSW H1D4(1)

- Performance Requirement H1P1 is satisfied for <u>the design and construction of</u> footings and slabs if they are installed in accordance <u>comply</u> with either (a) or (b):
 - (a) One of the following:
 - (i) The footing or slab is constructed in accordance with AS 2870.
 - (ii) Piled footings are designed in accordance with AS 2159AS 3600.
 - (b) Subject to (2), Section 4 of the ABCB Housing Provisions.
- (2) Section 4 of the ABCB Housing Provisions may only be used where-
 - (a) the footing is on a Class A, S, M, M D, H or H D or M site (classified in accordance with AS 2870) with a uniform bearing capacity; and
 - (b) the slab is not more than 30 m long; and any footing and slab-
 - (i) is not more than 18 m long or wide; and
 - (ii) does not contain permanent joints excluding construction joints in footing slabs; and
 - (iii) is of a geometric shape containing only external right angles; and
 - (c) slabs containing permanent joints (e.g. construction joints) are not used; and any footing and slab in (b) has no more than one re-entrant corner; and
 - (d) the footing and slab are not constructed on soil classified as an aggressive soil type; and
 - (e) the structure supported by the footing does not contain-
 - (i) more than two trafficable floors; or
 - (ii) a wall height exceeding 8 m, excluding any gable; and
 - (f) the footing does not support more than one concrete slab; and
 - (g) the building does not include wing walls or masonry arches not unless they are detailed for movement in accordance with Cement Concrete and Aggregates Australia TN 61; and

- (h) single leaf earth or stone masonry walls do not exceed 3 m in height; and
- (i) the site is considered to be normal as defined in Part 3.2 of the ABCB Housing Standard; and
- (j) the *site* is not located in an <u>alpine area-; and</u>
- (k) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.

Explanatory Information: Composite construction

Design requirements for other materials that may be used in combination with the above footing systems, including the use of heavy steel support beams, and piled footings, etc. are described in H1D2 and in Section 2 of the ABCB Housing Provisions.

Explanatory Information: Split level slabs

For the purposes of H1D4(2)(e) split level slabs are considered as one slab.

Figure H1D4a (explanatory): Split level concrete slab



Explanatory Information: Geometric slab

For the purposes of H1D4(2)(b)(iii) and (c), a slab is considered geometric if it is square or rectangular and contains 4 external right angles as described inexplanatory Figures H1D4b or H1D4c.



H1D5 Masonry

[2019: 3.3.1-3.3.3, 3.3.5-3.3.6]

- (1) Performance Requirement H1P1 is satisfied for unreinforced masonry, reinforced masonry, masonry veneer, masonry accessories and isolated masonry pier systems if they comply_if it is designed and constructed in accordance with—
 - (a) AS 3700; or
 - (b) AS 4773.1 and AS 4773.32; or
 - (c) Section 5 Part 5.2 of the ABCB Housing Provisions- provided—
 - (i) the building is located in an area with a design wind speed of not more than N3; and
 - (ii) masonry veneer walls-
 - (A) are constructed on footings that comply with Part 4.2; and
 - (B) comply with Parts 5.6 and 5.7; and
 - (iii) the building site soil classification is A, S or M; and
 - (iv) the framing that the masonry wall is tied to complies with H1D6; and
 - (v) the building is not constructed in an alpine area; and
 - (vi) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.
- (2) Where AS 3700 is applied to reinforced masonry or isolated masonry piers for the purposes of (1)(a), it must be applied so that —
 - (a) '(for piers isolated or engaged)' is removed from Clause 8.5.1(d); and
 - (b) where Clause 8.5.1 requires design as for unreinforced masonry in accordance with Section 7, the member must also be designed as unreinforced masonry in accordance with Tables 10.3 and 4.1(a)(i)(C) of AS 3700.
- (3) Where Section 5 of the ABCB Housing Provisions is applied for the purposes of (1)(c), it is subject to the following limitations:
 - (a) For masonry veneer
 - (i) the building is located in an area with a design wind speed of not more than N3; and
 - (ii) masonry veneer walls are constructed on footings that comply with H1D4; and
 - (iii) the building site soil classification is A, S or M; and
 - (iv) the framing that the masonry wall is tied to complies with H1D6 and H1D2 as appropriate; and
 - (v) the building is not constructed in an alpine area; and
 - (vi) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.
 - (b) For isolated masonry piers
 - (i) the building is located in an area with a design wind speed of not more than N3; and
 - (ii) isolated piers are constructed on footings that comply with H1D4; and
 - (iii) masonry units comply with Housing Provisions clause 5.2.3(3) and have a minimum compressive strength of ---
 - (A) 6.2 MPa for solid or cored units; or
 - (B) 15 MPa for hollow units; and
 - (iv) the roof structure and any walls provide the required lateral bracing for the top of the isolated pier when determined in accordance with AS 3700, except
 - (A) '(for piers isolated or engaged)' is removed from Clause 8.5.1(d); and
 - (B) where Clause 8.5.1 requires design as for unreinforced masonry in accordance with Section 7, the member must also be designed as unreinforced masonry in accordance with Tables 10.3 and 4.1(a)(i)(C) of AS 3700; and
 - (v) the building site soil classification is either A, S or M; and
 - (vi) the building is not constructed in an alpine area; and

(vii) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.

- (2) <u>Performance RequirementH1P1 is satisfied for cavity brick unreinforced masonry if it is designed and constructed in accordance with one of the following:</u>
 - (a) <u>AS 3700.</u>
 - (b) <u>AS 4773.1 and AS 4773.2.</u>
 - (c) Part 5.3 of the ABCB Housing Provisions provided—
 - (i) the building is located in an area with a design wind speed of not more than N3; and
 - (ii) cavity masonry walls-
 - (A) are constructed on footings and/or slabs that that comply with Part 4.2; and
 - (B) comply with Parts 5.6using components that comply with 5.7; and
 - (iii) the building site soil classification is A, S or M in accordance with AS 2870; and
 - (iv) the building is not constructed in an alpine area; and
 - (v) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.
- (3) <u>Performance RequirementH1P1 is satisfied for single leaf unreinforced masonry if it is designed and constructed in accordance with one of the following:</u>
 - (a) <u>AS 3700.</u>
 - (b) AS 4773.1 and AS 4773.2.
 - (c) Part 5.4 of the ABCB Housing Provisions provided—
 - (i) the building is located in an area with a design wind speed of not more than N3; and
 - (ii) single leaf unreinforced masonry walls—
 - (A) are constructed on footings and/or slabs that that comply with Part 4.2; and
 - (B) comply with Part 5.6using components that comply with Part 5.7; and
 - (iii) the building site soil classification is A, S or M in accordance with AS 2870; and
 - (iv) the building is not constructed in an alpine area; and
 - (v) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.
- (4) <u>Performance RequirementH1P1 is satisfied for reinforced masonry if it is designed and constructed in accordance</u> with one of the following:
 - (a) AS 3700, except-
 - (i) <u>'(for piers—isolated or engaged)' is removed from clause 8.5.1(d); and</u>
 - (ii) where clause 8.5.1 requires design as for unreinforced masonry in accordance with Section 7, the member must also be designed and unreinforced masonry in accordance with Table 10.3 and 4.1(a)(i)(C) of AS 3700.
 - (b) <u>AS 4773.2 and AS 4773.2.</u>
- (5) <u>Performance RequirementH1P1 is satisfied for an isolated masonry pier system if it is designed and constructed in accordance with one of the following, as appropriate:</u>
 - (a) AS 3700, except-
 - (i) <u>((for piers—isolated or engaged)</u> is removed from clause 8.5.1(d); and
 - (ii) where clause 8.5.1 requires design as for unreinforced masonry in accordance with Section 7, the member must also be designed and unreinforced masonry in accordance with Table 10.3 and 4.1(a)(i)(C) of AS 3700.
 - (b) <u>AS 4773.2 and AS 4773.2.</u>
 - (c) Part 5.5 of the ABCB Housing Provisions provided—
 - (i) the building is located in an area with a design wind speed of not more than N3; and
 - (ii) isolated piers are constructed on footings that comply with Part 4.2; and
 - (iii) masonry units comply with 5.2.3(4) and have a minimum compressive strength of-

- (A) 6.2 MPa for solid or cored units; or
- (B) <u>15 MPa for hollow units; and</u>
- (iv) the roof structure and any walls provide the *required* lateral bracing for the top of the isolated pier when determined in accordance with AS 3700, except—
 - (A) <u>'(for piers—isolated or engaged)' is removed from clause 8.5.1(d); and</u>
 - (B) where clause 8.5.1 requires design as for unreinforced masonry in accordance with Section 7, the member must also be designed and unreinforced masonry in accordance with Table 10.3 and 4.1(a)(i)(C) of AS 3700; and
- (v) the building site soil classification is A, S or M; and
- (vi) the building is not constructed in an alpine area; and
- (vii) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.
- (6) <u>Performance RequirementH1P1 is satisfied for masonry accessories if they are constructed and installed in accordance with one of the following:</u>
 - (a) <u>AS 3700.</u>
 - (b) <u>AS 4773.1 and AS 4773.2.</u>
 - (c) Part 5.6 of the ABCB Housing Provisions provided—
 - (i) the building is located in an area with a design wind speed of not more than N3; and
 - (ii) the building is not constructed in an alpine area; and
 - (iii) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements.

Explanatory Information: Composite construction: Design requirements for other materials that may be used in combination with masonry i.e. heavy steel support beams etc. are described in H1D2 and Section 2-of the ABCB Housing Provisions.

<u>+Design requirements for other materials that may be used in combination with masonry i.e. heavy steel support beams</u> etc. are described in H1D2 and Section 2 of the ABCB Housing Provisions.

Explanatory Information: AS 1170.4

There are certain limitations on the application to domestic building structures such as Class 1a and Class 1b buildings in Appendix A of AS 1170.4. These limitations include height, roof slope, etc. For additional information refer to Appendix A of AS 1170.4.

H1D6

Framing

[2019: 3.4.0, 3.4.2-3.4.4]

- (1) Diagrams depicting framing members and associated terminology used to describe them are set out in Figures H1D6a, H1D6b and H1D6c, and in most cases are applicable for both steel and timber frame members.
- (2) Terminology and spacing for structural steel members are set out in Tables H1D6a, H1D6b, H1D6f, and Figures H1D6d and H1D6e.
- (3) Steel member abbreviations are as follows:
 - (a) TFB = tapered flange beam.
 - (b) UB = universal beam.
 - (c) RHS = rectangular hollow section.
 - (d) PFC = parallel flange channel.
 - (e) TFC = tapered flange channel.
 - (f) EA = equal angle
 - (g) UA = unequal angle.
 - (h) SHS = square hollow section.

- (i) CHS = circular hollow section.
- (4<u>3</u>) *Performance Requirement* H1P1 is satisfied for steel framing if it is designed and constructed in accordance with one of the following:
 - (a) Residential and low-rise steel framing:
 - (i) Design: NASH Standard 'Residential and Low-Rise Steel Framing' Part 1.
 - (ii) Design solutions: NASH Standard 'Residential and Low-Rise Steel Framing' Part 2.
 - (b) Steel structures: AS 4100.
 - (c) Cold-formed steel structures: AS/NZS 4600.

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- (54) Performance Requirement H1P1 is satisfied for a timber frame if it is designed and constructed in accordance with the following, as appropriate:
 - (a) Design of timber structures: AS 1720.1.
 - (b) Design of nailplated timber roof trusses: AS 1720.5.
 - (c) Residential timber-framed construction non-cyclonic areas: AS 1684.2.
 - (d) Residential timber-framed construction cyclonic areas: AS 1684.3.
 - (e) Residential timber-framed construction non-cyclonic areas (simplified): AS 1684.4.
 - (f) Installation of particleboard flooring: AS 1860.2.
- (65) Performance Requirement H1P1 is satisfied for structural steel sections if they are designed and constructed in accordance with one of the following:
 - (a) Steel structures: AS 4100.
 - (b) Cold-formed steel structures: AS/NZS 4600.
 - (c) For structural stability, strength and deflection, and subject to (76), Part 6.3 of the ABCB Housing Provisions.
 - (d) For corrosion protection, clause 6.3.4 of Part 6.3 of the ABCB Housing Provisions.
- (76) For the purposes of (65)(c), Part 6.3 of the ABCB Housing Provisions may only be used where-
 - (a) the building is located in an area with a design wind speed of not more than N3; and
 - (b) the first dimension of steel sections is installed vertically; and
 - (c) all loads are uniformly evenly distributed (unless otherwise noted or allowed for); and
 - (d) the building is one for which Appendix A of AS 1170.4 contains no specific earthquake design requirements; and
 - (e) the structural steel member is not subject to snow loads-; and
 - (f) the structural steel members are in buildings within geometric limits set out in AS 4055 clause 1.2.
- (87) The use of structural software is subject to the following:
 - (a) Structural software used in computer aided design of a building or structure, that uses design criteria based on the *Deemed-to-Satisfy Provisions* of Section H, including its referenced documents, for the design of steel or timber trussed roof and floor systems and framed building systems, must comply with the ABCB Protocol for Structural Software.
 - (b) Structural software referred to in (a) can only be used for buildings within the following geometrical limits:
 - (i) The distance from ground level to the underside of eaves must not exceed 6 m.
 - (ii) The distance from ground level to the highest point of the roof, neglecting chimneys, must not exceed 8.5 m.
 - (iii) The building width including roofed verandahs, excluding eaves, must not exceed 16 m.
 - (iv) The building length must not exceed five times the building width.
 - (v) The roof pitch must not exceed 35 degrees.
 - (c) The requirements of (a) do not apply to design software for individual frame members such as electronic tables similar to those provided in—
 - (i) AS 1684; or

(ii) NASH Standard - Residential and Low-Rise Steel Framing, Part 2.

Table H1D6a:Effective member spacingload width
Single spanning rafter or joist

| Design member | Member 1 | Member 2 |
|--------------------------|--------------|-------------------------|
| Effective member spacing | 0.5 x Span 1 | 0.5 x (Span 1 + Span 2) |

Table H1D6b:Effective member spacingload width for structural steel bearers and strutting beams—
Continuous spanning rafter or joist

| Design Member | Member 1 | Member 2 | Member 3 |
|--------------------------|--------------|-------------------------|-------------------------|
| Effective member spacing | 0.4 x Span 1 | 0.6 x (Span 1 + Span 2) | 0.5 x (Span 2) + Span 3 |

Table Notes:

The length of Span 3 must be no greater than 0.5 x Span 2.

Figure H1D6a: Span and spacing terms



Continuous span - members which are continuous over two or more spans







Figure H1D6d: Effective member spacingload width for structural steel bearers and strutting beams— Single spanning rafter or joist



Figure H1D6e:Effective member spacingload width for structural steel bearers and strutting beams—
Continuous spanning rafter or joist



6



For the purposes of H1D6(2)-and (3), design requirements for other materials used in combination with steel or timber framing, including the use of concrete floors, structural steel support beams, etc. are described in the following locations

within the ABCB Housing Provisions:

- Section 2 for structural provisions.
- <u>Part 6.3</u> For structural steel members.

The weight of roof or ceiling insulation, particularly if additional ceiling insulation is used for compliance with the energy efficiency provisions, needs to be considered in the selection of plasterboard, plasterboard fixings and building framing.

For the purposes of H1D6(43) and (54):

- Information on *design wind speeds* for particular areas may be available from the *appropriate authority*.
- A map indicating cyclonic regions of Australia is contained in Part 2.2.
- There are certain limitations on the application to domestic structures such as Class 1a and 1b buildings in Appendix A of AS 1170.4. These limitations include building height, roof slope, etc. For additional information refer to Appendix A of AS 1170.4.

H1D6(67) does not apply where a software package simply eliminates manual calculations and the process of the package requires identical methodology as that undertaken manually, e.g. AS 1684 span tables and bracing calculations.

The application of Part 6.3 of the ABCB Housing Provisions requires all loads to be distributed evenly unless they are noted otherwise or allowed for within the construction and placement of relevant building elements. Part 6.3 of the ABCB Housing Provisions allows for point loads to be applied to strutting beams only if the loads are located within the middle third of the beam's span. In any other case, designs should be carried out in accordance with either H1D6(5)(a) or (b), or by a suitably qualified practitioner.

Explanatory Information: Explanation of first dimension of steel section installed vertically

H1D6(6) provides that Part 6.3 of the ABCB Housing Provisions satisfies *Performance Requirement*H1P1 with respect to structural stability, strength and deflection if the "first dimension" of a steel section is installed vertically.

For example, 150 x 90 x 8UA used as a structural steel member (lintel) to support masonry over an opening.

<u>The "first dimension" designated is 150 mm (b_1) and is the vertical leg that resists bending loads over the width of the opening. This leg must be installed in the vertical plane.</u>

<u>The 90 mm (b₂) designation refers to the horizontal leg that rests under the masonry elements and transfers direct</u> loads to the extremities of the opening while the 8 mm (t) designation refers to the thickness of the steel section.

A 150 x 90 x 8UA is designated as follows:

- <u>150 = leg length (b₁)</u>
- $90 = \text{leg length } (b_2)$
- <u>8 = thickness (t)</u>

These designations are depicted in Explanatory Figure H1D6.

Figure H1D6 (explanatory): Designation of first dimension of steel section installed vertically



H1D7 Roof and wall cladding

[2019: 3.5, 3.5.1-3.5.5]

- (1) Diagrams depicting relevant roofing and supporting members and associated terminology used to describe them are set out in Figure H1D7a and Figure H1D7b.
- (2) *Performance Requirement* H1P1 is satisfied for sheet roofing if it complies with one or a combination of the following:
 - (a) Metal roofing:
 - (i) AS 1562.1; and
 - (ii) in wind regions C and D in accordance with Figure 2.2.3 in Section 2 of the ABCB Housing Provisions (cyclonic areas), metal roof assemblies, their connections and immediate supporting members must be capable of remaining in position notwithstanding any permanent distortion, fracture or damage that might occur in the sheet or fastenings under the pressure sequences A to G defined in Table H1D7.
 - (b) Plastic sheet roofing: AS/NZS 1562.3.
 - (c) Metal sheet roofing: Part 7.2 of the ABCB Housing Provisions, provided the building is located in an area with a *design wind speed* of not more than N3.
- (3) Performance Requirement H1P1 is satisfied for roof cladding if it complies with one or a combination of the following:
 - (a) Roof tiling: AS 2050.
 - (b) Terracotta, fibre-cement and timber slates and shingles: AS 4597.
 - (c) For roof tiles, Part 7.3 of the ABCB Housing Provisions, provided-
 - (i) the building is located in an area with a *design wind speed* of not more than N3; and
 - (ii) the roof tiles comply with AS 2049; and
 - (iii) the roof has a pitch of not less than 15 degrees and not more than 35 degrees; and
 - (iv) the roof tiles are installed in accordance with the provisions of Part 7.3

VIC H1D7(4)

- (4) *Performance Requirement* H1P1 is satisfied for gutters and downpipes if they are designed and constructed in accordance with one of the following:
 - (a) AS/NZS 3500.3.
 - (b) Subject to (5), Part 7.4 of the ABCB Housing Provisions.

VIC H1D7(5)

- (5) Part 7.4 of the ABCB Housing Provisions-
 - (a) may only be used provided the roof drainage systems is connected to a stormwater drainage system that complies with H2D2; and
 - (b) does not apply to the removal of surface water from a storm having an average recurrence interval of 100 years for a Class 10 building where in the particular case there is no necessity for compliance.
 - (i) <u>the removal of *surface water* from a storm having an *annual exceedance probability* of 1% for a Class 10 building where in the particular case there is no necessity for compliance; or</u>
 - (ii) <u>box gutters.</u>
- (6) *Performance Requirement* H1P1 is satisfied for timber and composite wall cladding if it is designed and constructed in accordance with—
 - (a) for autoclaved aerated concrete wall cladding, AS 5146.1; or
 - (b) for wall cladding, Part 7.5 of the ABCB Housing Provisions.
- (7) *Performance Requirement* H1P1 is satisfied for a metal wall cladding if it is designed and constructed in accordance with AS 1562.1.

Table H1D7: Low-High-Low pressure sequence

| Sequence | Number of cycles | Load |
|----------|------------------|--------------|
| A | 4500 | 0 to 0.45 Pt |
| В | 600 | 0 to 0.6 Pt |
| С | 80 | 0 to 0.8 Pt |
| D | 1 | 0 to 1.0 Pt |
| E | 80 | 0 to 0.8 Pt |
| F | 600 | 0 to 0.6 Pt |
| G | 4500 | 0 to 0.45 Pt |

Table Notes:

- 1. Pt is the ultimate limit state wind pressure on internal and external surfaces as determined in accordance with AS/NZS 1170.2, modified by an appropriate factor for variability, as determined in accordance with Table B1 of AS/NZS 1170.0.
- 2. The rate of load cycling must be less than 3 Hz.
- 3. The single load cycle (sequence D) must be held for a maximum of 10 seconds.

Figure H1D7a: Section of a typical sheet roof







Explanatory Information:

The requirements of H1D7(a)(ii) must be read in conjunction with the provisions of AS/NZS 1170.2. The ABCB commissioned research to establish a nationally consistent testing regime for metal roof cladding assemblies in cyclonic areas. The results of this research are contained in H1D7(a)(ii).

Low cycle fatigue cracking of metal roof cladding elements during tropical cyclones is a complex process where small changes in load, geometry or material properties can significantly affect the fatigue performance of the cladding system (includes immediate supports, fixings and cladding). The consequences of failure of an element can quickly lead to more elements progressively failing. These failed elements become wind driven debris and so pose a threat to people

and other structures as potential missiles.

If a system does not successfully resist the fatigue loading sequence in Table H1D7, it does not comply. The test section consists of cladding elements, fastenings and immediate supporting members assembled together in a manner identical to those parts of the particular roof which the test section is intended to replicate.

H1D8

Glazing

[2019: 3.6]

- (1) Performance Requirement H1P1 is satisfied for glazing and windows if designed and constructed in accordance with AS 2047 for the following glazed assemblies in an external wall:
 - (a) Windows excluding those listed in (2).
 - (b) Sliding and swinging glazed doors with a frame, including french and bi fold doors with a frame.
 - (c) Adjustable louvres.
 - (d) Window walls with one piece framing.
- (2) *Performance Requirement* H1P1 is satisfied for glazing if designed and constructed in accordance with AS 1288 for all glazed assemblies not covered by (1) and the following glazed assemblies:
 - (a) All glazed assemblies not in an external wall.
 - (b) Revolving doors.
 - (c) Fixed louvres.
 - (d) Skylights, roof lights and windows in other than the vertical plane.
 - (e) Sliding and swinging doors without a frame.
 - (f) Windows constructed on site and architectural one off window, which are not design tested in accordance with AS 2047.
 - (g) Second-hand windows, re-used windows and recycled windows.
 - (h) heritage windows.
 - (i) Glazing used in balustrades and sloping overhead glazing.
- (3) Compliance with Section 8 of the ABCB Housing Provisions satisfies Performance Requirement H1P1 for glazing only, provided—
 - (a) the building is located in an area with a design wind speed of not more than N3; and
 - (b) glass is of a type recognised by AS 1288; and
 - (c) safety glazing is legibly marked in accordance with AS 1288; and
 - (d) glazing used in barriers complies with AS 1288; and
 - (e) safety glazing is made visible in accordance with Housing Provisions clause 8.3.7; and
 - (f) the glazing is not for the following assemblies in an external wall:
 - (i) Windows excluding those listed in (g).
 - (ii) Sliding and swinging doors with a frame, including French and bi fold doors with a frame.
 - (iii) Adjustable louvres.
 - (iv) Window walls with one piece framing; and
 - (g) the glazing is for all assemblies not covered by (f) and the following glazed assemblies:
 - (i) All glazed assemblies not in an external wall.
 - (ii) Revolving doors.
 - (iii) Fixed louvres.
 - (iv) Skylights, roof lights and windows in other than the vertical plane.
 - (v) Sliding and swinging doors without a frame.
 - (vi) Windows constructed on site and architectural one off windows, which are not design tested in accordance

- (vii) Second hand windows, re-used windows and recycled windows.
- (viii) Heritage windows.
- (1) The requirements of (2) and (3) apply to the following:
 - (a) <u>Windows</u>, excluding—
 - (i) skylights, rooflights and windows not in the vertical plane; and
 - (ii) glass panels, glass blocks or glass bricks; and
 - (iii) fixed louvres or glazed sashes; and
 - (iv) <u>windows constructed on site and architectural one-off windows that are not design tested in accordance</u> with AS 2047; and
 - (v) second-hand, recycled or reused windows; and
 - (vi) heritage windows; and
 - (vii) windows in greenhouses or other horticultural buildings; and
 - (viii) other devices which transmit natural light directly from outside a building.
 - (b) <u>Sliding or swinging glazed doors with a frame, including bi-fold and french doors with a frame.</u>
 - (c) Adjustable louvres.
 - (d) <u>Window walls with one piece framing.</u>
 - (e) For (3), glazed assemblies not in external walls.
- (2) Performance RequirementH1P1 is satisfied for glazed assemblies in an external wall if they are-
 - (a) designed and manufactured in accordance with AS 2047; or
 - (b) installed such that they-
 - (i) comply with Part 8.2 of the ABCB Housing Provisions; and
 - (ii) are in buildings with geometric limits set out in AS 4055 clause 1.2; and
 - (iii) are located in an area with a design wind speed of not more than N3.
- (3) Performance RequirementH1P1 is satisfied for glazing in glazed assemblies if it is-
 - (a) designed and constructed in accordance with AS 1288; or
 - (b) complies with Part 8.3 of the ABCB Housing Provisions.
- (4) Performance RequirementH1P1(4) for glazed assemblies at risk of human impact if they-
 - (a) are designed, constructed and installed in accordance with-
 - (i) for glass, AS 1288; and
 - (ii) for windows, AS 2047; or
 - (b) comply with Part 8.4 of the ABCB Housing Provisions.

Explanatory Information:

The reference to heritage windows in H1D8(2)(h) and (3)(g)(viii) is intended to apply to windows in heritage buildings. The method of determining a heritage building is normally covered by the relevant State or Territory authority. Information on *design wind speed* for particular areas (see H1D8(3)(a)) may be available from the *appropriate authority*.

For glazing in high wind areas refer to H1D2.

Explanatory Information: AS 2047

- 1. <u>AS 2047 specifies requirements for the design, testing and manufacture of windows. The reference to windows in</u> <u>AS 2047 includes certain types of louvres and glazed doors that may be sliding, swinging, french or bi-fold doors.</u>
- AS 2047 does not cover assemblies that are internal or revolving doors, fixed louvres, skylights, rooflights and windows not installed in the vertical plane, windows in greenhouses or horticultural buildings, frameless sliding or swinging doors, windows constructed on site, one-off untested architectural designed windows, second-hand,

recycled or reused windows and heritage windows defined by relevant State and Territory authorities.

 The assemblies referred to in Note 2, if installed in buildings, will be required to demonstrate compliance with relevant Performance Requirements. The Performance Solution used must be assessed using one or a combination of the Assessment Methods in A2G2.

Explanatory Information: <u>AS 1288</u>

In relation to building work covered by NCC Volume Two and the ABCB Housing Provisions, AS 1288 does not cover the selection and installation of glass for *windows* and doors in heritage buildings, restoration or repairs to leadlights, glass blocks, bricks or pavers.

Explanatory Information: AS 4055

Clause 1.2 of AS 4055 sets out geometric limitations that include the following:

- (a) <u>The distance from the ground level adjacent the building to the underside of eaves is not to exceed 6.0 m.</u>
- (b) <u>The distance from the ground level of the building to the highest point of the roof, excluding chimneys is not to</u> <u>exceed 8.5 m.</u>
- (c) The width of the building, including verandas, but excluding eaves, is not to exceed 16.0 m.
- (d) <u>The length of the building is not to exceed five times its width.</u>
- (e) The roof pitch is not to exceed 35°.

H1D9 Earthquake areas

[2019: 3.10.2]

Performance Requirement H1P1 for Class 1 and 10 buildings constructed in areas subject to seismic activity is satisfied if the building is constructed in accordance with Section 2 of the ABCB Housing Provisions.

Explanatory Information:

- 1. Most domestic structures are not required to be specifically designed for earthquakes.
- 2. There are certain limitations on the application to domestic structures such as Class 1a and 1b buildings in Appendix A of AS 1170.4. These limitations include building height, roof slope, etc. For additional information refer to Appendix A of AS 1170.4.

QLD H1D10

VIC H1D10

H1D10 Flood hazard areas

[2019: 3.10.3]

Performance Requirement H1P2 for Class 1 buildings constructed in a *flood hazard area* is satisfied if the building is constructed in accordance with the ABCB Standard for Construction of Buildings in Flood Hazard Areas.

H1D11 Attachment of <u>framed</u> decks and balconies to external walls of buildings_ using a waling plate

[2019: 3.10.6.1]

Compliance with of the ABCB Housing Provisions satisfies *Performance Requirement* H1P1 for the attachment of a deck or balcony to an *external wall* provided—

- (a) the deck or balcony is not located in an alpine area; and
- (b) the height of the deck or balcony is not more than 3 m measured from the uppermost finished floor surface of

the deck or balcony at any point to the top of any supporting footing; and

- (c) the waling plate does not support—
 - (i) more than one floor; or
 - (ii) loadbearing or non-loadbearing walls; or
 - (iii) roof loads; and
- (d) the deck or balcony does not cantilever off the external wall; and
- (e) the total imposed load on the deck or balcony does not exceed 2 kPa; and
- (f) the deck or balcony framing including member sizes, spans and spacing, bracing for racking and shear forces, fixings and structural supports complies with H1D2; and
- (g) the deck or balcony framing is constructed of-
 - (i) steel framing in accordance with H1D6(2); or
 - (ii) timber framing in accordance with H1D6(3); and
- (h) steel framing in accordance with H1D6(2); and
- (i) <u>timber framing in accordance with H1D6(3); and</u>
- (j) the external wall supporting the deck or balcony is constructed of-
 - (i) 190 mm thick fully core-filled concrete masonry, reinforced with vertical N12 bars at not more than 600 mm centres; or
 - (ii) steel framing complying with H1D6(2); or
 - (iii) timber framing complying with H1D6(3); and
- (k) the external wall referred to in (i)(i) must be continuous from the upper most surface of the deck or balcony to the supporting footing and contain no openings or lintels below the deck or balcony; and
- the waling plate is fixed to the external wall in accordance with Housing Provisions clause 12.3.2 and attached by—
 - (i) fixing the waling plate through wall cladding complying with H1D7(6) or H1D7(7), provided the cladding is directly fixed to the *external wall*; or
 - (ii) removing parts of the wall cladding so that the waling plate is directly fixed to the external wall, with-
 - (A) the junction of the waling plate and the *external wall* flashed in accordance with Housing Provisions clause 12.3.3; and
 - (B) the cladding restored to its original strength by installing blocking supports as necessary on completion of installation; and
- (m) the deck or balcony is braced to prevent longitudinal lateral movement in accordance with Housing Provisions clause 12.3.4.

Explanatory Information:

A 2 kPa imposed load is commensurate with domestic and residential activities associated with Class 1 buildings (e.g. dwellings with limited occupancy and restricted public access) and is not appropriate for applications where the deck or balcony supports heavy equipment, spa/bathing pools or circumstances where the deck or balcony is intended for community access (e.g. applications with a mid-high occupancy and possibility of public access).

If the design live load of the deck or balcony is more than 2 kPa, the framing members of the deck or balcony must be designed by a *professional engineer* or other *appropriately qualified person* in accordance with the relevant structural design manuals in Part 2.2 of the ABCB Housing Provisions.

H1D11(<u>kj</u>)(ii) requires consideration to be given to restoring cladding, weatherproofing and structural properties. Other considerations include restoring the appropriate sound and thermal insulation, and the capacity to maintain an FRL where *required*.

H1D11 describes the circumstances under which the methods of attachment described in this Part are deemed appropriate.

Where a deck or balcony is constructed outside the conditions listed in H1D11, e.g. attachment to a masonry veneer wall, the method of attachment to the building or structure must be designed by a *professional engineer* or other *appropriately qualified person* in accordance with the relevant structural design manuals in Part 2.2 of the ABCB Housing

Provisions. Such a design will need to consider the suitability of the wall to withstand the loads imposed by the deck or balcony, and the capacity of the connections.

Examples of *external wall* construction that are outside the application of H1D11 include a masonry *external wall* that is not fully core-filled, cavity brick and masonry veneer construction where fasteners may be subject to withdrawal.

An alternative to attaching a deck or balcony directly to an *external wall* includes providing supporting piers, posts or columns or the like parallel to the wall line or at right angles to the wall.

Part H2 Damp and weatherproofing

Introduction to this Part

This Part focusses on reducing the risk of illness or injury as a result of the effects of moisture on a building, including surface water, weather and waste water discharge. It also includes requirements to prevent waste water discharge from damaging other property adjoining the site.

| Objec | ctives | |
|---------------------|---|------------------|
| | | |
| H2O1 | Objective | |
| | | [2019: 02.2] |
| The Ob | pjective is to- | |
| (a) | safeguard occupants from illness or injury and protect the building from damage caused by— | |
| | (i) <i>surface water</i> ; and | |
| | (ii) external moisture entering a building; and | |
| | (iii) the accumulation of internal moisture in a building; and | |
| | (iv) discharge of <i>swimming pool</i> waste water; and | |
| (b) | protect other property from damage caused by— | |
| | (i) redirected <i>surface water</i> ; and | |
| | (ii) the discharge of <i>swimming pool</i> waste water. | |
| | | |
| Funct | tional Statements | |
| | | |
| H2F1 | Surface water | |
| | | [2019: F2.2.1] |
| A buildi the adv | ing including any associated <i>sitework</i> is to be constructed in a way that protects people and <i>othe</i> verse effects of redirected <i>surface water</i> . | er property from |

H2F2 Weatherproofing and dampness

[2019: F2.2.2]

A building is to be constructed to provide resistance to moisture from the outside and moisture rising from the ground.

Limitations:

H2F2 does not apply to a Class 10 building except where its construction contributes to the weatherproofing of the Class 1 building.

H2F3 Drainage from swimming pools

[2019: F2.2.3]

Adequate means for the disposal of *swimming pool* water and drainage is to be provided to a *swimming pool*.

Performance Requirements

H2P1 Rainwater management

[2019: P2.2.1]

- (1) Surface water, resulting from a storm having an<u>annual exceedance probability of 5%</u>-average recurrence interval of 20 years and which is collected or concentrated by a building or *sitework*, must be disposed of in a way that avoids the likelihood of damage or nuisance to any *other property*.
- (2) Surface water, resulting from a storm having an <u>annual exceedance probability of 1%</u> average recurrence interval of 100 years must not enter the building.
- (3) A drainage system for the disposal of *surface water* resulting from a storm having an <u>annual exceedance</u> <u>probability</u> average recurrence interval of—
 - (a) 20 years <u>5%</u> must—
 - (i) convey surface water to an appropriate outfall; and
 - (ii) avoid surface water damaging the building; and
 - (b) 100 years 1% must avoid the entry of *surface water* into a building.

Limitations:

H2P1(2) does not apply to a Class 10 building except where its construction contributes to the weatherproofing of the Class 1 building.

H2P2 Weatherproofing

[2019: P2.2.2]

A roof and *external wall* (including openings around *windows* and doors) must prevent the penetration of water that could cause—

- (a) unhealthy or dangerous conditions, or loss of amenity for occupants; and
- (b) undue dampness or deterioration of building elements.

Limitations:

H2P2(a) does not apply to a Class 10 building except where its construction contributes to the weatherproofing of the Class 1 building.

NSW H2P3

SA H2P3

H2P3 Rising damp

[2019: P2.2.3]

Moisture from the ground must be prevented from causing-

- (a) unhealthy or dangerous conditions, or loss of amenity for occupants; and
- (b) undue dampness or deterioration of building elements.

Limitations:

H2P3 does not apply to a Class 10 building where in the particular case there is no necessity for compliance.

NT H2P4

H2P4 Drainage from swimming pools

A swimming pool must have adequate means of draining the pool in a manner which will not-

- (a) cause illness to people; or
- (b) affect other property.

Notes:

The NCC Volume Two and the ABCB Housing Provisions do not contain any *Deemed-to-Satisfy Provisions* for this *Performance Requirement*.

Verification Methods

H2V1 Weatherproofing

- (1) Compliance with H2P2 for weatherproofing of an external wall is verified when-
 - (a) a prototype passes the procedure described in (2); and
 - (b) the external wall-
 - (i) has a risk score of 20 or less, when the sum of all risk factor scores are determined in accordance with Table H2V1a; and
 - (ii) is not subjected to an ultimate limit state wind pressure of more than 2.5 kPa; and
 - (iii) includes only windows that comply with AS 2047.
- (2) The test procedure referred to in (1)(a) must be as follows:
 - (a) The test specimen is in accordance with the requirements of (3).
 - (b) The test procedure is in accordance with the requirements of (4) and (5) as appropriate.
 - (c) The test specimen does not fail the criteria in (6).
 - (d) The test is recorded in accordance with the requirements of (7).
- (3) Test specimen: The test specimen must incorporate—
 - (a) representative samples of openings and joints, including-
 - (i) vertical and horizontal control joints; and
 - (ii) wall junctions; and
 - (iii) windows or doors; and
 - (iv) electrical boxes; and
 - (v) balcony drainage and parapet flashings; and
 - (vi) footer and header termination systems; and
 - (b) for a *cavity wall*
 - (i) a transparent material for a proportion of the internal wall lining (to provide an unobstructed view of the *external wall* cladding) with sufficient structural capability and similar air tightness to resist the applied wind pressures; and
 - (ii) a 15 mm diameter hole in the internal wall lining below a *window*.
- (4) Test procedure for a *direct fix cladding wall* or *unique wall*:
 - (a) Apply 100% positive and negative serviceability wind pressures to the external face of the test specimen for a period of not less than 1 minute each.

[2019: V2.2.1]

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- (b) Apply static pressure of either 300 Pa or 30% serviceability wind pressure, whichever is higher, in accordance with the water penetration test procedure at clause 8.5.2 of AS/NZS 4284.
- (c) Apply cyclic pressure in accordance with—
 - (i) the three stages of Table H2V1b; and
 - (ii) the water penetration test procedure at clause 8.6.2 of AS/NZS 4284.
- (5) Test procedure for a *cavity wall*:
 - (a) Apply 100% positive and negative serviceability wind pressures to the external face of the test specimen for a period of not less than 1 minute each.
 - (b) Apply static pressure of either 300 Pa or 30% serviceability wind pressure, whichever is higher, in accordance with the water penetration test procedure at clause 8.5.2 of AS/NZS 4284.
 - (c) Apply cyclic pressure in accordance with-
 - (i) stage 3 of Table H2V1b; and
 - (ii) the water penetration test procedure at clause 8.6.2 of AS/NZS 4284.
 - (d) To simulate the failure of the primary weather-defence or sealing, the following procedure must be applied to the test specimen:
 - (i) Insert 6 mm diameter holes through the external face of the *cavity wall* in all places specified below:
 - (A) Wall/window or wall/door junctions at ³/₄ height.
 - (B) Immediately above the head flashing.
 - (C) Through external sealing of the horizontal and vertical joints.
 - (D) Above any other penetration detail not covered by (A) to (C).
 - (ii) Repeat the static and cyclic pressure tests of (b) and (c).
 - (iii) Within 30 minutes of the completion of (ii), remove the internal lining of the *cavity wall* and check for compliance with (6).
 - (iv) With the internal lining removed, apply a final static pressure test at 50 Pa for a period of 15 minutes.
- (6) Compliance:
 - (a) A *direct fix cladding wall* and *unique wall* are verified for compliance with H2P2 if there is no presence of water on the inside surface of the facade.
 - (b) A *cavity wall* is verified for compliance with H2P2 if there is no presence of water on the removed surface of the cavity, except that during the simulation of the failure of the primary weather-defence or sealing, water may—
 - (i) transfer to the removed surface of the cavity due to the introduced defects (6 mm holes); and
 - (ii) contact, but not pool on, battens and other cavity surfaces.
- (7) Test report The test report must include the following information:
 - (a) Name and address of the person supervising the test.
 - (b) Test report number.
 - (c) Date of the test.
 - (d) Cladding manufacturer's name and address.
 - (e) Construction details of the test specimen, including a description, and drawings and details of the components, showing modifications, if any.
 - (f) Test sequence with the pressures used in all tests.
 - (g) For each of the static and cyclic pressure tests, full details of all leakages, including position, extent and timing.

Table H2V1a: Risk factors and scores

| Risk factor | Category | Risk severity | Score |
|-------------|--------------------------|---------------|-------|
| Wind region | Region A (AS/NZS 1170.2) | Low to medium | 0 |
| | Region B (AS/NZS 1170.2) | | |

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| Risk factor | Category | Risk severitv | Score |
|--|---|---------------|-------|
| | Region C (AS/NZS 1170.2) | High | 1 |
| | Region D (AS/NZS 1170.2) | Verv high | 2 |
| Number of storevs | One storev | Low | 0 |
| ······································ | Two storevs in part | Medium | 1 |
| | Two storeys | High | 2 |
| | More than two storevs | Verv high | 4 |
| Roof/wall junctions | Roof-to-wall junctions fully protected | Low | 0 |
| | Roof-to-wall junctions | Medium | 1 |
| | Roof-to-wall junctions fully exposed | High | 3 |
| | Roof elements finishing within the boundaries formed by the <i>external walls</i> | Very high | 5 |
| Eaves width | Greater than 600 mm for single storey | Low | 0 |
| | 451-600 mm for single storey | Medium | 1 |
| | Greater than 600 mm for two storey | | |
| | 101-450 mm for single storey | High | 2 |
| | 451-600 mm for two storey | | |
| | Greater than 600 mm for above two storey | | |
| | 0-100 mm for single storey | Very high | 5 |
| | 0-450 mm for two storey | | |
| | Less than 600 mm for above two storey | | |
| Envelope complexity | Simple shape with single cladding type | Low | 0 |
| | Complex shape with no more than two cladding types | Medium | 1 |
| | Complex shape with more than two cladding types | High | 3 |
| | As for high risk but with fully exposed roof-to-wall junctions | Very high | 6 |
| Decks, porches and | None | Low | 0 |
| balconies | Timber slat deck or porch at ground level | | |
| | Fully covered in plan view by roof | Medium | 2 |
| | Timber slat deck attached at first or second floor level | | |
| | Balcony exposed in plan view at first floor level | High | 4 |

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| Risk factor | Category | Risk severity | Score |
|-------------|---|---------------|-------|
| | Balcony cantilevered at first floor level | | |
| | Balcony exposed in plan view at second floor level or above | Very high | 6 |
| | Balcony cantilevered at second floor level or above | | |

Table Notes:

- 1. Eaves width is measured horizontally from the external face of any wall cladding to the outer edge of any overhang, including fascia and external gutters.
- 2. Barriers to prevent falling and parapets are considered as 0 mm eaves.

Table H2V1b: Serviceability wind pressure

| Stage number | Serviceability wind pressure |
|--------------|------------------------------|
| 1 | 15% to 30% |
| 2 | 20% to 40% |
| 3 | 30% to 60% |

Explanatory Information:

H2V1 contains the same test procedures, compliance criteria and reporting of test results that are contained in F1V1, in NCC Volume One. Consequently to the Guide to NCC Volume One contains detailed and supportive explanatory information that is also relevant to H2V1.

Deemed-to-Satisfy Provisions

H2D1 Deemed-to-Satisfy Provisions

[New for 2022]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H2P1 to H2P3 are satisfied by complying with H2D2 to H2D8.
- (2) *Performance Requirement* H2P4 must be complied with.
- (3) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

Notes:

There are no Deemed-to-Satisfy Provisions for H2P4.

H2D2 Drainage

[2019: 3.1.3.1]

Performance Requirement H2P1 is satisfied for drainage if it is designed and constructed in accordance with --

- (a) AS/NZS 3500.3; or
- (b) provided the stormwater drainage system otherwise complies with (a), Part 3.3 of the ABCB Housing Provisions for drainage of—
 - (i) roofs in areas subject to 5 minute duration rainfall intensities of not more than 255 mm per hour over an

<u>annual exceedance probability of 5%</u> average recurrence interval of 20 years (as per Housing Provisions Table 7.4.3d to Table 7.4.3k Table 7.3.2) where a drainage system is *required*; and

- (ii) sub-soil areas where excessive soil moisture problems may occur; and
- (iii) land adjoining and under buildings.

Explanatory Information:

- 1. The NCC does not require the installation of drainage systems. Accordingly these requirements need only be applied when these systems are used.
- 2. Information on the need for drainage systems may be obtained from the *appropriate authority*.
- 3. The legal discharge point from a building *site* is generally determined by local government authorities.

H2D3 Footings and slabs

[2019: 3.2.0]

[2019: 3.3.4]

Performance Requirement H2P3 is satisfied for footings and slabs if they are installed in accordance with H1D4(1)(a) or (b).

H2D4 Masonry

- (1) H2D4(2)—
 - (a) applies to every *external wall* (including the junction between the wall and any window or door) of a Class 1 building; and
 - (b) does not apply to any Class 10 building except where its construction contributes to the weatherproofing of the Class 1 building.
- (2) <u>Performance RequirementsH2P2 and H2P3 are satisfied for masonry veneer if it is designed and constructed in accordance with H1D5(1).</u>
- (3) <u>Performance RequirementsH2P2 and H2P3 are satisfied for cavity brick unreinforced masonry if it is designed and constructed in accordance with</u>

SA H2D4(24)

- (24) Performance Requirements H2P2 and H2P3 are satisfied for weatherproofing of masonry and masonry veneer must beif it is carried out in accordance with the appropriate provisions of one of the following:
 - (a) AS 3700.
 - (b) AS 4773.1 and AS 4773.2.
 - (c) Part 5.7 of the ABCB Housing Provisions provided masonry walls are constructed in accordance with H1D5 and the requirements of Part 5.7.

SA H2D4(35)

SA H2D4(4)

H2D5 Subfloor ventilation

[2019: 3.4.1]

Performance Requirement H2P3 is satisfied for subfloor ventilation if it is in accordance with Part 6.2 of the ABCB Housing Provisions.

Explanatory Information:

Part 6.2 applies to the subfloor space of all suspended floors of a building or deck, including but not limited to, timber and steel-framed subfloors and suspended concrete slabs.

H2D6 Roof and wall cladding

[2019: 3.5.1-3.5.2, 3.5.4-3.5.5]

Performance Requirements H2P1 and H2P2 are satisfied for damp and weatherproofing for roof and wall cladding if it is in accordance with H1D7(1), (2), (3), (5) or (6), as appropriate.

H2D7 Glazing

[2019: 3.6]

Performance Requirement H2P2 is satisfied for weatherproofing for glazing if it is in accordance with <u>H1D8(1)H1D8(2)</u> only.

Explanatory Information:

When satisfying Performance Requirement H2P2, <u>H1D8(1)</u>H1D8(2) only references AS 2047 for *windows*. If AS 1288 is used for glazing in an *external wall*, it is still necessary to satisfy H2P2.

H2D8 External waterproofing

[New for 2022]

<u>Performance RequirementH2P2 is satisfied for the external waterproofing of a roofing system on flat roofs, roof terraces, balconies and terraces and other similar horizontal surfaces located above internal spaces of a building provided—</u>

- (a) membranes used in the external waterproofing system comply with AS 4654.1; and
- (b) the design and installation of the external waterproofing system is in accordance with AS 4654.2.

Explanatory Information:

The design of occupiable roof-top spaces, decks, balconies, particularly where located over internal spaces of a building, can be susceptible to potential for water ingress into a building and causing damage. Therefore, careful consideration should be given to the design, construction and the materials used to minimise the potential for water ingress to spaces below.

H2D8 prescribes external *waterproofing* requirements for buildings, and references AS 4654 Parts 1 and 2 that provide solutions for liquid and/or sheet membrane roofing systems on flat roofs, roof terraces, balconies and terraces located over habitable rooms. The term flat roof is commonly used to describe a near flat roof with enough pitch to provide drainage for rainwater.

AS 4654.1 sets out the requirements for materials forming part of a waterproofing system and AS 4654.2 sets out design and construction/installation requirements.

<u>A Performance Solutionin accordance with A2G2 would need to be provided for other types of externalwaterproofing</u> materials and designs.

Public Comment Draft Class 1 and 10 buildings

Part H3 Fire safety

Introduction to this Part

This Part is intended to minimise the risk of illness, injury or loss of life occurring due to fire. Its requirements cover fire protection for fire separation in Class 1 and 10 buildings (including garage-top dwellings), smoke alarms and requirements for evacuation lighting in Class 1b buildings.

| Objectives | | |
|---|--|---|
| | | |
| H3O1 | Objective | |
| | | [2019: 02.3] |
| | ia ta | |
| The Objective | IS TO- | |
| (a) safegi evacu | uard the occupants from illness or injury k late; and | y alerting them of a fire in the building so that they may safely |
| (b) avoid | the spread of fire. | |
| | | |
| Functional Statements | | |
| | | |
| H3F1 | Protection from the spread | of fire |
| | • | [2019: F2.3.1] |
| A Class 1 building is to be protected from the spread of fire | | |
| A class i building is to be protected norm the spread of me. | | |
| | | |
| H3F2 | Fire detection and early war | ning |
| | | [2019: F2.3.2] |
| A Class 1 building is to be provided with sefectuards so that accurants are warned of a fire in the building so that they | | |
| may safely evacuate. | | |
| | | |
| Performan | ce Requirements | |

.....

H3P1 Spread of fire

[2019: P2.3.1]

SA H3P1(1)

- (1) A Class 1 building must be protected from the spread of fire such that the probability of a building not being able to withstand the design heat flux of 92.6 kW/m² for a period of 60 minutes shall not exceed 0.01, when located within 900 mm from the allotment boundary or within 1.8 m from another building on the same allotment from—
 - (a) another building other than an associated Class 10 building; and
 - (b) the allotment boundary, other than a boundary adjoining a road or public space (see Figure H3P1).
- (2) A Class 10a building must not significantly increase the risk of fire spread between Class 2 to 9 buildings.




Figure Notes:

This diagram indicates areas of potential fire spread. This situation will differ for corner allotments, etc.

H3P2 Automatic warning for occupants

[2019: P2.3.2]

In a Class 1 building, occupants must be provided with *automatic* warning on the detection of smoke so that they may evacuate in the event of a fire to a place of safety with an *efficacy* greater than 0.95 and a *reliability* greater than 0.95, appropriate to the—.

- (a) <u>function and use of the building; and</u>
- (b) occupant characteristics; and
- (c) fire load and combustion characteristics; and
- (d) potential fire intensity; and
- (e) fire hazard.

Verification Methods

H3V1 Avoidance of spread of fire [H3P1(1)(a)]

[2019: V2.3.1.1]

Compliance with H3P1(1)(a) to avoid the spread of fire between buildings on the same allotment is verified when-

- (a) the *external walls* and any openings in the *external walls* of a building, less than 1.8 m from another building, are capable of withstanding 92.6 kW/m² of heat flux for 60 minutes; and
- (b) the *external walls* extend to the underside of a *non-combustible* roof covering or *non-combustible* eaves lining in accordance with clause 9.2.3 of the ABCB Housing Provisions.

H3V2 Avoidance of spread of fire [H3P1(1)(b)]

[2019: V2.3.1.2]

Compliance with H3P1(1)(b) to avoid the spread of fire from an allotment boundary is verified when-

- (a) the *external walls* and any openings in the *external walls* of a building, less than 0.9 m from an allotment boundary, are capable of withstanding 92.6 kW/m² of heat flux for 60 minutes; and
- (b) the *external walls* extend to the underside of a *non-combustible* roof covering or *non-combustible* eaves lining in accordance with clause 9.2.3 of the ABCB Housing Provisions.

H3V3 Avoidance of spread of fire [H3P1(2)] (adjoining allotment)

[2019: V2.3.1.3]

Compliance with H3P1(2) to avoid the spread of fire between buildings on adjoining allotments is verified when it is calculated that—

- (a) a building will not cause heat flux in excess of those set out in column 2 of Table H3V3 at locations within the boundaries of an adjoining property set out in column 1 of Table H3V3 where another building may be constructed; and
- (b) when located at the distances from the allotment boundary set out in column 1 of Table H3V3, a building is capable of withstanding the heat flux set out in column 2 of Table H3V3 without ignition.

Table H3V3: Heat flux (adjoining allotment)

| Column 1 (Location) | Column 2 (Heat flux [kW/m²]) |
|---------------------|------------------------------|
| On boundary | 80 |
| 1 m from boundary | 40 |
| 3 m from boundary | 20 |
| 6 m from boundary | 10 |

Explanatory Information:

H3V3 is equivalent to C1V1 in NCC Volume One. Guidance on the use of C1V1 can be found in the Guide to NCC Volume One, and is applicable to the use of H3V3.

H3V4 Avoidance of spread of fire [H3P1(2)] (same allotment)

[2019: V2.3.1.4]

Compliance with H3P1(2) to avoid the spread of fire between buildings on the same allotment is verified when it is calculated that a building—

- (a) is capable of withstanding the heat flux set out in column 2 of Table H3V4 without ignition; and
- (b) will not cause heat flux in excess of those set out in column 2 of Table H3V4, when the distance between the buildings is as set out in column 1 of Table H3V4.

Table H3V4: Heat flux (same allotment)

| Column 1 (Location) | Column 2 (Heat flux [kW/m²]) |
|---------------------|------------------------------|
| 0 m | 80 |
| 2 m | 40 |
| 6 m | 20 |
| 12 m | 10 |

H3V4 is equivalent to C1V2 in NCC Volume One. Guidance on the use of C1V2 can be found in the Guide to NCC Volume One, and is applicable to the use of H3V4.

Deemed-to-Satisfy Provisions

H3D1 Deemed-to-Satisfy Provisions

[New for 2022]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H3P1 and H2P2 are satisfied by complying with H3D2 and H3D3.
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

H3D2 Fire hazard properties, protection and separation

[2019: 3.7.1-3.7.4]

- (1) The following materials, though *combustible* or containing *combustible* fibres, may be used wherever a *non-combustible* material is required in the Provisions:
 - (a) Plasterboard.
 - (b) Perforated gypsum lath with a normal paper finish.
 - (c) Fibrous-plaster sheet.
 - (d) Fibre-reinforced cement sheeting.
 - (e) Pre-finished metal sheeting having a *combustible* surface finish not exceeding 1 mm thick and where the *Spread-of-Flame Index* of the product is not more than 0.
 - (f) Sarking-type materials that do not exceed 1 mm in thickness and have a flammability Index not greater than 5.
 - (g) Bonded laminated materials where-
 - (i) each lamina, including any core, is non-combustible; and
 - (ii) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and
 - (iii) the *Spread-of-Flame Index* and the *Smoke-Developed Index* of the bonded laminated material as a whole do not exceed 0 and 3 respectively.
- (2) The fire hazard properties of materials used in a Class 1 building, including floor or ceiling spaces common with a Class 10 building, must comply with the following:
 - (a) Sarking-type materials used in the roof must have a flammability Index not greater than 5.
 - (b) Flexible ductwork used for the transfer of products initiating from a heat source that contains a flame must comply with the fire hazard properties set out in AS 4254.1.
- (3) Compliance with Part 9.2 of the ABCB Housing Provisions satisfies *Performance Requirement* H3P1 for fire separation.
- (4) Compliance with Part 9.3 of the ABCB Housing Provisions satisfies *Performance Requirement* H3P1 for fire protection of separating walls and floors.
- (5) Compliance with Part 9.4 of the ABCB Housing Provisions satisfies *Performance Requirement* H3P1 for fire separation of garage-top dwellings.

H3D3 Smoke alarms and evacuation lighting

[2019: 3.7.5]

- (1) Compliance with Part 9.5 of the ABCB Housing Provisions satisfies *Performance Requirement* H3P2 for smoke alarms and evacuation lighting.
- (2) For the purposes of (1), a Class 1 building includes a Class 10a private garage located above or below the Class 1 building.

Explanatory Information: Smoke alarms general requirements

Performance Requirement H3P2 and the *Deemed-to-Satisfy Provisions* of Part 9.5 of the ABCB Housing Provisions require automatic warning on the detection of smoke in buildings, so that occupants may be alerted to a fire in order to evacuate to a place of safety.

Explanatory Information: Different smoke alarm requirements for Class 1a and Class 1b buildings

Part 9.5 of the ABCB Housing Provisions specifies different smoke alarm requirements for Class 1a and Class 1b buildings. The main difference is that a Class 1b building is *required* to have a greater number of smoke alarms, i.e. smoke alarms must be installed in all bedrooms, and a system of lighting must be installed to assist evacuation. This is due to Class 1b buildings generally being used for more transient purposes and the occupants being less familiar with the building layout.

Explanatory Information: Smoke alarms complying with AS 3786

Clause 9.5.1(b) of the ABCB Housing Provisions requires a smoke alarm(s) to comply with AS 3786. AS 3786 contains the requirements for the design and performance of electrically operated smoke alarms containing both detection and alarm facilities. Types of smoke alarms prescribed in AS 3786 include photoelectric, ionisation or a combination of the two.

Explanatory Information: Smoke alarms to be connected to consumer mains source

Clause 9.5.1(c) of the ABCB Housing Provisions requires that a smoke alarm be connected to the consumer mains electricity source where a consumer mains source is supplied to the building. A smoke alarm complying with AS 3786, that is intended for connection to an external power source, is *required* to be provided with a secondary power source i.e. a source of power to supply the smoke alarm in the event that the primary power source is unavailable. Generally, the requirement is met by providing mains powered smoke alarms with a battery back-up.

Explanatory Information: Interconnection of smoke alarms

Clause 9.5.1(d) of the ABCB Housing Provisions requires that alarms be interconnected to provide a common alarm so that if one alarm in the dwelling activates, the other alarms automatically activate, which will increase the likelihood of sleeping occupants becoming aware of the detection of smoke. Alarms of a Class 1 building need not be interconnected with alarms in another Class 1 building or a *private garage* which does not belong to the Class 1 building.

Explanatory Information: Location of smoke alarms

When deciding on the position of smoke alarms it is important to remember that they are intended to detect smoke before it reaches the sleeping occupants of a building.

The ensuing alarm is designed to wake the occupants and give them time to evacuate the building.

Explanatory Information: Smoke alarms required on other storeys not containing bedrooms

In addition to a smoke alarm being *required* to be provided on storeys containing bedrooms, a smoke alarm is also *required* on each other storey that is not already provided with a smoke alarm even if those storeys consist of only carparking, bathrooms, laundries and the like. "Storey" in this context differs from the definition contained in NCC Volume One which excludes such spaces from being considered as storeys.

Reference to "storey" only applies within a single dwelling. For example, if a storey contains a private garage belonging

to the Class 1a dwelling in addition to a *private garage* which does not belong to the Class 1a dwelling, smoke alarms must be installed in both *private garages*.

Where the other storey is a Class 10a *private garage*, clause 9.5.1(b) of the ABCB Housing Provisions permits the use of any other alarm deemed suitable in accordance with AS 1670.1 provided smoke alarms complying with AS 3786 are installed elsewhere in the Class 1 building.

Explanatory Information: Nuisance alarms

Smoke alarms are extremely sensitive and may detect smoke and moisture created by common household activities such as burnt toast or steam from a bathroom.

Accordingly, to reduce the likelihood of nuisance alarms, it is preferable that smoke alarms are not located near cooking appliances and bathrooms. However, if it is necessary to locate alarms in these positions, the type of alarm installed may need to be considered as some alarm types may be more suitable in certain locations.

Explanatory Information: Added flexibility when considering smoke alarm location

The options described in the ABCB *Housing Provisions* are not the only means available for complying with this Part. The performance-based nature of the NCC provides flexibility to develop alternative methods if it is preferred to meet the *Performance Requirement* in some other way. This added flexibility may be utilised when considering the location of smoke alarms.

Part H4 Health and amenity

Introduction to this Part

This Part is intended to address several different factors which impact on health and amenity. These factors include: waterproofing of wet areas; room heights; kitchen, laundry and toilet facilities; lighting; ventilation; sound insulation; and condensation.

| Objec | tives | |
|------------------|---|--------------------|
| нло1 | Wataraas | |
| 11401 | Wetheas | [2019: 02.4.1] |
| The Ob | signify is to sofequard the accurants from illness or injuny and protect the building from damage | in caused by the |
| accum | ulation of internal moisture arising from the use of <i>wet areas</i> in a building. | le caused by the |
| | | |
| H402 | Room heights | |
| | | [2019: 02.4.2] |
| The Ob space. | pjective is to safeguard the occupants from injury or loss of amenity caused by inadequate hei | ght of a room or |
| | | |
| H403 | Facilities | |
| | | [2019: 02.4.3] |
| The Ob | ojective is to— | |
| (a) | safeguard occupants from illness caused by infection; and | |
| (b) | safeguard occupants from loss of amenity arising from the absence of adequate personal h and | ygiene facilities; |
| (c) | enable occupants to carry out laundering; and | |
| (d) | provide for facilities to enable food preparation; and | |
| (e) | enable unconscious occupants of <i>sanitary compartments</i> to be removed from the compartme | ent. |
| | | |
| H404 | Light | |
| | | [2019: 02.4.4] |
| The Ob | ejective is to safeguard occupants from injury, illness or loss of amenity due to— | |
| (a) | isolation from natural light; and | |
| (b) | lack of adequate artificial lighting. | |
| | Vontilation | |
| п405 | ventilation | [2010: 02.4 5] |
| | | [2013: 02.4.3] |
| The Ob | ejective is to safeguard occupants from illness or loss of amenity due to lack of air freshness. | |
| | | |

H4O6 Sound insulation

[2019: 02.4.6]

The Objective is to safeguard occupants from illness or loss of amenity as a result of undue sound being transmitted between adjoining dwellings.

H407 Condensation and water vapour management

[New for 2022]

The Objective is to reduce the likelihood of *condensation* or water vapour build-up causing illness, injury or loss of amenity for building occupants.

| Funct | ional Statements | |
|----------------------------------|--|------------------------|
| H4F1 | Wet areas | [2019: F2.4.1] |
| A buildi (a) (b) caused | ing is to be constructed to avoid the likelihood of— the creation of any unhealthy or dangerous conditions; or damage to building elements, by dampness or water overflow from bathrooms, laundries and the like. | |
| H4F2 | Room heights | [2019: F2.4.2] |
| A buildi | ing is to be constructed to provide height in a room or space suitable for the intended use. | |
| H4F3 | Facilities | [2019: F2.4.3] |
| A buildi | ing is to be provided with suitable— | |
| (a) (b) | space and facilities for personal hygiene; and space or facilities for laundering; and | |
| (c) (d) (e) | space or other means to permit an unconscious occupant to be removed from a <i>sanitary cor</i> means for the sanitary disposal of waste water. | <i>npartment</i> ; and |
| Applica H4F3 o | ations: only applies to a Class 1 building. | |
| H4F4 | Light | [2019: F2.4.4] |
| (1) A ha | abitable room within a building is to be provided with openings to admit adequate natural light o | consistent with its |

function or use.

(2) A space within a building used by occupants is to be provided with artificial lighting consistent with its function or use which, when activated in the absence of suitable natural light, will enable safe movement.

H4F5 Ventilation

A space used by occupants within a building is to be provided with adequate ventilation consistent with its function or use.

H4F6 Sound insulation

A building element which separates dwellings is to be constructed to prevent undue sound transmission between those dwellings.

H4F7 Condensation and water vapour management

[New for 2022]

[2019: F2.4.5]

[2019: F2.4.6]

Building elements in areas subject to water vapour or *condensation* must be constructed to reduce risks to the health of building occupants.

Applications:

H4F7 only applies to a Class 1 building.

| Performance Requirements | | |
|--------------------------|-----------|--|
| H4P1 | Wet areas | |

To protect the structure of the building and to maintain the amenity of the occupants, water must be prevented from penetrating—

- (a) behind fittings and linings; or
- (b) into concealed spaces,

of sanitary facilities, bathrooms, laundries and the like.

H4P2 Room heights

A room or space must be of a height that does not unduly interfere with its intended function.

H4P3 Personal hygiene and other facilities

[2019: P2.4.3]

- (1) Suitable sanitary facilities for personal hygiene must be provided in a convenient location within or associated with a building, appropriate to its function or use.
- (2) Laundering facilities or space for laundering facilities and the means for sanitary disposal of waste water must be provided in a convenient location within or associated with a building, appropriate to its function or use.
- (3) A food preparation facility must be provided which includes-

[2019: P2.4.2]

[2019: P2.4.1]

- (a) a means for food rinsing, utensil washing and the sanitary disposal of associated waste water; and
- (b) a means for cooking food; and
- (c) a space for food preparation.
- (4) A sanitary compartment must be constructed with sufficient space or other means to enable an unconscious occupant to be removed from the compartment.

Applications:

H4P3 only applies to a Class 1 building.

Explanatory Information:

For the purposes of H4P3(2), waste water includes water soiled as a result of clothes washing, mopping floors and other domestic cleaning processes.

H4P4 Lighting

[2019: P2.4.4]

- (1) A *habitable room* must be provided with *windows*, where appropriate to the function or use of that part of the building, so that natural light, when available, provides an *average daylight factor* of not less than 2%.
- (2) Artificial lighting must be installed to provide an *illuminance* of not less than 20 lux appropriate to the function or use of the building to enable safe movement by occupants.

Applications:

H4P4(2) only applies-

- (a) to sanitary compartments, bathrooms, shower rooms, airlocks, laundries and the like; and
- (b) if natural light of a suitable standard is not available.

Explanatory Information:

H4P4(1) nominates a minimum *average daylight factor* for rooms provided with natural light. Note that H4V2 provides a method by which *average daylight factor* may be calculated.

To comply with H4P4(2), the level of artificial light must enable safe movement by occupants, appropriate to the use of the building. For example, in a movie room a lower level of lighting may be appropriate while a movie is being screened, however at the beginning and end of the movie when occupants are entering and exiting the movie room the minimum lighting level of 20 lux may be appropriate.

H4P5 Ventilation

[2019: P2.4.5]

- A space within a building used by occupants must be provided with means of ventilation with *outdoor air* which will maintain adequate air quality.
- (2) A mechanical air-handling system installed in a building must control—
 - (a) the circulation of objectionable odours; and
 - (b) the accumulation of harmful contamination by micro-organisms, pathogens and toxins.
- (3) Contaminated air must be disposed of in a manner which does not unduly create a nuisance or hazard to people in the building or *other property*.

NT H4P6

H4P6 Sound insulation

[2019: P2.4.6]

- (1) Walls separating dwellings must provide insulation against the transmission of airborne sound sufficient to prevent illness or loss of amenity to the occupants.
- (2) Walls separating a bathroom, sanitary compartment, laundry or kitchen in a dwelling from a habitable room (other than a kitchen) in an adjoining dwelling, must provide insulation against impact generated sound sufficient to prevent illness or loss of amenity to the occupants.
- (3) The *required* sound insulation of walls must not be compromised by the incorporation or penetration of a pipe or other service element.

H4P7 Condensation and water vapour management

[2019: P2.4.7]

Risks associated with water vapour and *condensation* must be managed to minimise their impact on the health of occupants.

Applications:

H4P7 only applies to a Class 1 building.

Verification Methods

H4V1 Room or space height

[2019: V2.4.2]

- (1) Compliance with H4P2 is verified where the height of a room or space provides an appropriate *activity support level* that does not unduly interfere with its intended function.
- (2) For a room or space in (1), the activity support level must consider the dimensions of-
 - (a) doors, ramps, barriers, stairs and *windows*; and
 - (b) fixed fittings and domestic services; and
 - (c) fixed and moveable equipment or furniture; and
 - (d) occupant circulation spaces.

Explanatory Information:

The intent of H4P2 is the height of a room or space is sufficient for the intended use of the room or space. 'Intended use' recognises that the height required in a room or space is directly related to the room or space's intended function.

H4V1 is a means to verify that the height of a room or space is suitable for the intended use, and therefore meets the requirement of H4P2.

In relation to the intended function of a room or space, the activities that are likely to be undertaken by occupants in the room of space, as well the features of the activities, are relevant considerations when determining a suitable height.

For example, if the intended use of a room is a gymnasium, then gymnastic activities are likely to be undertaken in the room. These activities often involve jumps and flips which require significant space in order to be undertaken safely.

In terms of the occupants, their features and needs are also relevant when determining a suitable height. For example, occupant features and needs would differ between rooms or spaces intended as a child's play area, and rooms or spaces intended for adult's indoor cricket.

The method requires consideration of 'activity traits', 'occupant traits' and 'activity support level'. Refer to Schedule 2 for more information on these terms.

When determining the *activity support level*, the method requires consideration of the relevant dimensions of items likely to be located in the room or space, as well as occupant circulation spaces.

Some of these considerations are-

- stairs and ramps, since the height of the room of the space will change relative to the occupant during incline and decline; and
- fixed fittings such as lights that may protrude from the ceiling and wash-basins; and
- domestic services such as air-conditioners, heaters, ceiling fans and heated water systems; and
- fixed equipment such manufacturing or processing equipment, permanent signage or displays and lifts; and
- moveable equipment such as whitegoods; and
- fixed furniture such as built-in wardrobes and permanent seating; and
- moveable furniture such as wardrobes, desks and beds; and
- occupant circulation spaces so that occupants can move comfortably and safety around the room or space.

For example, the location and dimensions of a wash-basin is a relevant consideration in determining the *activity support level* of a bathroom. This is because an occupant will typically need to access the wash-basin whilst standing, which will influence the necessary height of the space.

Another example is the consideration of moveable equipment such as a refrigerator in a kitchen. If the intended use of a space is a kitchen, then it would be unrealistic to determine a sufficient height for the room without considering the height of a typical refrigerator that would be located in the room.

H4V2 Verification of suitable natural light

[2019: V2.4.4]

Compliance with H4P4(1) is verified for the provision of natural light in all habitable rooms when the average daylight

Average Daylight Factor = $\frac{W}{A} \frac{T\theta}{(1-R^2)}$, where—

- (a) W = the net area of the light transmitting area of the *window* (m²); and
- (b) A = the total area of the internal wall, floor and ceiling surfaces (m²); and
- (c) T = the diffuse light transmittance of the *window*; and
- (d) θ = visible sky angle in degrees, measured in a plane normal to and from the centre of the *window*; and
- (e) R = the area-weighted average reflectance of area A.

Explanatory Information:

H4V2 is equivalent to F4V3 in NCC Volume One. Guidance on the use of F4V3 can be found in the Guide to NCC Volume One, and is applicable to the use of H4V2.

H4V3 Verification of indoor air quality

[2019: V2.4.5]

For a Class 1 building, compliance with H4P5(1) and H4P5(2)(a) is verified when it is determined that the building under typical conditions in use is provided with sufficient ventilation with *outdoor air* such that contaminant levels do not exceed the limits specified in Table H4V3.

Table H4V3: Maximum contaminant limits for acceptable indoor air quality

| Pollutant | Averaging Time | Maximum Air Quality Value | |
|---------------------------------|----------------|---------------------------|--|
| Carbon dioxide, CO ₂ | 8 hours | 850 ppm ^{Note 1} | |

Public Comment Draft Class 1 and 10 buildings

| Pollutant | Averaging Time | Maximum Air Quality Value |
|---------------------------------------|---------------------------|--|
| Carbon monoxide, CO | 15 minutes | 90 ppm |
| Carbon monoxide, CO | 30 minutes | 50 ppm |
| Carbon monoxide, CO | 1 hour | 25 ppm |
| Carbon monoxide, CO | 8 hours | 10 ppm |
| Formaldehyde, CH ₂ O | 30 minutes | 0.1 mg/m ³ |
| Nitrogen dioxide, NO ₂ | 1 year | 40 μg/m ³ (0.0197 ppm) ^{Note 2} |
| Nitrogen dioxide, NO ₂ | 1 hour | 200 µg/m ³ (0.0987 ppm) ^{Note 2} |
| Ozone, O ₃ | 8 hour, daily maximum | 100 μg/m ³ (0.0473 ppm) |
| Particulate matter, PM _{2.5} | 1 year | 10 μg/m ³ |
| Particulate matter, PM _{2.5} | 24 hour (99th percentile) | 25 μg/m ³ |
| Particulate matter, PM ₁₀ | 1 year | 20 μg/m ³ |
| Particulate matter, PM ₁₀ | 24 hour (99th percentile) | 50 μg/m ³ |
| Total volatile organic compounds | 1 hour | 500 μg/m ³ |

Table Notes:

- 1. Based on body odour metric (i.e. 450 ppm above ambient CO₂ level of 400 ppm and demand control ventilation provisions in AS 1668.2).
- Based on pressure of 101.325 kPa and temperature of 25 degrees (i.e. the conversion is mg/m³ = ppm (molecular weight/24.4)).

NT H4V4

H4V4 Sound insulation

[2019: V2.4.6]

Compliance with H4P6(1) and (3) to insulate against transmission of airborne sound through walls separating dwellings is verified when it is measured in-situ that the wall has a weighted standardised level difference with spectrum adaptation term ($D_{nT,w} + C_{tr}$) not less than 45 when determined under AS/NZS ISO 717.1.

H4V5 Verification of condensation management

[2019: V2.4.7]

- (1) Compliance with H4P7 is verified when modelling determines that moisture will not accumulate—
 - (a) interior to the primary water control layer within a building envelope; or
 - (b) on the interior surface of the water control layer.
- (2) Modelling used for the purposes of (1) must assess the effects of-
 - (a) indoor and outdoor temperature and humidity conditions; and
 - (b) heating and cooling set points; and
 - (c) rain absorption; and
 - (d) wind pressure; and
 - (e) solar radiation; and
 - (f) material hygrothermal properties.

Deemed-to-Satisfy Provisions

H4D1 Deemed-to-Satisfy Provisions

[New for 2022]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H4P1 to H4P7 are satisfied by complying with H4D2 to H4D8H4D9.
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

H4D2 Wet areas and external waterproofing

[2019: 3.8.1.1, 3.8.1.2]

Compliance with Part 10.2 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P1 for <u>wet areas</u> provided the <u>wet areas</u> protected in accordance with the appropriate requirements of 10.2.7 to 10.2.34 of the ABCB Housing Provisions.-and external waterproofing.

H4D3 Materials and installation of wet area components and systems

[New for 2022]

Performance Requirement H4P1 is satisfied for materials and the installation of wet area components and systems if they comply with either—

- (a) <u>AS 3740; or</u>
- (b) 10.2.7 to 10.2.34 of the ABCB Housing Provisions.

Notes: Livable housing design

In a Class 1a dwelling, ate least one bathroom and at least one toilet must comply with the ABCB Standard for Livable Housing Design, which may override the requirements on H4D3.

Explanatory Information:

AS 3740 and the ABCB Housing Provisions contain requirements for shower hobs and shower over bath configurations, however these may only be used in a bathroom that is not subject to the ABCB Standard for Livable Housing Design. Generally, the ABCB Standard for Livable Housing Design only applies to one bathroom per dwelling. Therefore, shower hobs and the like may only be used in additional bathrooms.

H4D34 Room heights

[2019: 3.8.2]

Compliance with Part 10.3 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P2 for room heights.

H4D4<u>5</u> Facilities

[2019: 3.8.3]

Compliance with Part 10.4 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P3 for facilities.

Explanatory Information: Additional requirements

Additional requirements relating to facilities for people with a disability in Class 1b and Class 10a buildings are contained in Volume One of the NCC. These requirements are based on the Disability (Access to Premises – Buildings) Standards (Premises Standards) which are available from the Australian Government Attorney-General's Department website at

- Access for maintenance of plumbing and drainage: Parts B1, B2, B3, C1 and C2.
- Heated water temperature control for facilities used for personal hygiene: Part B2.
- Installation of sanitary plumbing and drainage systems: Parts C1 and C2.

H4D<u>56</u> Light

management.

www.ag.gov.au.

Compliance with Part 10.5 of the ABCB Housing Provisions satisfies Performance Requirement H4P4 for lighting.

Public Comment Draft

Class 1 and 10 buildings

H4D67 Ventilation

- (1) Except for an exhaust fan from a *sanitary compartment*, laundry, kitchen or bathroom, *Performance Requirement* H4P5 is satisfied for a mechanical ventilation system if it is installed in accordance with AS 1668.2.
- (2) Compliance with Part 10.6 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P5 for ventilation.

H4D78 Sound insulation

Compliance with Part 10.7 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P6 for sound insulation.

H4D<u>89</u> Condensation management

Compliance with Part 10.8 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P7 for condensation

Explanatory Information:

The intent of these requirements is to assist in the mitigation of *condensation* within a building. The installation of a *condensation* management system may not prevent *condensation* from occurring.

[2019: 3.8.4]

[2019: 3.8.5]]

[2019: 3.8.6]

[2019: 3.8.7]

Part H5 Safe movement and access

Introduction to this Part

This Part is intended to reduce the likelihood of people being injured when accessing or moving about a building. It does this by setting requirements for the construction of stairways and ramps, slip resistance, and the design and construction of barriers to prevent falls.

| Obj | jec | tive | es estatution estatu | |
|-------|--------|-------------|---|------------------------------|
| H5C | 01 | | Objective | [2019: 02.5] |
| The | Obj | jectiv | ve is to provide people with safe access to and within a building. | |
| Fur | ncti | ona | al Statements | |
| H5F | 1 | | Safety from falling | [2019: F2.5.1] |
| A bu | uildir | ng is | to provide safe access for people to the services and facilities within. | |
| Per | for | ma | nce Requirements | |
| H5P | 91 | | Movement to and within a building | [2019: P2.5.1] |
| So th | at p | eopl | le can move safely to and within a building— | |
| (| (a) | wall | king surfaces must have safe gradients; and | |
| (| (b) | any | v stairway or ramp must— | |
| | | (i) | have suitable handrails where necessary to assist and provide stability to people using th and | ne stairway or ramp; |
| | | (ii) | have suitable landings to avoid undue fatigue of users; and | |
| | | (iii) | be suitable for safe passage in relation to the nature, volume and frequency of likely us | sage; and |
| | | (iv) | have slip-resistant walking surfaces on ramps, and on stairway treads or near the edge | e of the nosing. |
| H5P | 2 | | Fall prevention barriers | [2019: P2.5.2] |
| (1) | A ba | rrier | must be provided where people could fall— | |
| (| (a) | 1 m | n or more— | |
| | | (i) (ii) | from a floor or roof or through an opening (other than through an openable window) in t due to a sudden change of level within or associated with a building; or | he <i>external wall</i> ; or |

(b) 2 m or more from a floor through an openable window in a bedroom; or

- (c) 4 m or more from a floor through an openable window not covered by (b),.
- (2) A barrier required by (1) must be-
 - (a) continuous and extend for the full extent of the hazard; and
 - (b) of a height to protect people from accidentally falling from the floor or roof or through the opening or openable window; and
 - (c) constructed to prevent people from falling through the barrier; and
 - (d) capable of restricting the passage of children; and
 - (e) of strength and rigidity to withstand-
 - (i) the foreseeable impact of people; and
 - (ii) where appropriate, the static pressure of people pressing against it.

Verification Methods

H5V1 Wire barriers

[2019: V2.5.1]

Compliance with H5P2(2)(c) and (d) for wire barriers is verified when the wire barrier passes the test described below:

- (a) The test must be carried out on either-
 - (i) a prototype of a wire barrier that is identical to that proposed to be installed on site; or
 - (ii) a wire barrier installed on site.
- (b) The test equipment must consist of the following:
 - (i) A horizontally suspended 125 mm diameter, 405 mm long cylinder of 1 mm thick steel having a highly polished 105 mm long cone at one end with a 20 mm diameter flat leading edge to which an eye bolt is fixed.
 - (ii) A sufficiently flexible horizontal cable with mechanisms capable of applying and measuring a tension of 150 N (or a 15.3 kg weight suspended over a low friction pulley) is to be attached to the eye bolt (see Figure H5V1).
 - (iii) A mechanism capable of measuring the tension force applied to each wire.
- (c) The test procedure must be as follows:
 - (i) Tension the wires, within their safe load, to the same tension in all wires and measure the tensions with a strain indicator.
 - (ii) For—
 - (A) horizontal or near horizontal wires, position the cone against a pair of wires at the mid-span between supports, then apply the 150 N tension force to the cone; and
 - (B) vertical wires, position the cone against a pair of wires at the mid-span between supporting rails, then apply the 150 N tension force to the cone; and
 - (C) near-vertical wires, position the cone against a pair of wires at the widest opening between the wires, then apply the 150 N tension force to the cone.
 - (iii) Attempt to pull the cone through the gap between the wires under the 150 N load, and-
 - (A) increase the tension in the wires and repeat (ii) until such time as the cone will not pull through; or
 - (B) if it does not pull through, reduce the tension in the wires and repeat step (ii).
 - (iv) When the cone is just prevented from pulling through the gap, the wires are at the correct tension in which case the cone is withdrawn and the tension recorded.
 - (v) Reduce the tension in the wires and repeat steps (ii) to (iv) twice more, recording the tension in each case after the cone has been removed and then calculate the average of the three tensions as the *required* tension for each wire.
 - (vi) For prototype tests of horizontal or near horizontal wires, record the deflection of each wire at the average

tension calculated in accordance with (v) when a 2 kg mass is hung at mid-span between supports.

- (d) The test report must include the following information:
 - (i) The name and address of the person supervising the test.
 - (ii) The test report number.
 - (iii) The date of the test.
 - (iv) The wire manufacturer's name and address, and specifications of the wires used in the test including the safe load limit of the wires.
 - (v) The construction details of the test specimen, including a description and drawings and details of the components including supports, post or railing spacings and wire spacings.
 - (vi) For a prototype test, the *required* tension calculated in accordance with (c)(v).
 - (vii) For prototype tests of horizontal or near horizontal wires, the deflection measured in accordance with (c)(vi).

Figure H5V1: Apparatus for testing wire barriers



Explanatory Information:

H5V1 is a means to verify that a proposed wire barrier satisfies the requirements of H5P2(2)(c) and (d).

The meaning of the phrase "prototype that is identical to that proposed to be installed" is similar to the testing of prototypes for fire resistance. That is the prototype and the installation must be identical with respect to the type of wire, the wire diameter, the number of lays, the wire tension, the post spacing and size, etc.

The test procedure is slightly different for barriers with horizontal or near horizontal wires and vertical wires or near vertical wires (see the test procedures set out in H5V1(c)(ii)).

H5V1(c)(vi) allows measuring deflection of wires to verify that the *required* tension has been achieved.

It should be noted that H5V1 is only one form of compliance solution which can be used to demonstrate compliance with H5P2(2)(c) and (d). The following means of verification are available:

- H5V1.
- The *Deemed-to-Satisfy Provisions* in Part 11.3 of the ABCB Housing Provisions.
- A Performance Solution that uses one of the other NCC Assessment Methods which verifies that H5P2(2)(c) and (d) will be achieved.

H5D1 Deemed-to-Satisfy Provisions

[New for 2022]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H5P1 and H5P2 are satisfied by complying with H5D2 and H5D3.
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

H5D2 Stairway and ramp construction

[2019: 3.9.1]

Compliance with Part 11.2 of the ABCB Housing Provisions satisfies *Performance Requirement* H5P1 for stairway and ramp construction.

H5D3 Barriers and handrails

[2019: 3.9.2]

Page 126

Compliance with Part 11.3 of the ABCB Housing Provisions satisfies *Performance Requirement* H5P2 for barriers and handrails.

Part H6 Energy efficiency

Introduction to this Part

This Part is intended to reduce greenhouse gas emissions from buildings. It addresses greenhouse gas emissions that occur as result of the how the building is designed and constructed; its energy use related to design and construction factors; and the source of the energy used.

| Objec | tives | |
|---------|--|--------------|
| | | |
| H6O1 | Objective | |
| | | [2010: 02 6] |
| | | [2019: 02.0] |
| The Ob | jective is to reduce greenhouse gas emissions. | |
| | | |
| | | |
| Funct | ional Statements | |
| | | |
| H6F1 | Greenhouse gas emissions | |
| | | [2019: F2.6] |
| | | |
| To redu | ice greenhouse gas emissions, to the degree necessary— | |
| (a) | a building, including its <i>domestic services</i> , is to be capable of efficiently using energy; and | |
| (b) | a building's domestic services for heating are to obtain their energy from— | |
| | (i) a low greenhouse gas intensity source; or | |
| | (ii) an on-site <i>renewable energy</i> source; or | |

(iii) another process as reclaimed energy.

Explanatory Information:

- 1. The greenhouse gas intensity of energy sources varies. For example, natural gas has a low greenhouse gas intensity compared with electricity generated from coal.
- 2. For the purposes of H6F1, the *renewable energy* source must be on-site (so not Greenpower) and includes, but is not limited to, solar, wind, hydroelectric, wave action and geothermal.

Performance Requirements

VIC H6P1

H6P1

Building

[2019: P2.6.1]

A building must have, to the degree necessary, a level of thermal performance to facilitate the efficient use of energy for artificial heating and cooling appropriate to—

- (a) the function and use of the building; and
- (b) the internal environment; and
- (c) the geographic location of the building; and

- (d) the effects of nearby permanent features such as topography, structures and buildings; and
- (e) solar radiation being-
 - (i) utilised for heating; and
 - (ii) controlled to minimise energy for cooling; and
- (f) the sealing of the building *envelope* against air leakage; and
- (g) the utilisation of air movement to assist cooling.

In H6P1(d) the word 'permanent' is used to describe features that will have a long term impact on the building and includes natural features of the landscape, such as mountains and escarpments, while permanent man made features would be buildings likely to be in place for a long period of time.

VIC H6P2

H6P2 Services

[2019: P2.6.2]

Domestic services, including any associated distribution system and components must, to the degree necessary-

- (a) have features that facilitate the efficient use of energy appropriate to-
 - (i) the *domestic service* and its usage; and
 - (ii) the geographic location of the building; and
 - (iii) the location of the *domestic service*; and
 - (iv) the energy source; and
- (b) obtain heating energy from-
 - a source that has a greenhouse gas intensity that does not exceed 100 g CO₂-e/MJ of thermal energy load; or
 - (ii) an on-site *renewable energy* source; or
 - (iii) another process such as reclaimed energy.

Explanatory Information:

- For (a)(iv) the energy source can be a consideration if, for example, *renewable energy* such as electricity from a photovoltaic panel or a wind turbine was used to meet or supplement the lighting or cooling electricity load. For (b)(ii) similar sources could meet or supplement the heating load.
- 2. The intent of H6P2(b) is to constrain the use of a high greenhouse gas intensity source of energy. It does not prevent the use of electricity because the greenhouse gas intensity is related to the thermal load rather than the energy consumption which is covered by H6P2(a). H6P2 also contains the qualification that it is to be applied "to the degree necessary", allowing electricity to be used, even by low efficiency plant when there are no reasonable alternatives.
- 3. For the purposes of H6P2 the *renewable energy* source must be on-site (so not Greenpower) and includes, but is not limited to, solar, wind, hydroelectric, wave action and geothermal.

Verification Methods

VIC H6V1

H6V1 Application of H6V2 and H6V3

[2019: V2.6.1]

The Verification Methods in this Part only apply to-

- (a) a Class 1 building; and
- (b) an enclosed Class 10a building attached to a Class 1 building.

The Verification Methods in this Part are intended to apply to whole Class 1 buildings and to whole Class 1 buildings that incorporate attached and enclosed Class 10a parts, such as attached garages. The Verification Methods are not intended to apply to detached garages or to open carports.

H6V2 Verification using a reference building

[2019: V2.6.2.2]

- (1) Compliance with H6P1 is verified when a proposed building—
 - (a) compared to a *reference building*, using a calculation method other than , has-
 - (i) in climate zones 1 and 2, a cooling load equal to or less than that of the reference building; or
 - (ii) in climate zones 7 and 8, a heating load equal to or less than that of the reference building; or
 - (iii) in *climate zones* 3, 4, 5 and 6, a *heating load* and a *cooling load* equal to or less than that of the *reference building*; and
 - (b) complies with-
 - (i) for building fabric thermal insulation, clause 13.2.2 of the ABCB Housing Provisions; and
 - (ii) for thermal break, clauses 13.2.3(3) and 13.2.5(4) of the ABCB Housing Provisions; and
 - (iii) for compensating for a loss of ceiling insulation, clauses 13.2.3(5) of the ABCB Housing Provisions; and
 - (iv) for floor edge insulation, clauses 13.2.6(3) and 13.2.7(d) of the ABCB Housing Provisions; and
 - (v) for building sealing, Part 13.4 of the ABCB Housing Provisions or H6V3.
- (2) The heating loads and cooling loads in (1) must be calculated for the reference building using-
 - (a) internal heat gains from appliances and equipment of 5 W/m² averaged for 24 hours per day, 7 days per week; and
 - (b) an infiltration value of 0.6 air changes per hour; and
 - (c) the modelling criteria in Table H6V2.
- (3) The *heating load* and *cooling load* for the proposed building and the *reference building* must be determined using the same—
 - (a) calculation method; and
 - (b) location specific data, including that of climate and topography appropriate to the location where the proposed building is to be constructed if the data is available, or the nearest location with similar climatic conditions in the same *climate zone* for which the data is available; and
 - (c) impact of adjoining structures and features; and
 - (d) soil conditions; and
 - (e) orientation; and
 - (f) floor plan, including the location and size of ; and
 - (g) number of storeys; and
 - (h) roof cladding and roof lights; and
 - (i) separating walls; and
 - (j) external non-glazed doors; and
 - (k) intermediate floors; and
 - (I) floor coverings; and
 - (m) internal heat gains from equipment and appliances; and
 - (n) air infiltration and ventilation; and

- (o) function and use of the building and spaces, including zoning, hours of occupation, hours of heating and cooling availability; and
- (p) space temperature settings within the ranges of 20°C to 21°C for heating and 25°C to 28°C for cooling; and
- (q) the profiles for occupancy and air-conditioning.
- (4) The calculation method used must comply with ANSI/ASHRAE Standard 140 and be capable of assessing the *heating load* and *cooling load* by modelling—
 - (a) the building *fabric*; and
 - (b) and shading; and
 - (c) air infiltration and ventilation; and
 - (d) the function and use of the building including zoning, hours of occupation, hours of heating and cooling availability and internal heat gains; and
 - (e) relevant built-environment and topographical features; and
 - (f) the sensible heat component of the *cooling load* and *heating load*.
- (5) Climatic data employed in the calculation method must be based on hourly recorded values and be representative of a typical year for the proposed location.

| Table H6V2: | Reference building | requirements |
|-------------|--------------------|--------------|
|-------------|--------------------|--------------|

| Item | Description | Criteria to be modelled |
|------|-----------------------------|--|
| 1 | Roof | Pitched roof (23 degrees) with solar absorptance of 0.6 |
| 2 | Ceiling | 2.4 m high horizontal, 10 mm plasterboard ceiling |
| 3 | Roof and ceiling insulation | In accordance with ABCB Housing Provisions Tables 13.2.3a to 13.2.3g |
| 4 | Roof lights | No <i>roof light</i> , unless <i>required</i> by ABCB Housing Provisions Part 10.5 |
| 5 | External walls | Masonry veneer with 110 mm thick masonry with a solar absorptance of 0.6 |
| 6 | Wall insulation | The minimum specified in ABCB Housing Provisions clause 13.2.5(2) |
| 7 | Internal walls | 70 mm timber frame with 10 mm internal plaster lining |
| 8 | Ground floor | Concrete slab-on-ground, insulated in accordance with ABCB Housing Provisions clause 13.2.6(3) |
| 9 | Glazing | In accordance with Part 13.3 of the ABCB Housing Provisions |
| 10 | Air movement | In accordance with Part 13.4 of the ABCB Housing Provisions |
| 11 | Artificial lighting | In accordance with the maximum illumination power density allowed by ABCB Housing Provisions clause 13.6.6 without any increase for a control device illumination power density adjustment factor |

1. The items listed in (3) must be the same for both the proposed building and *reference building*. This means that those factors applicable to the proposed building must be applied to the *reference building*. For example, if the

proposed building is subject to overshadowing by an existing adjoining building, in accordance with (3)(c) the same overshadowing must be applied to the *reference building*.

- In (4)(d), the number of hours per day for which heating and cooling is available would be expected to lie between 8 and 17, with values outside this range unlikely in other than exceptional circumstances.
- 3. To comply with (3)(o) all internal zones need to be modelled for each internal area. For example, zones for *conditioned spaces*, unconditioned spaces, day time, night time and the like appropriate to their intended usage. It is expected that each room including significant hallways will be modelled as a separate thermal zone.
- 4. Suitable climatic data including dry-bulb temperature, direct and diffuse solar radiation, wind speed, wind direction and cloud cover can be obtained from the Australian national climate database.

H6V3 Verification of building envelope sealing

[2019: V2.6.2.3]

Compliance with H6P1(f) is verified when a building *envelope* is sealed at an air permeability of not more than 10 m³/hr.m² at 50 Pa reference pressure when tested in accordance with AS/NZS ISO 9972 Method 1.

Explanatory Information:

The intent is that 10 m³/hr.m² at 50 Pa is broadly equivalent to 10 air changes per hour at 50 Pa when applied to homes.

It should be noted that H6V3 is only one way of achieving compliance with H6P1(f). Other ways of complying include the following:

- The relevant provisions of Section 13 of the ABCB Housing Provisions..
- A *Performance Solution* that uses one of the other NCC *Assessment Methods* which verifies that compliance with H6P1(f) will be achieved.

Deemed-to-Satisfy Provisions

H6D1 Deemed-to-Satisfy Provisions

[New for 2022]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed *Performance Requirements* H6P1 and H6P2 are satisfied by complying with H6D2 and H6D3; and
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.

H6D2 Application of Part H6

[2019: 3.12.0]

(1) *Performance Requirement* H6P1 for the thermal performance of the building is satisfied by—

(a) complying with—

- (i) Specification 42, for reducing the heating or cooling loads; and
- (ii) Section 13 of the ABCB Housing Provisions, clauses-
 - (A) 13.2.2, for building *fabric* thermal insulation; and
 - (B) 13.2.3(3) and 13.2.5(4), for thermal breaks; and
 - (C) 13.2.3(6), for compensating for a loss of ceiling insulation, other than where the used can automatically compensate for a loss of ceiling insulation; and
 - (D) 13.2.6(3) and 13.2.6(4), for floor edge insulation; and
 - (E) Part 13.4, for building sealing; or

- (b) complying with Section 13 of the ABCB Housing Provisions-
 - (i) Part 13.2, for the building *fabric*; and
 - (ii) Part 13.3, for the external and shading; and
 - (iii) Part 13.4, for building sealing; and
 - (iv) Part 13.5, for air movement.
- (2) Performance Requirement H6P2 for reducing greenhouse gas emissions is satisfied by complying with-
 - (a) Part 13.6 of the ABCB Housing Provisions; or
 - (b) for a heated water supply system, Part B2 of NCC Volume Three Plumbing Code of Australia.

VIC H6D2(3)

Explanatory Information:

There are two options for complying with the energy efficiency *Deemed-to-Satisfy Provisions* of Parts 13.2 to 13.5 in the ABCB Housing Provisions:

- Option 1 Energy Rating H6D2(1)(a)(i) to achieve the *required* energy rating and comply with H6D2(1)(a)(ii) for energy saving features such as the testing and installation of insulation, thermal breaks, compensation for downlights other than where the used can automatically compensate for a loss of ceiling insulation, floor edge insulation and detailed provisions for building sealing.
- Option 2 Elemental Provisions H6D2(1)(b) to satisfy all the detailed provisions including meeting the *Total R-Values* of roofs, walls and floors, the *glazing* allowances and the air movement requirements. These detailed provisions also include the testing and installation of insulation, thermal breaks, compensation for downlights, floor edge insulation and detailed provisions for building sealing.

Part H7 Ancillary provisions and additional construction requirements

Introduction to this Part

This Part contains requirements which operate alongside the requirements of other Parts of NCC Volume Two, to address specific types of ancillary structures such as swimming pools, heating appliances and fireplaces, and private bushfire shelters. This Part also includes additional requirements for construction in alpine areas and bushfire prone areas.

| Objectives | | |
|------------|--|--|
| | | |

H701

Objective

[2019: 02.7]

The Objective is to-

- (a) safeguard young children from drowning or injury in a swimming pool; and
- (b) safeguard people from drowning or injury due to suction by a *swimming pool* water recirculation system; and
- (c) safeguard the occupants from illness or injury caused by fire from heating appliances installed within the building; and
- (d) safeguard the occupants from illness or injury in *alpine areas* from an emergency while evacuating the building; and
- (e) protect a building from the effects of a bushfire; and
- (f) reduce the likelihood of fatalities arising from occupants of a Class 1a dwelling not evacuating a property prior to exposure from a bushfire event.

Applications:

- (1) H7O1(a) and (b) only apply to a *swimming pool* with a depth of water more than 300 mm.
- (2) H7O1(f) only applies to a Class 10c building.

Functional Statements

H7F1 Swimming pool access

[2019: F2.7.1]

A swimming pool is to be provided with-

- (a) means to restrict access to it by young children; and
- (b) means to reduce the possibility of a person being entrapped or injured due to suction by a water recirculation system.

Applications:

H7F1 only applies to a *swimming pool* with a depth of water more than 300 mm.

H7F2 Heating appliances

Heating appliances using controlled combustion located in a building are to be installed in a way which reduces the likelihood of-

- (a) fire spreading beyond the appliance; and
- (b) smoke from the appliance entering the building.

H7F3 Alpine areas

A building in an alpine area is to be provided with additional measures in view of the increased difficulties in fighting fire and maintaining access and means of egress in snow conditions.

H7F4 **Bushfire areas**

A Class 1 building or a Class 10a building or deck associated with a Class 1 building constructed in a designated bushfire prone area is to provide resistance to bushfires in order to reduce the danger to life and reduce the risk of the loss of the building.

Private bushfire shelters H7F5

A structure designed for emergency occupation during a bushfire event must provide shelter to occupants from direct and indirect actions of a bushfire.

Applications:

H7F5 only applies to a Class 10c building.

| Performance Requirements |
|--------------------------|
| |
| NSW H7P1 |

NT H7P1 QLD H7P1

H7P1 Swimming pool access

A barrier must be provided to a swimming pool and must-

- (a) be continuous for the full extent of the hazard; and
- (b) be of a strength and rigidity to withstand the foreseeable impact of people; and
- (c) restrict the access of young children to the pool and the immediate pool surrounds; and
- (d) have any gates and doors fitted with latching devices not readily operated by young children, and constructed to automatically close and latch.

[2019: F2.7.5]

[2019: P2.7.1]

[2019: F2.7.3]

[2019: F2.7.4]

[2019: F2.7.2]

Applications:

H7P1 only applies to a *swimming pool* with a depth of water more than 300 mm.

H7P2 Swimming pool reticulation systems

[2019: P2.7.2]

A *swimming pool* water recirculation system must incorporate safety measures to avoid entrapment of, or injury to, a person.

Applications:

H7P2 only applies to a *swimming pool* with a depth of water more than 300 mm.

TAS H7P3

H7P3 Heating appliances

[2019: P2.7.3]

A heating appliance and its associated components within a building, including an open fire-place, chimney, or the like, must be installed—

- (a) to withstand the temperatures likely to be generated by the appliance; and
- (b) so that it does not raise the temperature of any building element to a level that would adversely affect the element's physical or mechanical properties or function; and
- (c) so that hot products of combustion will not-
 - (i) escape through the walls of the associated components; and
 - (ii) discharge in a position that will cause fire to spread to nearby *combustible* materials or allow smoke to penetrate through nearby *windows*, ventilation inlets, or the like in the building containing the heating appliance.

H7P4 Buildings in alpine areas

[2019: 2.7.4]

- (1) An external doorway from a building in an *alpine area* must be installed so that opening the door is not obstructed by snow or ice.
- (2) A building in an *alpine area* containing external trafficable structures forming part of the means of egress must be constructed so that they remain, as far as practicable, useable under snow conditions.
- (3) A building in an *alpine area* must be constructed so that snow or ice is not shed from the building onto the allotment, any adjoining allotment, road or public space in a location or manner that will—
 - (a) obstruct a means of egress from any building to a road or open space; or
 - (b) otherwise endanger people.

TAS H7P5

H7P5 Buildings in bushfire prone areas

[2019: P2.7.5]

A Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the

(a) reduce the risk of ignition from *design bushfire* with annual probability of exceedance not greater than 1:50 years; and

- (b) take account of the assessed duration and intensity of the fire actions of the design bushfire; and
- (c) be designed to prevent internal ignition of the building and its contents; and
- (d) maintain the structural integrity of the building for the duration of the design bushfire.
- (a) potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and
- (b) intensity of the bushfire attack on the building.

H7P6 Private bushfire shelters

[2019: P2.7.6]

A *private bushfire shelter* must be designed and constructed to provide a tenable environment for occupants during <u>a</u> <u>design bushfire with an annual probability of exceedance not greater than 1:200 years</u> the passage of untenable conditions arising from a bushfire event, appropriate to the—

- (a) location of the private bushfire shelter relative to fire hazards including-
 - (i) predominant vegetation; and
 - (ii) adjacent buildings and structures; and
 - (iii) allotment boundaries; and
 - (iv) other combustible materials; and
- (b) occupancy of the *private bushfire shelter*; and
- (c) bushfire intensity having regard for the bushfire attack level; and
- (d) fire intensity from adjacent buildings and structures, allotment boundaries and other combustible materials; and
- (e) ready access to the private bushfire shelter from the associated dwelling and occupant egress after the fire; and
- (f) tenability within the private bushfire shelter for the estimated maximum period of occupancy; and
- (g) generation of smoke, heat and toxic gases from materials used to construct the private bushfire shelter; and
- (h) structural and fire loads and actions to which it may reasonably be subjected, appropriate to-
 - (i) the topography between the *private bushfire shelter* and the predominant vegetation or other fire hazards; and
 - (ii) the distance between the *private bushfire shelter* and the predominant vegetation or other fire hazards; and
 - (iii) the size of the potential fire source and fire intensity; and
 - (iv) wind loading; and
 - (v) potential impact from debris such as falling tree limbs; and
- (i) degree of external signage identifying the location of the private bushfire shelter; and
- (j) degree of internal signage identifying the design capacity and maximum period of occupancy; and
- (k) degree of occupant awareness of outside environmental conditions; and
- (I) degree of essential maintenance.

Applications:

H7P6 only applies to a Class 10c building.

Notes:

NCC Volume Two and the ABCB *Housing Provisions* do not contain any *Deemed-to-Satisfy Provisions* for H7P6, however the ABCB Performance Standard for Private Bushfire Shelters contains guidance for H7P6.

Verification Methods

[2019: V2.7.1]

Compliance with H7P3(a) and (b) is verified when-

- (a) components used within an appliance and its installation are constructed from-
 - (i) heat-resistant materials for maximum operating temperatures more than 600°C, where the material complies with (c); or
 - (ii) heat-tolerant materials for maximum operating temperatures more than 150°C and less than 600°C, where the material complies with (c); and
- (b) the building elements surrounding the appliance maintain their designed function and material properties inclusive of a full range of thermal movements when exposed to the heat effects of the appliance; and
- (c) a sample of the material is tested to the maximum operating temperature, specified in (a)(i) or (a)(ii) for a minimum of 96 hours; and
- (d) the tested sample, when allowed to cool, must be free from-
 - (i) visible cracks and fractures; and
 - (ii) visible indication of de-lamination; and
 - (iii) linear distortion in excess of the equivalent of 10 mm per metre, and
 - (iv) deterioration of the appearance of any surface finish, when compared to an unheated sample.

Explanatory Information:

Under H7V1, the user needs to demonstrate that the proposed appliance will not deteriorate under standard operating conditions. Examples of deterioration may include deformation or failure of components that would render the appliance unsafe to use.

For the purposes of demonstrating compliance with (a), the typical operating temperature of a combustion device can be established by testing.

For the purposes of demonstrating compliance with (b), materials used for building elements (walls, floors and ceiling) in the areas surrounding an appliance can be appropriately selected and/or designed to align with the quantified values as determined by (a). This could either be achieved by using *Expert Judgement* or by adhering to manufacturer's specifications. Certification in accordance with CodeMark Australia would also be a possibility in demonstrating compliance using the *Verification Method*.

Full range of thermal movements relates to both the appliance and materials when exposed to both the heated and ambient conditions,

Benefits to industry derived from the application of this *Verification Method* includes the potential use of non-standard national or internationally manufactured appliances. For example, test reports from appliances complying with various ISO Standards and various British Standards could be used to demonstrate compliance with the *Verification Method*. The *Verification Method* also allows for in situ testing of unique combustion appliances, which would not easily be tested in accordance with the Australian Standard. Such testing would need to be verified by a suitably qualified practitioner and be supported by appropriate documentation.

H7V2 Buildings in bushfire prone areas

[2019: V2.7.2]

- Compliance with H7P5 is verified if the ignition probability for a building exposed to a design bushfire does not exceed 10%.
- (2) Bushfire design actions must be determined in consideration of the annual probability of a design bushfire derived from—
 - (a) assigning the building or structure with an importance level in accordance with (3); and
 - (b) determining the corresponding annual probability of exceedance in accordance with Table H7V2.
- (3) A building or structure's importance level must be identified as one of the following:

- (a) Importance level 1 where the building or structure presents a low degree of hazard to life and *other property* in the case of failure.
- (b) Importance level 2 where the building or structure is not of importance level 1 or 4 and is a Class 1a or 1b building accommodating 12 people or less.
- (c) Importance level 4 where the building is a Class 10c building and is subject to a necessary 'defend in place' strategy.
- (4) The ignition probability for a building must be assessed by application of the following:
 - (a) An event tree analysis of relevant bushfire scenarios.
 - (b) Design bushfire conditions that include combinations of the following actions appropriate to the distance between the building and the bushfire hazard:
 - (i) Direct attack from airborne burning embers.
 - (ii) Burning debris and accumulated embers adjacent to a building element.
 - (iii) Radiant heat from a bushfire front.
 - (iv) Direct flame attack from a bushfire front.
- (5) Applied fire actions must allow for reasonable variations in-
 - (a) fire weather; and
 - (b) vegetation, including fuel load, burning behaviour of vegetation (including the potential for crown fires); and
 - (c) the distance of the building from vegetation; and
 - (d) topography, including slopes and features that may shield; and
 - (e) ignition of adjacent buildings, building elements, plants, mulch and other materials; and
 - (f) effective size of fire front; and
 - (g) duration of exposure; and
 - (h) flame height; and
 - (i) flame tilt; and
 - (j) flame adhesion to sloping land; and
 - (k) the height of the building and its elements.
- (6) The assessment process must include consideration of-
 - (a) the probability of non-complying construction of critical aspects of an approved design; and
 - (b) the probability of critical aspects of an approved design being fully functional during the life of the building; and
 - (c) inclusion of safety factors; and
 - (d) sensitivity analysis of critical aspects of a proposed design.

Table H7V2: Annual Probability of Exceedance (APE) for design bushfire actions

| Importance level | Complex analysis APE for bushfire exposure | Simple analysis APE for weather conditions (design bushfire) |
|------------------|--|--|
| 1 | No requirement | No requirement |
| 2 | 1:500 | 1:50 |
| 3 | N/A for Class 1 and 10 buildings | N/A for Class 1 and 10 buildings |
| 4 | 1:2000 | 1:200 |

Table Notes:

Complex analysis must consider the probability of ignition, fire spread to the urban interface and penetration of the urban interface coincident with fire weather conditions.

Explanatory Information:

NCC Volume Two does not apply to buildings that are importance level 3, therefore this importance level in not included

H7V2

under (3).

Deemed-to-Satisfy Provisions

H7D1 Deemed-to-Satisfy provisions

[New for 2022]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H7P1 to H7P5 are satisfied by complying with H7D2 to H7D5.
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G2(4) as applicable.
- (3) If a private bushfire shelter is installed, it must comply with Performance Requirement H7P6.

Notes:

There are no Deemed-to-Satisfy Provisions for H7P6.

NSW H7D2

H7D2

Swimming pools

NT H7D2(1)

QLD H7D2(1)

- (1) *Performance Requirement* H7P1 is satisfied for a *swimming pool* with a depth of water more than 300 mm and which is associated with a Class 1 building, if it has safety barriers installed in accordance with AS 1926.1 and AS 1926.2.
- (2) *Performance Requirement* H7P2 is satisfied for a water recirculation system of a *swimming pool* with a depth of water more than 300 mm, if it complies with AS 1926.3.

SA H7D2(3)

Explanatory Information: Definition of 'swimming pool'

The NCC definition of *swimming pool* is specific in including a bathing or wading pool and a spa. The requirements of AS 1926.3 apply to all types of pools defined as *swimming pools* under the BCA, irrespective of the definition in the Standard.

Explanatory Information: Water recirculation systems

The *swimming pool* water recirculation system requirements seek to minimise the risk of entrapment or injury of people using the *swimming pool* and provide for the safe operation of skimmer boxes and outlet systems.

Explanatory Information: Additional requirements

Part 13.6 of the ABCB Housing Provisions contains requirements for *swimming pool* and spa pool heating and pumping. In specific circumstances, Part 13.6 requires a *swimming pool* or spa pool to have a cover to reduce evaporation and subsequent heat loss, and time switches to control the operation of the heater.

In addition to the requirements of this Part, a *swimming pool* must comply with the structural requirements of other Parts of NCC Volume Two and the ABCB Housing Provisions. The structural requirements refer to the *swimming pool* being designed and constructed to withstand any combinations of loads and other actions to which it may reasonably be subjected and the structural resistance of the materials and forms of construction used in the *swimming pool*.

Explanatory Information: Cross-volume considerations

Part C2 of NCC Volume Three sets out the requirements for pumped discharge from swimming pools.

[2019: 3.10.1]

H7D3 Construction in alpine areas

- (1) Compliance with Part 12.2 of the ABCB Housing Provisions satisfies *Performance Requirement* H7P4 for buildings that are located in *alpine areas*
- (2) The *Deemed-to-Satisfy Provisions* of this Part apply in addition to other *Deemed-to-Satisfy Provisions* of NCC Volume Two and the ABCB Housing Provisions.
- (3) Where any *Deemed-to-Satisfy Provisions* are in conflict, the provisions of H7D3 take precedence.

NSW H7D4

H7D4 Construction in bushfire prone areas

[2019: 3.10.5]

[2019: 3.10.4]

- (1) The requirements of (2) only apply in a *designated bushfire prone area*.
- (2) *Performance Requirement* H7P5 is satisfied for a Class 1 building, or a Class 10a building or deck associated with a Class 1 building, if it is constructed in accordance with—
 - (a) AS 3959; or
 - (b) NASH Standard Steel Framed Construction in Bushfire Areas.

QLD H7D4(3)

H7D5 Boilers, pressure vessels<u>H</u>heating appliances, fireplaces, chimneys and flues

[2019: 3.10.7]

Performance Requirement H7P3 is satisfied a heating appliance if it is installed in accordance with-

- (a) for a domestic solid fuel burning appliance, AS/NZS 2918; or
- (b) for a heating appliance, Part 12.4 of the ABCB Housing Provisions.

Explanatory Information:

H7D5 applies to three types of heating appliances and includes the following:

- 1. <u>Open fireplaces where solid fuel such as timber or coals are burnt in an unenclosed compartment. The requirements in the Part 12.4 of the ABCB Housing Provisions for open fireplaces relate to masonry or concrete construction for all parts including the hearth, external faces and walls forming the back and sides and chimney.</u>
- 2. <u>Insert fireplaces manufactured and assembled in factories and inserted into the openings of masonry fireplaces</u> in a building. All insert fireplaces must be tested to AS/NZS 2918 and have closed fire compartments for the burning of solid fuels.
- 3. <u>Free standing heating appliances manufactured and assembled in factories and installed in the building without being concealed by wall or floor elements. All free standing fireplaces must be tested to AS/NZS 2918 and are required to be positioned in a building that meets specific minimum distances from internal building elements.</u>

The requirements of both the H7D5(1) and Part 12 of the ABCB Housing Provisions in H7D5 are intended to ensure the construction or installation of heating appliances can withstand the temperatures they generate. The requirements also ensure there is no spread of fire from within the heating appliance to adjacent building elements.

In addition to this, the requirements ensure hot products of combustion and smoke do not affect the occupants within the building. This is achieved by requiring construction and installation of heating appliances to transfer products of combustion and smoke directly to the outside atmosphere.

Insert fireplaces fueled by gas are not covered by Part 12.4 of the ABCB Housing Provisions. Insert gas fireplaces may be regulated by relevant authorities responsible for gas installations in each State or Territory jurisdiction and may be

required to comply with AS 5601 – Gas installations.

Part H8 Livable housing design

Introduction to this Part

This Part sets requirements for dwellings to include features that are designed to improve their accessibility and usability for occupants and visitors, including those with a mobility-related disability.

| Objectives H801 Objective [New for 2022 |
|---|
| H801 Objective [New for 2022 |
| H801 Objective [New for 2022 |
| [New for 2022 |
| |
| |
| The Objective of this Part is to ensure that housing is designed to meet the needs of the community, including olde Australians and those with a mobility-related disability. |
| Applications: |
| H8O1 only applies to Class 1a buildings. |
| |
| |
| Functional Statements |
| |
| H8F1 Livable housing design |
| [New for 2022 |
| A dwelling should be designed such that it is— |
| (a) easy to enter; and |
| (b) easy to pavigate in an around: and |
| (b) capable of easy and cost effective adaptation; and |
| (d) representation reade of economic and a ferror reade of economic to |
| (d) responsive to the changing needs of occupants. |
| |
| Explanatory Information: |
| |
| H8F1 only applies to Class 1a buildings. |

Performance Requirements

H8P1 Livable housing design

[New for 2022]

A Class 1a building must be provided with—

- (a) a safe, continuous and step-free path to a dwelling entrance door from either-
 - (i) the pedestrian entry at the allotment boundary; or
 - (ii) an appurtenant Class 10a garage or carport; or
 - (iii) a car parking space provided for the exclusive use of the occupants of the dwelling; and
- (b) at least one level and step-free entrance door into the dwelling from the access path required by (a); and

- (c) internal doors and corridors which facilitate unimpeded movement between spaces; and
- (d) a sanitary compartment that—
 - (i) facilitates independent access and use; and
 - (ii) is located on the ground or entry level; and
- (e) <u>a shower that</u>
 - (i) facilitates independent access and use; and
 - (ii) is located on the ground or entry level; and
- (f) the walls of the sanitary compartment referred to in (d) and the shower referred to in (e) constructed so as to facilitate future installation of grabrails, or the like, in a way that minimises the removal of existing wall linings.

Exemptions:

H8P1(a) need not be complied with if-

- (a) <u>step-free access cannot be provided from an appurtenant Class 10a garage or carport or a car parking space</u> provided for the exclusive use of the occupants of the dwelling; and
- (b) <u>due to site conditions, there is no other suitable location on which to construct the access path.</u>

Deemed-to-Satisfy Provisions

H8D1 Deemed-to-Satisfy Provisions

[New for 2022]

- (1) <u>Where a Deemed-to-Satisfy Solution is proposed</u>, <u>Performance RequirementH8P1 is satisfied by complying with H8D2</u>.
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3).

<u>H8D2</u> <u>Livable housing design</u>

[New for 2022]

- (<u>1</u>) <u>A Class 1a dwelling must comply with the ABCB Standard for Livable Housing Design.</u>
- (2) Clause 1.1 of the ABCB Standard for Livable Housing Design need not be complied with if—
 - (a) <u>it is not practicable to provide step-free access via an appurtenant garage, carport or parking space in accordance</u> with Clause 1.1(1)(b) or (c); and
 - (b) one or more of the following is true:
 - (i) <u>The average slope of the ground on which the access path would be constructed exceeds a gradient of 1:14.</u>
 - (ii) <u>To provide an external step-free access path would necessitate construction of ramping that exceeds the length and gradient allowed by Clause 1.1(4).</u>
 - (iii) <u>There is insufficient space available on the *site* on which to construct a step-free access path complying with Clause 1.1.</u>
- (3) Even if Clause 1.1 is not complied with, all other relevant provisions of the ABCB Standard for Livable Housing Design must still be complied with.

Explanatory Information: Exemptions

The exemptions listed at H8D2(2)(b)(i) and (ii) provide for situations where the ramping necessary to provide a stepfree access path would become too lengthy or too steep to be used regularly by a person with limited mobility, and therefore would offer little benefit to dwelling occupants or visitors. Such situations may occur due to a number of factors

Page 143

including (but not limited to):

- The slope of the land upon which the ramp would be constructed. For example, where the land is too steep for the ramp to run straight up, meaning it would instead need to be cut into the slope, or run back and forth across the face of the slope, in order to stay within maximum gradient limits.
- The height of the lowest floor containing *habitable rooms* is too high to be reached by a ramp within *required* length and gradient limits. Floor heights can be influenced by factors such as dwelling style, *defined flood level*, location of the dwelling in an *alpine area*, or construction of the dwelling directly above a *private garage* (including garage-top dwellings).

The exemption listed at H8D2(2)(b)(iii) provides for situations where the amount of available space on the *site* is insufficient to accommodate a step-free access path. This may be due to the physical size of the *site*, or regulations outside of the NCC which limit the proportion of a *site* that can be covered by structures and/or impervious ground coverings.

It is important to note that under H8D2(2), an exemption may only be applied if in a particular case both (a) and (b) are applicable, not just one of the other.
Specification 42 Heating and cooling loads

S42C1 Scope

[New for 2022]

[2019: 3.12.0.1]

This Specification sets out requirements for reducing heating and cooling loads.

S42C2 Heating and cooling loads

SA S42C2(1)

- (1) A building must achieve an energy rating, including the separate heating and cooling load limits, using , of greater than or equal to—
 - (a) 6 stars; or
 - (b) for a building in *climate zones* 1 or 2, 5.5 stars if the building has an outdoor living area as described in (3) if the outdoor living area—
 - (i) is fully covered with an impervious roof having a greater than or equal to 1.5 (for downward heat flow); or
 - (ii) has at least one permanently installed ceiling fan; or
 - (c) for a building in *climate zones*1 or 2, 5 stars if the building has an outdoor living area as described in (3) if the outdoor living area—
 - (i) is fully covered with an impervious roof having a greater than or equal to 1.5 (for downward heat flow); and
 - (ii) has at least one permanently installed ceiling fan.
- (2) The heating and cooling load limits in (1) are specified in the ABCB Standard for NatHERS Heating and Cooling Load Limits.
- (3) An outdoor living area in (1)(b) and (1)(c) is a space that-
 - (a) is directly adjoining, and directly accessible from, a general purpose living area of a Class 1 building such as a lounge, kitchen, dining or family room, which is not a room for sleeping or specialist tasks such as a study or home theatre; and
 - (b) has a *floor area* greater than or equal to 12.0 m²; and
 - (c) has length and width dimensions greater than or equal to 2.5 m each; and
 - (d) has an opening height above floor level greater than or equal to 2.1 m; and
 - (e) has one side permanently open with a second side either-
 - (i) permanently open; or
 - (ii) readily openable.
- (4) The sides referred to in (1)(e) must be greater than or equal to 900 mm from an allotment boundary or 900 mm from an obstruction to the breeze path such as a building, fence or other structure.
- (5) Where a ceiling fan is required as part of compliance with (1)(b) or (1)(c), the fan must comply with clause 13.5.4 of the ABCB Housing Provisions.

SA S42C2(6)

SA S42C2(7)

SA Table S42C2

Explanatory Information: Complying with S42C2(1)

- 1. To comply with (1), the modelled energy loads of a building must not exceed three separate load limits, i.e.
 - a. the total load limit corresponding to the applicable star rating; and
 - b. the heating load limit; and

- c. the cooling load limit.
- 2. Information about building modelling using is available at www.nathers.gov.au.
- 3. The ABCB Standard for NatHERS Heating and Cooling Load Limits can be accessed at www.abcb.gov.au.
- 4. To comply with (1)(b), either insulate the roof of the outdoor living area, or provide a ceiling fan.
- 5. To comply with (1)(c), insulate the roof of the outdoor living area and provide a ceiling fan.
- 6. The options for complying with H6D3(1) are shown in the flowchart in explanatory Figure S42C2.



Explanatory Information: Outdoor living areas

1. The opening height in (3)(d) is to provide a breeze path and is likely to be the measurement from the floor to the

underside of a perimeter beam. It is not a ceiling height measurement. It is also not a height for mounting a ceiling fan or the height of ceiling fan blades above the floor. These dimensions need to be determined considering the activities in the space, the safety of occupants of the space and any appropriate safety standards.

- 2. There is some survey evidence that suggests the majority of home owners turn off their air-conditioners when using an outdoor living area. Another cost effective option is to install a reed switch or other micro switch on the door leading to the outdoor living area in order to automatically deactivate an air-conditioning unit when the door is left open for a period which allows occupants to enter and leave the air-conditioned space but does not affect the operation of the air-conditioner.
- 3. A side referred to in (3)(e) may contain some obstructions such as columns and barriers. Where an open side is *required* to have a 1 m barrier, consideration as to the type (wire, solid or other) should be made with regard to the overall opening area of the two sides.

Schedule 1 Definitions

Abbreviations Symbols Glossary

Abbreviations

| Abbreviation | Definitions |
|--------------|--|
| ABCB | Australian Building Codes Board |
| AC | Alternating Current |
| ACP | Aluminium Composite Panel |
| AS | Australian Standard |
| ASET | Available Safe Egress Time |
| ASTM | American Society for Testing and Materials |
| BCA | Building Code of Australia |
| BE | Fire blocks evacuation route |
| ССТ | Correlated Colour Temperature |
| CF | Challenging fire |
| CHF | Critical Heat Flux |
| CRF | Critical Radiant Flux |
| CS | Fire starts in a concealed space |
| CSHGC | Constant for solar heat gain |
| CSIRO | Commonwealth Scientific and Industrial Research Organisation |
| CU | Constant for conductance |
| DC | Direct Current |
| FED | Fractional Effective Dose |
| FI | Fire brigade intervention |
| FRL | Fire Resistance Level |
| GRP | Glass fibre reinforced polyester |
| HRR | Heat Release Rate |
| HS | Horizontal fire spread |
| IS | Rapid fire spread involving internal surface linings |
| ISO | International Organisation for Standardisation |
| LED | Light-Emitting Diode |
| MEPS | Minimum Energy Performance Standards |
| NABERS | National Australian Built Environment Rating System |
| NATA | National Association of Testing Authorities |
| NatHERS | Nationwide House Energy Rating Scheme |
| NCC | National Construction Code |
| PBDB | Performance-based design brief |
| PCA | Plumbing Code of Australia |
| PMV | Predicted Mean Vote |
| ppm | parts per million |
| PVC | Polyvinyl chloride |
| RC | Robustness check |
| RSET | Required Safe Egress Time |
| RW | Weighted sound reduction index |
| SF | Smouldering fire |

| Abbreviation | Definitions |
|--------------|---|
| SHGC | Solar Heat Gain Coefficient |
| SS | Structural stability and other property |
| STC | Sound Transmission Class |
| UF | Unexpected catastrophic failure |
| UPVC | Unplasticized polyvinyl chloride |
| UT | Fire in normally unoccupied room threatening occupants of other rooms |
| U-Value | Thermal transmittance |
| VS | Vertical fire spread involving external cladding or external openings |

Symbols

| Symbols | Definitions |
|------------|--|
| 0 | degree(s) |
| °C | degree(s) Celsius |
| °CDB | degree(s) Celsius Dry Bulb |
| °CWB | degree(s) Celsius Wet Bulb |
| -e/MJ | equivalent per Megajoule(s) |
| μm | micrometre |
| dB(A) | decibels "A" scale weighting network |
| f'c | Characteristic compressive strength of concrete at 28 days |
| f'y | Yield stress used in design |
| G | Dead load |
| J | Joule(s) |
| J/kg.K | Joules per kilogram degree Kelvin |
| J/s.m2 | Joules per second square metre |
| К | Kelvin(s) |
| kg | kilogram(s) |
| kg/m | kilogram(s) per metre |
| kg/m2 | kilogram(s) per square metre |
| kg/m3 | kilogram(s) per cubic metre |
| kJ/m2.hour | kilojoules per square metre hour |
| km | kilometre(s) |
| kPa | kilopascal(s) |
| kW/m2 | kilowatt(s) per square metre |
| kWheating | kilowatt(s) of heating |
| kWr | kilowatt(s) of refrigeration |
| L | litre(s) |
| L/min | litre(s) per minute |
| L/s | litre(s) per second |
| L/s.m2 | litre(s) per second square metre |
| Lumens/W | Lumens per Watt |
| lx | lux |
| m | metre(s) |
| m/s | metre(s) per second |
| m2 | square metre(s) |
| m2.K/W | square metre Kelvin(s) per Watt |
| m3 | cubic metre(s) |
| m3/hour | cubic metre(s) per hour |
| m3/s | cubic metre(s) per second |
| mcd/m2 | millicandelas per square metre |
| min | minute(s) |
| MJ/hour | Megajoules per hour |

| Symbols | Definitions |
|------------------|--|
| MJ/m2.annum | Megajoules per square metre annum |
| mm | millimetre(s) |
| mm2 | square millimetre(s) |
| MW | megawatt(s) |
| N | newton(s) |
| N/m | Newton(s) per metre |
| Pa | pascal(s) |
| Pa/m | pascal(s) per metre |
| Q | Live load |
| S | second(s) |
| ULS | Ultimate limit state |
| V | Volt(s) |
| W | Watt(s) |
| Winput power | Watts of input power |
| Wr /Winput power | Watts of thermal refrigeration per watt of input power |
| W/kWrej | Watts per kilowatt of heat rejected |
| W/m.K | Watts per metre degree Kelvin |
| W/m2 | Watts per square metre |
| °south | degree south |
| % | percent |
| > | greater than |
| < | less than |
| ≤ | less than or equal to |
| 2 | equal to or more than |
| | |

Glossary

Above ground rainwater tank: A rainwater tank that is not in any way set into the ground.

Accessible: Having features to enable use by people with a disability.

Accessway: A continuous accessible path of travel (as defined in AS 1428.1) to, into or within a building.

Accredited Testing Laboratory: One of the following:

- (a) An organisation accredited by the National Association of Testing Authorities (NATA) to undertake the relevant tests.
- (b) An organisation outside Australia accredited to undertake the relevant tests by an authority recognised by NATA through a mutual recognition agreement.
- (c) An organisation recognised as being an Accredited Testing Laboratory under legislation at the time the test was undertaken.
- Activity support level: The degree to which occupants can undertake activities with respect to the likely activity traits and occupant traits.

Explanatory Information:

This term is used to articulate whether the height of a room or space is sufficient and by what degree. This is achieved by having regard to the room or space's intended use by occupants, through consideration of the defined terms 'activity traits' and 'occupant traits'.

- (a) For the purposes of Volume One, the features of the activities that will be undertaken in a *habitable room* or space.
- (b) For the purposes of Volume Two, the features of the activities that will be undertaken in a room or space.

Explanatory Information:

This term is used to describe the characteristics of the activities that will be undertaken in a room or space.

For example, the activities likely to be undertaken in a bedroom, and the associated features are-

- sleeping a person laying horizontally; and
- resting a person laying horizontally or sitting upright on the bed; and
- leisure activities, such as reading a book a person sitting upright on the bed, with enough space to stretch their arms vertically; and
- dressing/changing clothes a person standing with enough space to stretch their arms vertically.

Administering body: The body responsible for administering the WaterMark Certification Scheme.

Aged care building: A Class 9c building for residential accommodation of aged persons who, due to varying degrees of incapacity associated with the ageing process, are provided with *personal care services* and 24 hour staff assistance to evacuate the building during an emergency.

NSW

- **Air-conditioning:** For the purposes of Section J of Volume One, a *service* that actively cools or heats the air within a space, but does not include a *service* that directly—
 - (a) cools or heats cold or hot rooms; or
 - (b) maintains specialised conditions for equipment or processes, where this is the main purpose of the *service*.
- Alarm zone: For the purposes of Specification 23, an area of a building protected by one or more smoke alarms connected to one alarm circuit.

Alteration: In relation to a building, includes an addition or extension to a building.

Aluminium Composite Panel (ACP): Flat or profiled aluminium sheet material in composite with any type of materials.

Amenity: An attribute which contributes to the health, physical independence, comfort and well-being of people.

Ancillary element: An element that is secondary to and not an integral part of another element to which it is attached.

- Annual exceedance probability: The probability that a given rainfall total accumulated over a given duration will be exceeded in any one year.
- Annual greenhouse gas emissions: The theoretical amount of greenhouse gas emissions attributable to the energy used annually by a building's *services*, excluding kitchen exhaust and the like.
- **Appropriate authority:** For the purposes of the Fire Safety Verification Method, means the relevant authority with the statutory responsibility to determine the particular matter satisfies the relevant *Performance Requirement*.

Explanatory Information:

The Appropriate Authority is typically the building surveyor or building certifier charged with the statutory responsibility to determine building compliance and issue the building permit / approval and occupancy certificate / approval.

NSW Appropriate authority

Appropriate authority: The relevant authority with the statutory responsibility to determine the particular matter.

- **Appropriately qualified person:** A person recognised by the *appropriate authority* as having qualifications and/or experience in the relevant discipline in question.
- **Approved disposal system:** A system for the disposal of sewage, sullage or stormwater approved by an authority having jurisdiction.

Articulated masonry: Masonry construction in which special provisions have been made for movement by articulation.

NSW Assembly building

SA Assembly building

Assembly building: A building where people may assemble for-

- (a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or
- (b) educational purposes in a school, early childhood centre, preschool, or the like; or
- (c) entertainment, recreational or sporting purposes including-
 - (i) a discotheque, nightclub or a bar area of a hotel or motel providing live entertainment or containing a dance floor; or
 - (ii) a cinema; or
 - (iii) a sports stadium, sporting or other club; or
- (d) transit purposes including a bus station, railway station, airport or ferry terminal.

Assessment Method: A method that can be used for determining that a *Performance Solution* or *Deemed-to-Satisfy Solution* complies with the *Performance Requirements*.

Atrium: A space within a building that connects 2 or more storeys and-

- (a) is enclosed at the top by a floor or roof (including a glazed roof structure); and
- (b) includes any adjacent part of the building not separated by an appropriate barrier to fire; but
- (c) does not include a stairwell, rampwell or the space within a *shaft*; and
- (d) for the purposes of (a) a space is considered enclosed if the area of the enclosing floor or roof is greater than 50% of the area of the space, measured in plan, of any of the *storeys* connected by the space.
- Atrium well: A space in an *atrium* bounded by the perimeter of the openings in the floors or by the perimeter of the floors and the *external walls*.

Automatic: Designed to operate when activated by a heat, smoke or fire sensing device.

- (a) The time between ignition of a fire and the onset of untenable conditions in a specific part of a building.
- (b) The time referred to in (1) is the calculated interval between the time of ignition of a fire and the time at which conditions become such that the occupant is unable to take effective action to escape to a place of safety.
- Average daylight factor: The ratio of the illumination level within a room provided by daylight to the level of daylight outside the building during overcast conditions.

- Average recurrence interval: Applied to rainfall, means the expected or average interval between exceedances for a 5 minute duration rainfall intensity.
- Average specific extinction area: The average specific extinction area for smoke as determined by AS 5637.1.
- **Backflow prevention device:** An air gap, break tank or mechanical device that is designed to prevent the unplanned reversal of flow of water or *contaminants* into the water service or a *Network Utility Operator's* water supply.
- Backpressure: A reversal of water flow caused by the downstream pressure becoming greater than the supply pressure.
- **Backsiphonage:** A reversal of flow of water caused by negative pressure in the distributing pipes of a water service or supply.
- **Backstage:** A space associated with, and adjacent to, a *stage* in a Class 9b building for scenery, props, equipment, dressing rooms, or the like.
- Battery system: One or more chemical cells connected in series, parallel or a combination of the two for the purpose of electrical energy storage.
- Blockage: An obstruction within a water service or sanitary plumbing or drainage system.
- **Boiler:** A vessel or an arrangement of vessels and interconnecting parts, wherein steam or other vapour is generated, or water or other liquid is heated at a pressure above that of the atmosphere, by the application of fire, the products of combustion, electrical power, or similar high temperature means, and—
 - (a) includes superheaters, reheaters, economisers, boiler piping, supports, mountings, valves, gauges, fittings, controls, the boiler settings and directly associated equipment; but
 - (b) excludes a fully flooded or pressurised system where water or other liquid is heated to a temperature lower than the normal atmospheric boiling temperature of the liquid.
- Bond breaker: A material used as part of a *waterproofing system* that prevents the *membrane* bonding to the substrate, bedding or lining.
- Breaking surf: Any area of salt water in which waves break on an average of at least 4 days per week but does not include white caps or choppy water.

Explanatory Information:

Breaking surf normally occurs in areas exposed to the open sea. Breaking surf does not normally occur in sheltered areas, such as that which occurs around Port Phillip Bay, Sydney Harbour, Swan River, Derwent River and similar locations.

- **Brittle failure:** Loss of strength to resist design actions without first undergoing significant deformation which, for the purposes of the *Performance Requirements*, may be taken to include (but is not limited to) buckling, fatigue failure and soil bearing failure.
- Building complexity criteria: Are used to determine whether all or part of a building is low, medium, high or very high building complexity the building complexity criteria are:
 - (a) <u>Attributes the building is designed or constructed with any of the following sub-criteria:</u>
 - (i) An effective height of more than 25 m.
 - (ii) <u>One or more *Performance Solutions* used to demonstrate compliance with *Performance Requirements* relating to material and systems for structural safety.</u>
 - (iii) <u>One or more *Performance Solutions* used to demonstrate compliance with *Performance Requirements* relating to material and systems for fire safety.</u>
 - (iv) In an area prone to natural disaster or adverse environmental conditions.
 - (b) <u>Class 2 all or part of the building is Class 2 of three or more storeys.</u>
 - (c) <u>Occupant numbers the building is to occupied by more than 100 people determined in accordance with D2D18.</u>
 - (d) <u>Occupant characteristics the building is to be occupied by more than 10 people who will require assistance to evacuate the building in an emergency.</u>
 - (e) <u>Building Importance Level 4 the building is determined to be Importance Level 4 in accordance with Table B1D3a.</u>

Building complexity: high: Where a building meets three of building complexity criteria (a) (Attributes), (b) (Class 2), (c) (Occupant numbers), or (d) (Occupant characteristics).

- **Building complexity: low:** Where a building meets one only of *building complexity criteria* (a) (Attributes), (b) (Class 2), (c) (Occupant numbers), or (d) (Occupant characteristics).
- Building complexity: medium: Where a building meets two of building complexity criteria (a) (Attributes), (b) (Class 2), (c) (Occupant numbers), or (d) (Occupant characteristics).

Building complexity: very high: Where a building meets-

- (a) <u>all building complexity criteria</u> (a) (Attributes), (b) (Class 2), (c) (Occupant numbers), and (d) (Occupant <u>characteristics</u>); or
- (b) *building complexity criterion* (e) (Building Importance Level 4).

Notes:

The NCC currently does not include corresponding technical requirements relating to the defined term '*building complexity criteria*' and the various building complexity levels. It is intended that these terms will be integrated into future editions of the NCC.

Buried rainwater tank: A rainwater tank that is set into and completely covered by earth.

- **Burnout:** Exposure to fire for a time that includes *fire growth*, full development, and decay in the absence of intervention or automatic suppression, beyond which the fire is no longer a threat to building elements intended to perform *loadbearing* or fire separation functions, or both.
- **Carpark:** A building that is used for the parking of motor vehicles but is neither a *private garage* nor used for the servicing of vehicles, other than washing, cleaning or polishing.
- **Cavity:** A void between 2 leaves of masonry, or in masonry veneer construction, a void between a leaf of masonry and the supporting frame.
- Cavity wall: For the purposes of F1V1 and H2V1, a wall that incorporates a drained cavity.
- **Certificate of Accreditation:** A certificate issued by a State or Territory accreditation authority stating that the properties and performance of a building material or method of construction or design fulfil specific requirements of the NCC.
- **Certificate of Conformity:** A certificate issued under the ABCB scheme for products and systems certification stating that the properties and performance of a building material or method of construction or design fulfil specific requirements of the NCC.
- **Certification body:** A person or organisation operating in the field of material, product, form of construction or design certification that has been accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ), and is accredited for a purpose other than as part of the CodeMark Australia Certification Scheme or *WaterMark Certification Scheme*.
- **Characteristic:** The occupant data to be used in the modelling of access solutions which define how an occupant interacts with a building, i.e. occupant movement speeds, turning ability, reach capability, perception of luminance contrast and hearing threshold.
- **Clad frame:** Timber or metal frame construction with exterior timber or sheet wall cladding that is not sensitive to minor movement and includes substructure masonry walls up to 1.5 m high.
- **Climate zone:** Climate zone means an area defined in Figure 2 and in Tables 2a to 2h for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

Table 2a: Climate zones for thermal design — Australian Capital Territory

| Location | Climate zone |
|----------|--------------|
| Canberra | 7 |

Table 2b:

Climate zones for thermal design — New South Wales

| Location | Climate zone |
|--------------|--------------|
| Albury | 4 |
| Armidale | 7 |
| Batemans Bay | 6 |

| Location | Climate zone |
|-------------------------------------|--------------|
| Bathurst | 7 |
| Bega | 6 |
| Bellingen Shire - Dorrigo Plateau | 7 |
| Bellingen Shire - Valley & seaboard | 2 |
| Bourke | 4 |
| Broken Hill | 4 |
| Byron Bay | 2 |
| Cobar | 4 |
| Coffs Harbour | 2 |
| Dubbo | 4 |
| Goulburn | 7 |
| Grafton | 2 |
| Griffith | 4 |
| Ivanhoe | 4 |
| Lismore | 2 |
| Lord Howe Island | 2 |
| Moree | 4 |
| Newcastle | 5 |
| Nowra | 6 |
| Orange | 7 |
| Perisher - Smiggins | 8 |
| Port Macquarie | 5 |
| Sydney East | 5 |
| Sydney West | 6 |
| Tamworth | 4 |
| Thredbo | 8 |
| Wagga Wagga | 4 |
| Williamtown | 5 |
| Wollongong | 5 |
| Yass | 6 |

Table 2c:

Climate zones for thermal design — Northern Territory

| Location | Climate zone |
|----------------|--------------|
| Alice Springs | 3 |
| Darwin | 1 |
| Elliot | 3 |
| Katherine | 1 |
| Renner Springs | 3 |
| Tennant Creek | 3 |

Table 2d:

Climate zones for thermal design — Queensland

| Location | Climate zone |
|------------|--------------|
| Birdsville | 3 |

| Location | Climate zone |
|-------------|--------------|
| Brisbane | 2 |
| Bundaberg | 2 |
| Cairns | 1 |
| Cooktown | 1 |
| Cunnamulla | 3 |
| Gladstone | 2 |
| Hervey Bay | 2 |
| Hughenden | 3 |
| Longreach | 3 |
| Mackay | 2 |
| Mount Isa | 3 |
| Normanton | 1 |
| Rockhampton | 2 |
| Roma | 3 |
| Southport | 2 |
| Toowoomba | 5 |
| Townsville | 1 |
| Warwick | 5 |
| Weipa | |

Table 2e:

Climate zones for thermal design — South Australia

| Location | Climate zone |
|----------------|--------------|
| Adelaide | 5 |
| Bordertown | 6 |
| Ceduna | 5 |
| Cook | 4 |
| Elliston | 5 |
| Kingscote | 6 |
| Leigh Creek | 5 |
| Lobethal | 6 |
| Loxton | 5 |
| Naracoorte | 6 |
| Marree | 4 |
| Mount Gambier | 6 |
| Murray Bridge | 6 |
| Oodnadatta | 4 |
| Port Augusta | 4 |
| Port Lincoln | 5 |
| Renmark | 5 |
| Tarcoola | 4 |
| Victor Harbour | 6 |
| Whyalla | 4 |

Table 2f: Climate zones for thermal design — Tasmania

| Location | Climate zone |
|-----------------|--------------|
| Burnie | 7 |
| Bicheno | 7 |
| Deloraine | 7 |
| Devonport | 7 |
| Flinders Island | 7 |
| Hobart | 7 |
| Huonville | 7 |
| King Island | 7 |
| Launceston | 7 |
| New Norfolk | 7 |
| Oatlands | 7 |
| Orford | 7 |
| Rossarden | 7 |
| Smithton | 7 |
| St Marys | 7 |
| Zeehan | 7 |

Table 2g:

Climate zones for thermal design — Victoria

| Location | Climate zone |
|-------------|--------------|
| Anglesea | 6 |
| Ararat | 7 |
| Bairnsdale | 6 |
| Ballarat | 7 |
| Benalla | 6 |
| Bendigo | 6 |
| Bright | 7 |
| Colac | 6 |
| Dandenong | 6 |
| Echuca | 4 |
| Geelong | 6 |
| Hamilton | 7 |
| Horsham | 6 |
| Melbourne | 6 |
| Mildura | 4 |
| Portland | 6 |
| Sale | 6 |
| Shepparton | 4 |
| Swan Hill | 4 |
| Traralgon | 6 |
| Wangaratta | 7 |
| Warrnambool | 6 |

| Location | Climate zone |
|----------|--------------|
| Wodonga | 6 |

Table 2h:

Climate zones for thermal design — Western Australia

| Location | Climate zone |
|--------------------|--------------|
| Albany | 6 |
| Balladonia | 4 |
| Broome | 1 |
| Bunbury | 5 |
| Carnarvon | 3 |
| Christmas Island | 1 |
| Cocos Island | 1 |
| Derby | 1 |
| Esperance | 5 |
| Exmouth | 1 |
| Geraldton | 5 |
| Halls Creek | 3 |
| Kalgoorlie-Boulder | 4 |
| Karratha | 1 |
| Meekatharra | 4 |
| Northam | 4 |
| Pemberton | 6 |
| Perth | 5 |
| Port Hedland | 1 |
| Wagin | 4 |
| Wyndham | 1 |
| | |





Figure Notes:

- (a) This map can be viewed in enlargeable form on the ABCB website at abcb.gov.au.
- (b) A Zone 4 area in South Australia, other than a council area, at an altitude greater than 300 m above the Australian Height Datum is to be considered as Zone 5.
- (c) The areas referred to in (2) have been defined in an enlarged format on the following maps produced by the Department of Planning, Transport and Infrastructure (these maps can be viewed on the Government of South Australia website at www.sa.gov.au):
 - (i) Adelaide Hills Climate Zone Map.
 - (ii) Barossa Council Climate Zone Map.
 - (iii) Regional Council of Goyder Climate Zone Map.
- (d) Locations in *climate zone* 8 are in *alpine areas*.

Combustible: Applied to-

- (a) a material means combustible as determined by AS 1530.1; and
- (b) construction or part of a building means constructed wholly or in part of combustible materials.
- (a) For the purposes of Volume One, a wall that is common to adjoining buildings.
- (b) For the purposes of Volume Two and the ABCB Housing Provisions, a wall that is common to adjoining buildings other than Class 1 buildings.
- **Condensation:** The formation of moisture on the surface of a building element or material as a result of moist air coming into contact with a surface which is at a lower temperature.
 - (a) For the purposes of Volume One, a space within a building, including a ceiling or under-floor supply air plenum or return air plenum, where the environment is likely, by the intended use of the space, to have its temperature controlled by *air-conditioning*.
 - (b) For the purposes of Volume Two, a space within a building that is heated or cooled by the building's *domestic services*, excluding a non-*habitable room* in which a heater with a capacity of not more than 1.2 kW or 4.3 MJ/hour is installed.

Connections: The parts that fix the members into the structure, through which the loads pass.

- **Construction activity actions:** Actions due to stacking of building materials or the use of equipment, including cranes and trucks, during construction or actions which may be induced by floor to floor propping.
- **Containment protection:** The installation of a *backflow prevention device* at the *point of connection* of a *Network Utility Operator's* water supply to a site.
- **Contaminant:** Any substance (including gases, liquids, solids or micro-organisms), energy (excluding noise) or heat, that either by itself or in combination with the same, similar or other substances, energy or heat, changes or is likely to change the physical, chemical or biological condition of water.
- **Controlled fill:** Material that has been placed and compacted in layers with compaction equipment (such as a vibrating plate) within a defined moisture range to a defined density requirement.
- **Cooling load:** The calculated amount of energy removed from the cooled spaces of the building annually by artificial means to maintain the desired temperatures in those spaces.
- Critical radiant flux (CRF): The critical heat flux at extinguishment (CHF in kW/m²) as determined by AS ISO 9239.1.
- Cross-connection: Any actual or potential connection between a water supply and any contaminant.
- Curtain wall: A non-loadbearing external wall that is not a panel wall.
- **Damp-proof course (DPC):** A continuous layer of impervious material placed in a masonry wall or pier, or between a wall or pier and a floor, to prevent the upward or downward migration of water.
- Deemed-to-Satisfy Provisions: Provisions which are deemed to satisfy the Performance Requirements.
- **Deemed-to-Satisfy Solution:** A method of satisfying the *Deemed-to-Satisfy Provisions*.
- **Defined flood event (DFE):** The flood event selected for the management of flood hazard for the location of specific development as determined by the *appropriate authority*.
- **Defined flood level (DFL):** The flood level associated with a *defined flood event* relative to a specified datum (see Figure 3).





NSW Designated bushfire prone area

Designated bushfire prone area: Land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Design bushfire: The characteristics of a bushfire, its initiation, spread and development, which arises from weather conditions, topography and fuel (vegetation) in a given setting, used to determine *fire actions*.

Design fire: The quantitative description of a representation of a fire within the design scenario.

- **Design scenario:** The specific scenario of which the sequence of events is quantified and a *fire safety engineering* analysis is conducted against.
- **Design wind speed:** The design gust wind speed for the area where the building is located, calculated in accordance with AS/NZS 1170.2 or AS 4055 (see Table <u>4</u>3 for wind classes).

Wind classes

| Non-cyclonic Region A and B | Cyclonic Region C and D |
|--|--|
| N1, N2, N3 | C1 |
| N4, N5, N6 (these wind classes are covered in the Housing Provisions Part 2.2, Structural provisions). | C2, C3, C4 (these wind classes are covered in the Housing Provisions Part 2.2, Structural provisions). |

Table Notes:

- (a) Wind classification map identifying wind regions is contained in Housing Provisions Part 2.2 (see Figure 2.2.3).
- (b) Information on wind classes for particular areas may be available from the *appropriate authority*.

(c) "N" = non-cyclonic winds and "C" = cyclonic winds.

- **Detention centre:** A building in which persons are securely detained by means of the built structure including a prison, remand centre, juvenile detention centre, holding cells or psychiatric detention centre.
- **Direct fix cladding wall:** For the purposes of F1V1 and H2V1, means a wall with cladding attached directly to the wall framing without the use of a drained cavity.
 - (a) A wall having a minimum 20 mm cavity between 2 separate leaves, and-
 - (i) for masonry, where wall ties are used to connect leaves, the ties are of the resilient type; and
 - (ii) for other than masonry, there is no mechanical linkage between the leaves, except at the periphery.
 - (b) A staggered stud wall is not deemed to be discontinuous construction.

Display glazing: *Glazing* used to display retail goods in a shop or showroom directly adjacent to a walkway or footpath, but not including that used in a café or restaurant.

Domestic services: The basic engineering systems that use energy or control the use of energy; and-

- (a) includes-
 - (i) heating, air-conditioning, mechanical ventilation and artificial lighting; and
 - (ii) pumps and heaters for swimming pools and spa pools; and
 - (iii) heated water systems; but
- (b) excludes cooking facilities and portable appliances.

Drainage: Any part of sanitary drainage, liquid trade waste drainage or stormwater drainage system.

- (a) <u>a sanitary drainage system, including any liquid trade waste drainage; or</u>
- (b) a stormwater drainage system.
- Drainage flange: A flange connected to a waste pipe, at the point at which it passes through the floor substrate, to prevent leakage and which enables tile bed drainage into the waste pipe.

Drainage riser: A waste pipe between the floor waste and the drainage system.

Drinking water: Water intended primarily for human consumption but which has other domestic uses.

Explanatory Information:

See also the Australian Drinking Water Guidelines produced by the National Health and Medical Research Council.

Ductile failure: Significant deformation of a member without loss of strength to resist design actions which, for the purposes of the *Performance Requirements*, may be taken to include (but not limited to) soil settlement and creep failure.

TAS Early childhood centre

VIC Early childhood centre

- **Early childhood centre:** Any premises or part thereof providing or intending to provide a centre-based education and care service within the meaning of the Education and Care Services National Law Act 2010 (Vic), the Education and Care Services National Regulations and centre-based services that are licensed or approved under State and Territory children's services law, but excludes education and care primarily provided to school aged children in outside school hours settings.
- **Effective height:** The vertical distance between the floor of the lowest *storey* included in the calculation of *rise in storeys* and the floor of the topmost *storey* (excluding the topmost *storey* if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).
- **Efficacy:** The degree to which a system achieves a design objective given that it performs to a level consistent with the system specification during the relevant fire scenario.
- **Electricity network substation:** A building in which high voltage supply is converted or transformed and which is controlled by a licensed network service provider designated under a power of legislation.
- **Electric passenger lift:** A power-operated lift for raising or lowering people in a car in which the motion of the car is obtained from an electric motor mechanically coupled to the hoisting mechanism.

Electrohydraulic passenger lift: A power-operated lift for raising or lowering people in a car in which the motion of the

car is obtained from the action of liquid under pressure acting on a piston or ram, the pressure being generated by a pump driven by an individual electric motor.

Engaged pier: A pier bonded to a masonry wall by course bonding of masonry units or by masonry ties.

- (a) For the purposes of Section J in Volume One, the parts of a building's *fabric* that separate a *conditioned space* or *habitable room* from—
 - (i) the exterior of the building; or
 - (ii) a non-conditioned space including-
 - (A) the floor of a rooftop plant room, lift-machine room or the like; and
 - (B) the floor above a *carpark* or warehouse; and
 - (C) the common wall with a carpark, warehouse or the like.
- (b) For the purposes of Part H6 in Volume Two and Section 13 of the Housing Provisions, the parts of a building's *fabric* that separate artificially heated or cooled spaces from—
 - (i) the exterior of the building; or
 - (ii) other spaces that are not artificially heated or cooled.

Equivalent: Equivalent to the level of health, safety and amenity provided by the Deemed-to-Satisfy Provisions.

Evacuation route: The continuous path of travel (including *exits*, *public corridors* and the like) from any part of a building, including within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part, to a *safe place*.

Evacuation time: The time calculated from when the emergency starts for the occupants of the building to evacuate to a *safe place*.

- (a) Any, or any combination of the following if they provide egress to a road or open space:
 - (i) An internal or external stairway.
 - (ii) A ramp.
 - (iii) A fire-isolated passageway.
 - (iv) A doorway opening to a road or open space.
- (b) A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

TAS Expert Judgement

Expert Judgement: The judgement of an expert who has the qualifications and experience to determine whether a *Performance Solution* or *Deemed-to-Satisfy Solution* complies with the *Performance Requirements*.

Explanatory Information:

Contemporary and relevant qualifications and/or experience are necessary to determine whether a *Performance Solution* complies with the *Performance Requirements*. The level of qualification and/or experience may differ depending on the complexity of the proposal and the requirements of the regulatory authority. Practitioners should seek advice from the authority having jurisdiction or *appropriate authority* for clarification as to what will be accepted.

Exposed joint: A construction joint, control joint, expansion joint, contraction joint or movement joint that is exposed to <u>rainwater.</u>

- (a) For the purposes of Volume One, an outer wall of a building which is not a *common wall*.
- (b) For the purposes of Volume Two, an outer wall of a building which is not a separating wall.

Extra-low voltage: A voltage not exceeding 50 V AC or 120 V ripple-free DC.

Fabric: The basic building structural elements and components of a building including the roof, ceilings, walls, glazing and floors.

SA Farm building

Farm building: A Class 7 or 8 building located on land primarily used for farming-

- (a) that is-
 - (i) used in connection with *farming*; or
 - (ii) used primarily to store one or more farm vehicles; or

- (iii) a combination of (i) and (ii); and
- (b) in which the total number of persons accommodated at any time does not exceed one person per 200 m² of floor area or part thereof, up to a maximum of 8 persons; and
- (c) with a total *floor area* of not more than 3500 m².

Farming: Includes—

- (a) cultivating, propagating and harvesting plants or fungi or their products or parts, including seeds, spores, bulbs or the like, but does not include forestry; or
- (b) maintaining animals in any physical environment for the purposes of-
 - (i) breeding them; or
 - (ii) selling them; or
 - (iii) acquiring and selling their bodily produce such as milk, wool, eggs or the like; or
- (c) a combination of (a) and (b),

but does not include forestry or maintaining animals for sport or recreational purposes.

Farm shed: A single storey Class 7 or 8 building located on land primarily used for farming—

- (a) that is—
 - (i) used in connection with *farming*; or
 - (ii) used primarily to store one or more *farm vehicles*; or
 - (iii) a combination of (i) and (ii); and
- (b) occupied neither frequently nor for extended periods by people; and
- (c) in which the total number of persons accommodated at any time does not exceed 2; and
- (d) with a total *floor area* of more than 500 m² but not more than 2000 m².

Farm vehicle: A vehicle used in connection with farming.

Fatigue failure: Fracture of a material through progressive brittle cracking under repeated alternating or cyclic stresses of an intensity considerably less than strength under static load.

Finished ground level: For the purposes of H1D4 and H2D3 in Volume Two and Section 4 of the Housing Provisions, means the ground level adjacent to footing systems at the completion of construction and landscaping.

Fire actions: Each of the following-

- (a) airborne embers; and
- (b) burning debris and/or accumulated embers adjacent to building elements; and
- (c) heat transfer from combustible materials within the site: and
- (d) radiant heat from a bushfire front; and
- (e) flame contact from a bushfire front.

Fire brigade: A statutory authority constituted under an Act of Parliament having as one of its functions, the protection of life and property from fire and other emergencies.

Fire brigade station: For the purposes of E1D2(1)(b) and I3D9, means a state or territory government operated premises which is a station for a *fire brigade*.

Fire compartment: Either-

- (a) the total space of a building; or
- (b) when referred to in—
 - the *Performance Requirements* any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or
 - (ii) the Deemed-to-Satisfy Provisions any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to-Satisfy Provisions of the relevant Part.

- Fire growth: The stage of fire development during which the *heat release rate* and the temperature of the fire are generally increasing.
- **Fire hazard:** 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 properties: The following properties of a material or assembly that indicate how they behave under specific fire test conditions:
 - (a) Average specific extinction area, critical radiant flux and Flammability Index, determined as defined in Schedule 2.
 - (b) *Smoke-Developed Index, smoke development rate* and *Spread-of-Flame Index*, determined in accordance with Specification 3.
 - (c) Group number and smoke growth rate index (SMOGRA_{RC}), determined in accordance with Specification 7.

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

Fire-isolated passageway: A corridor, hallway or the like, of *fire-resisting construction*, which provides egress to or from a *fire-isolated stairway* or *fire-isolated ramp* or to a road or *open space*.

Fire-isolated ramp: A ramp within a *fire-resisting* enclosure which provides egress from a *storey*.

Fire-isolated stairway: A stairway within a *fire-resisting shaft* and includes the floor and roof or top enclosing structure.

- (a) The sum of the net calorific values of the *combustible* contents which can reasonably be expected to burn within a *fire compartment*, including furnishings, built-in and removable materials, and building elements.
- (b) For the purposes of (1), the calorific values must be determined at the ambient moisture content or humidity (the unit of measurement is MJ).

Fire-protected timber: Fire-resisting timber building elements that comply with Specification 10.

Fire-protective covering: Any one or more of the following:

- (a) 13 mm fire-protective grade plasterboard.
- (b) 12 mm cellulose cement flat sheeting complying with AS/NZS 2908.2 or ISO 8336.
- (c) 12 mm fibrous plaster reinforced with 13 mm x 13 mm x 0.7 mm galvanised steel wire mesh located not more than 6 mm from the exposed face.
- (d) Other material not less fire-protective than 13 mm fire-protective grade plasterboard, fixed in accordance with the normal trade practice for a fire-protective covering.

Fire-resistance level (FRL): The grading periods in minutes determined in accordance with Specifications 1 and 2, for the following criteria—

- (a) structural adequacy; and
- (b) *integrity*; and
- (c) insulation,

and expressed in that order.

Notes:

A dash means there is no requirement for that criterion. For example, 90/–/– means there is no requirement for an FRL for *integrity* and *insulation*, and –/–/– means there is no requirement for an FRL.

Fire-resisting construction: For the purposes of Volume One, means one of the Types of construction referred to in Part C2 of Volume One.

- (a) For the purposes of Volume One, applied to a building element, having an FRL appropriate for that element.
- (b) For the purposes of Volume Two, applied to a *structural member* or other part of a building, having the FRL *required* for that *structural member* or other part.
- **Fire safety engineering:** Application of engineering principles, rules and *expert judgement* based on a scientific appreciation of the fire phenomenon, often using specific *design scenario*, of the effects of fire and of the reaction and behaviour of people in order to—
 - (a) save life, protect property and preserve the environment and heritage from destructive fire; and
 - (b) quantify the hazards and risk of fire and its effects; and

- (c) mitigate fire damage by proper design, construction, arrangement and use of buildings, materials, structures, industrial processes and transportation systems; and
- (d) evaluate analytically the optimum protective and preventive measures, including design, installation and maintenance of active and passive fire and life safety systems, necessary to limit, within prescribed levels, the consequences of fire.

Fire safety system: One or any combination of the methods used in a building to-

- (a) warn people of an emergency; or
- (b) provide for safe evacuation; or
- (c) restrict the spread of fire; or
- (d) extinguish a fire,

and includes both active and passive systems.

Fire-source feature: Any one or more of the following:

- (a) The far boundary of a road, river, lake or the like adjoining the allotment.
- (b) A side or rear boundary of the allotment.
- (c) An external wall of another building on the allotment which is not a Class 10 building.

Fire wall: A wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

Fixed wired: For the purposes of Specification 23, a system of electrical wiring (either AC or DC), in which cables are fixed or supported in position.

Flammability Index: The index number as determined by AS 1530.2.

Flashing: A strip or sleeve of impervious material dressed, fitted or built-in to provide a barrier to moisture movement, or to divert the travel of moisture, or to cover a joint where water would otherwise penetrate to the interior of a building.

- (a) Perimeter flashing: A flashing used at the floor-wall junction.
- (b) <u>Vertical flashing: A flashing used at wall junctions within shower areas.</u>

Flashover: In relation to fire hazard properties, means a heat release rate of 1 MW.

Flight: That part of a stair that has a continuous series of *risers*, including *risers* of *winders*, not interrupted by a *landing* or floor.

Explanatory Information:

A flight is the part of a stair that has a continuous slope created by the nosing line of treads. The length of a flight is limited to restrict the distance a person could fall down a stair.

Quarter *landings*, as shown in Explanatory Figure 1, are considered sufficient to halt a person's fall and therefore are considered for the purposes of Volume Two and the ABCB Housing Provisions not to be part of the flight.



VIC Flood hazard area

Flood hazard area: The site (whether or not mapped) encompassing land lower than the flood hazard level which has been determined by the appropriate authority.

- Flood hazard level (FHL): The flood level used to determine the height of floors in a building and represents the *defined* flood level plus the *freeboard* (see Figure 3).
 - (a) For the purposes of Volume One—
 - (i) in relation to a building the total area of all *storeys*; and
 - (ii) in relation to a *storey* the area of all floors of that *storey* measured over the enclosing walls, and includes—
 - (A) the area of a *mezzanine* within the *storey*, measured within the finished surfaces of any *external walls*; and
 - (B) the area occupied by any *internal wall* or partitions, any cupboard, or other built-in furniture, fixture or fitting; and
 - (C) if there is no enclosing wall, an area which has a use that contributes to the *fire load* or impacts on the safety, health or amenity of the occupants in relation to the provisions of the BCA; and
 - (iii) in relation to a room the area of the room measured within the <u>internal finished surfaces</u> of the walls, and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting; and
 - (iv) in relation to a *fire compartment* the total area of all floors within the *fire compartment* measured within the finished <u>internal</u> surfaces of the bounding construction, and if there is no bounding construction, includes an area which has a use which contributes to the *fire load*; and
 - (v) in relation to an *atrium* the total area of all floors within the *atrium* measured within the finished surfaces of the bounding construction and if no bounding construction, within the *external walls*.

(b) For the purposes of Volume Two and the ABCB Housing Provisions, in relation to a room, the area of the room measured within the finished surfaces of the walls, and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting (see Figure 4).

Figure 4: Identification of floor area of a room



Floor waste: A grated inlet within a graded floor intended to drain the floor surface.

Foundation: The ground which supports the building (see Figure 5).

Figure 5: Identification of foundation



Fractional effective dose (FED): The fraction of the dose (of thermal effects) that would render a person of average susceptibility incapable of escape.

Explanatory Information:

The definition for FED has been modified from the ISO definition to be made specific for the Fire Safety *Verification Method*. The use of CO or CO_2 as part of FED is not part of that *Verification Method*. This is because the ability to measure CO in a repeatable test varies by two orders of magnitude for common cellosic fuel.

VIC Freeboard

Freeboard: The height above the *defined flood level* as determined by the *appropriate authority*, used to compensate for effects such as wave action and localised hydraulic behaviour.

Fully developed fire: The state of total involvement of the majority of available combustible materials in a fire.

- (a) For the purposes of Section J, a transparent or translucent element and its supporting frame located in the *envelope*, and includes a *window* other than a *roof light*.
- (b) For the purposes of Part H6 and Section 13 of the Housing Provisions-
 - (i) a transparent or translucent element and its supporting frame located in the external *fabric* of the building; and
 - (ii) includes a *window* other than a *roof light*.

Going: The horizontal dimension from the front to the back of a tread less any overhang from the next tread or *landing* above (see Figure 11.2.2f in the Housing Provisions).

Gradual failure: Relatively slow collapse of a structure that occurs through significant plastic deformation and/or moment redistribution.

- Green Star: The building sustainability rating scheme managed by the Green Building Council of Australia.
- **Group number:** The number of one of 4 groups of materials used in the regulation of *fire hazard properties* and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Habitable room: A room used for normal domestic activities, and-

- (a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but
- (b) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.
- Hazard Rating: <u>A level of potential toxicity that may cause contamination in a drinking water system</u>-, having aTheeerae Ating of either *Low Hazard*, *Medium Hazard* or *High Hazard*, <u>is-</u>determined in accordance with <u>NCC Volume Three</u>. Specification 41, for any Deemed to Satisfy Solution.
- Health-care building: A building whose occupants or patients undergoing medical treatment generally need physical assistance to evacuate the building during an emergency and includes—
 - (a) a public or private hospital; or
 - (b) a nursing home or similar facility for sick or disabled persons needing full-time care; or
 - (c) a clinic, day surgery or procedure unit where the effects of the predominant treatment administered involve patients becoming non-ambulatory and requiring supervised medical care on the premises for some time after the treatment.

Heated water: Water that has been intentionally heated; normally referred to as hot water or warm water.

Heating load: The calculated amount of energy delivered to the heated spaces of the building annually by artificial means to maintain the desired temperatures in those spaces.

Heat release: The thermal energy produced by combustion (measured in kJ).

Heat release rate (HRR): The rate of thermal energy production generated by combustion, measured in kW (preferred) or MW.

High Hazard: Any condition, device or practice which, in connection with a water supply, has the potential to cause death.

High wind area: A region that is subject to design wind speed more than N3 or C1 (see Table 3).

Hob: The upstand at the perimeter to a shower area.

Horizontal exit: A required doorway between 2 parts of a building separated from each other by a fire wall.

Hours of operation: The number of hours when the occupancy of the building is greater than 20% of the peak occupancy.

- (a) For the purposes of Volume One, means software accredited under the Nationwide House Energy Rating Scheme.
- (b) For the purposes of Volume Two-
 - (i) applied to H6V2—software accredited or previously accredited under the Nationwide House Energy Rating Scheme and the additional functionality provided in non-regulatory mode; and
 - (ii) applied to H6D3—software accredited under the Nationwide House Energy Rating Scheme.

Explanatory Information:

The Nationwide House Energy Rating Scheme (NatHERS) refers to the Australian Governments' scheme that facilitates consistent energy ratings from software tools which are used to assess the potential thermal efficiency of dwelling envelopes.

Housing Provisions: The requirements for Class 1 and 10 buildings referenced in Volume Two of the National Construction Code, as published by the Australian Building Codes Board.

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

Illumination power density: The total of the power that will be consumed by the lights in a space, including any lamps, ballasts, current regulators and control devices other than those that are plugged into socket outlets for intermittent use such as floor standing lamps, desk lamps or work station lamps, divided by the area of the space, and expressed

in W/m².

Explanatory Information:

Illumination power density relates to the power consumed by the lighting system and includes the light source or luminaire and any control device. The power for the lighting system is the illumination power load. This approach is more complicated than the *lamp power density* approach but provides more flexibility for a dwelling with sophisticated control systems.

The area of the space refers to the area the lights serve. This could be considered a single room, open plan space, verandah, balcony or the like, or the total area of all these spaces.

Importance Level: A number which ranks the relative importance of structures and buildings (shown in Table 3) based on the potential risk to life resulting from their scale and/or use.

Table 3: Importance Levels for building types

| Importance Level | Description |
|------------------|--|
| 1 | Structures presenting a low degree of hazard to life and other property |
| 2 | Normal structures and structures not in other Importance Levels |
| 3 | Structures that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds |
| 4 | Structures with special post-disaster functions |
| <u>5</u> | Special structures |

Explanatory Information:

Examples of Importance Levels of certain buildings, structures and facilities

- (a) Importance Level 1, include but not limited to:
 - (i) <u>Structures with a total floor area < 30 m².</u>
 - (ii) Farm buildings, isolated structures, towers in rural situations.
- (b) Importance Level 2, include but not limited to:
 - (i) <u>Buildings not included in Importance Level 1, 3 or 4.</u>
 - (ii) <u>Single family dwellings.</u>
- (c) Importance Level 3, include but not limited to:
 - (i) Where more than 300 people can congregate in one area.
 - (ii) Day care facilities with a capacity greater than 150.
 - (iii) Primary school or secondary school facilities with a capacity greater than 250.
 - (iv) <u>Colleges or adult education facilities with a capacity greater than 500.</u>
 - (v) <u>Health care facilities with a capacity of 50 or more residents.</u>
 - (vi) <u>Airport terminals, principal railway stations with a capacity greater than 250.</u>
 - (vii) Correctional institutions.
 - (viii) <u>Multi-occupancy residential, commercial (including shops), industrial, office and retailing buildings</u> designed to accommodate more than 5000 people and with a gross area greater than 10,000 m².
 - (ix) Public assembly buildings, theatres and cinemas of greater than 1,000 m².
 - (x) Emergency medical and other emergency facilities not designated as post-disaster.
 - (xi) <u>Power-generating facilities, water treatment and waste-water treatment facilities and other public utilities</u> <u>not designated as post-disaster.</u>
 - (xii) <u>Buildings and facilities not designated as post-disaster containing hazardous materials capable of causing</u> <u>hazardous conditions that do not extend beyond the property boundaries.</u>
- (d) Importance Level 4, include but not limited to:

- (i) <u>Buildings and facilities designated as essential facilities buildings and facilities with special post -disaster</u> <u>functions medical emergency or surgical facilities.</u>
- (ii) <u>Emergency service facilities such as fire, police stations and emergency vehicle garages.</u>
- (iii) <u>Utilities or emergency supplies or installations required as backup for buildings and facilities of *Importance* <u>Level 4.</u></u>
- (iv) Designated emergency shelters, designated emergency centres and ancillary facilities.
- (v) <u>Buildings and facilities containing hazardous materials capable of causing hazardous conditions that</u> <u>extend beyond the property boundaries.</u>
- (e) Importance Level 5, include but not limited to:
 - (i) <u>Structures that have special functions or whose failure poses catastrophic risk to a large area (e.g. 100 km²) or a large number of people (e.g. 100,000).</u>
 - (ii) Major dams, extreme hazard facilities.
- **Inclined lift:** A power-operated device for raising or lowering people within a carriage that has one or more rigid guides on an inclined plane.
- **Individual protection:** The installation of a *backflow prevention device* at the point where a water service connects to a single fixture or appliance.

Individual risk: The frequency at which an individual may be expected to sustain a given level of harm from the realisation of a specified hazard.

Insulation: In relation to an FRL, the ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4.

Integrity: In relation to an FRL, the ability to resist the passage of flames and hot gases specified in AS 1530.4.

- (a) For the purposes of Volume One, excludes a *common wall* or a party wall.
- (b) For the purposes of Volume Two, excludes a *separating wall, common wall* or party wall.

Interstitial condensation: The *condensation* of moisture on surfaces between material layers inside the building component.

Irrigation system: An irrigation system of the following types:

- (a) <u>Type A— all permanently open outlets and piping more than 150mm above finished ground level, not subject to ponding or back-pressure and not involving injection systems.</u>
- (b) <u>Type B— irrigation systems in domestic or residential buildings with piping or outlets installed less than 150mm</u> <u>above finished surface level and not involving injection systems.</u>
- (c) <u>Type C— irrigation systems in other than domestic or residential buildings with piping outlets less than 150mm</u> above finished surface level and not involving injection systems.
- (d) <u>Type D— irrigation systems where fertilizers, herbicides, nemacides or the like are injected or siphoned into the system.</u>

JAS-ANZ: The Joint Accreditation System of Australia and New Zealand.

Lamp power density: The total of the maximum power rating of the lamps in a space, other than those that are plugged into socket outlets for intermittent use such as floor standing lamps, desk lamps or work station lamps, divided by the area of the space, and expressed in W/m².

Explanatory Information:

Lamp power density is a simple means of setting energy consumption at an efficient level for Class 1 and associated Class 10a buildings.

Lamp refers to the globe or globes that are to be installed in a permanently wired light fitting. The maximum power of a lamp is usually marked on the fitting as the maximum allowable wattage.

The area of the space refers to the area the lights serve. This could be considered a single room, open plan space, verandah, balcony or the like, or the total area of all these spaces.

Landing: An area at the top or bottom of a *flight* or between two *flights*.

Latent heat gain: The heat gained by the vapourising of liquid without change of temperature.

Lateral support: A support (including footing, buttress, cross wall, beam, floor or braced roof structure) that effectively restrains the wall or pier at right angles to the face of the wall or pier.

Lightweight construction: Construction which incorporates or comprises-

- (a) sheet or board material, plaster, render, sprayed application, or other material similarly susceptible to damage by impact, pressure or abrasion; or
- (b) concrete and concrete products containing pumice, perlite, vermiculite, or other soft material similarly susceptible to damage by impact, pressure or abrasion; or
- (c) masonry having a width of less than 70 mm.

Loadbearing: Intended to resist vertical forces additional to those due to its own weight.

Loadbearing wall: For the purposes of H1D4, H2D3 and Section 4 of the Housing Provisions, means any wall imposing on the footing a load greater than 10 kN/m.

Loss: Physical damage, financial loss or loss of amenity.

- **Low Hazard:** Any condition, device or practice which, in connection with a water supply, would constitute a nuisance by colour, odour or taste but does not have the potential to injure or endanger health.
- Low lead: Where a plumbing product or material in contact with drinking water is calculated using a weighted average lead content of no more than 0.25%.
- Low rainfall intensity area: An area with a 5 minute rainfall intensity for an <u>annual exceedance probability of 5%</u> average recurrence interval of 20 years of not more than 125 mm/hour.

Explanatory Information:

Rainfall intensity figures can be obtained from Tables 7.4.3d to 7.4.3k in the Housing Provisions.

- Low-rise, low-speed constant pressure lift: A power-operated low-rise, low-speed device for raising or lowering people with limited mobility on a carriage that is controlled by the application of constant pressure to a control.
- Low-rise platform lift: A power-operated device for raising or lowering people with limited mobility on a platform, that is controlled automatically or by the application of constant pressure to a control.

Low voltage: A voltage exceeding extra-low voltage, but not exceeding 1000 V AC or 1500 V DC.

- Luminance contrast: The light reflected from one surface or component, compared to the light reflected from another surface or component.
- **Massive timber:** An element not less than 75 mm thick as measured in each direction formed from solid and laminated timber.
- Maximum acceptable annual probability of structural failure of structures, buildings, members and connections: The probability that, in any year, there could be a structural failure leading to collapse of either the whole of the structure or building, or significant members and/or their connections, expressed as 1 in ... (e.g. 1 in 1,000 meaning a probability of 1 in 1,000 that the failure could occur).

Maximum retained water level: The point where surface water will start to overflow out of the shower area.

Medium Hazard: Any condition, device or practice which, in connection with a water supply, has the potential to injure or endanger health.

Members: The parts of a structure or component that provide resistance to structural actions.

- <u>Members and connections that do not provide primary building support</u>: Those components of a building or other structure that are not necessary to resist collapse of other members, parts of the building or the whole building, including but are not limited to—
 - (a) <u>non-loadbearing walls including framing, wall cladding, roof cladding, roof purlins and battens, mezzanine floors;</u> and
 - (b) connections and fixings that fix in position only those members that do not provide primary building support.
- <u>Members and connections that provide primary building support</u>: Those components of a building or other structure that provide the structural system resisting collapse of other members, parts of the building or the whole building under the design actions, including but are not limited to—</u>
 - (a) <u>beams, columns, trusses, portal frames, posts, *loadbearing* walls, floor systems, footings, foundations and earth retaining structures; and</u>

(b) <u>connections and fixings that transfer loads between members that provide primary building support.</u>

Membrane: A barrier impervious to moisture.

Explanatory Information:

A barrier may be a single or multi-part system.

Mezzanine: An intermediate floor within a room.

- <u>Minimum Acceptable Annual Structural Reliability Index of Structures, Buildings, Members and Connections:</u> The <u>Structural Reliability Index (β)</u>, determined in accordance with the ABCB Structural Reliability Handbook (Version 2022.1) that corresponds to the maximum acceptable annual probability of structural failure tabulated in Table B1P1.
- Minimum Energy Performance Standards (MEPS): The Minimum Energy Performance Standards for equipment and appliances established through the Greenhouse and Energy Minimum Standards Act 2012.

Mixed construction: A building consisting of more than one form of construction, particularly in double-storey buildings.

Mould: A fungal growth that can be produced from conditions such as dampness, darkness, or poor ventilation.

- Multiple resistance paths: Situations where the failure of a part of a building or structure is resisted collectively by more than one member or connection, such that the failure of any member or connection will result in the transfer of loads to the other members and connections with sufficient combined capacity to resist the total applied loads.
- **NABERS Energy for Apartment Buildings:** The National Australian Built Environment Rating System for apartment building energy efficiency, which is managed by the New South Wales Government.
- NABERS Energy for Hotels: The National Australian Built Environment Rating System for hotel building energy efficiency, which is managed by the New South Wales Government.
- **NABERS Energy for Offices:** The National Australian Built Environment Rating Systems for office energy efficiency, which is managed by the New South Wales Government.
- NABERS Energy for Shopping Centres: The National Australian Built Environment Rating System for shopping centre energy efficiency, which is managed by the New South Wales Government.

TAS Network Utility Operator

Network Utility Operator: A person who-

- (a) undertakes the piped distribution of *drinking water* or *non-drinking water* for supply; or
- (b) is the operator of a sewerage system or a stormwater *drainage* system.

Explanatory Information:

A Network Utility Operator in most States and Territories is the water and sewerage authority licensed to supply water and receive sewage and/or stormwater. The authority operates or proposes to operate a network that undertakes the distribution of water for supply and undertakes to receive sewage and/or stormwater drainage. This authority may be a licensed utility, local government body or council.

- (a) Applied to a material means not deemed *combustible* as determined by AS 1530.1 Combustibility Tests for Materials.
- (b) Applied to construction or part of a building means constructed wholly of materials that are not deemed *combustible*.

Non-drinking water: Water which is not intended primarily for human consumption, but which may have other uses. drinking water.

Non-transient actions: The combination of structural actions in which the combined magnitude of the permanent gravity action and imposed gravity action is equal to or greater than 50% of the magnitude of the total combined actions.

- (a) For the purposes of Volume One, the features, needs and profile of the occupants in a *habitable room* or space.
- (b) For the purposes of Volume Two, the features, needs and profile of the occupants in a room or space.

Explanatory Information:

For the purpose of Volume Two, this term is used to describe the characteristics of the occupants and their associated requirements in relation to a room or space.

For example, in relation to a bedroom, the following occupant characteristics and associated requirements should be considered:

- Characteristics: height, mobility and how often the space will be used.
- Requirements: a sleeping space and a space to undertake leisure activities.

Occupiable outdoor area: A space on a roof, balcony or similar part of a building-

- (a) that is open to the sky; and
- (b) to which access is provided, other than access only for maintenance; and
- (c) that is not open space or directly connected with open space.

TAS On-site wastewater management system

- **On-site wastewater management system:** A system installed on premises that that receives and/or treats wastewater generated and discharges on the premises and applies the resulting effluent to an approved disposal system or reuse system.
- **Open-deck carpark:** A carpark in which all parts of the parking *storeys* are cross-ventilated by permanent unobstructed openings in not fewer than 2 opposite or approximately opposite sides, and—
 - (a) each side that provides ventilation is not less than $\frac{1}{6}$ of the area of any other side; and
 - (b) the openings are not less than $\frac{1}{2}$ of the wall area of the side concerned.
- **Open space:** A space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.
- Open spectator stand: A tiered stand substantially open at the front.

Other property: All or any of the following-

- (a) any building on the same or an adjoining allotment; and
- (b) any adjoining allotment; and
- (c) a road.

Outdoor air: Air outside the building.

- **Outdoor air economy cycle:** A mode of operation of an *air-conditioning* system that, when the *outdoor air* thermodynamic properties are favourable, increases the quantity of *outdoor air* used to condition the space.
- **Outfall:** That part of the disposal system receiving *surface water* from the drainage system and may include a natural water course, kerb and channel, or soakage system.
- **Overflow devices:** A device that provides relief to a water service, sanitary *plumbing* and *drainage* system, *rainwater* <u>service</u> <u>harvesting system</u> or stormwater system to avoid the likelihood of *uncontrolled discharge*.
- Panel wall: A non-loadbearing external wall, in frame or similar construction, that is wholly supported at each storey.
- Partially buried rainwater tank: A rainwater tank that is not completely covered by earth but is partially set into the ground.
- **Patient care area:** A part of a *health-care building* normally used for the treatment, care, accommodation, recreation, dining and holding of patients including a *ward area* and *treatment area*.
- **Performance-based design brief (PBDB):** The process and the associated report that defines the scope of work for the performance-based analysis, the technical basis for analysis, and the criteria for acceptance of any relevant *Performance Solution* as agreed by stakeholders.
- **Performance Requirement:** A requirement which states the level of performance which a *Performance Solution* or *Deemed-to-Satisfy Solution* must meet.
- **Performance Solution:** A method of complying with the *Performance Requirements* other than by a *Deemed-to-Satisfy Solution*.
- Perimeter of building: For the purposes of Section 8 of the Housing Provisions, means the external envelope of a building.

Personal care services: Any of the following:

- (a) The provision of nursing care.
- (b) Assistance or supervision in-
 - (i) bathing, showering or personal hygiene; or

- (ii) toileting or continence management; or
- (iii) dressing or undressing; or
- (iv) consuming food.
- (c) The provision of direct physical assistance to a person with mobility problems.
- (d) The management of medication.
- (e) The provision of substantial rehabilitative or development assistance.
- **Piping:** For the purposes of Section J in Volume One or Part H6 in Volume Two, and Section 13 of the Housing Provisions, means an assembly of pipes, with or without valves or other fittings, connected together for the conveyance of liquids and gases.

Pliable building membrane: A water barrier as classified by AS/NZS 4200.1.

Plumbing: Any water<u>service</u> plumbing<u>or</u>, roof plumbing, sanitary plumbing systemor heating, ventilation and air<u>conditioning plumbing</u>.

Plumbing or Drainage Solution: A solution which complies with the Performance Requirement and is a-

- (a) Performance Solution; or
- (b) *Deemed-to-Satisfy Solution*; or
- (c) combination of (a) and (b).

Point of connection: Any of the following:

- (a) <u>F</u>or a *heated water* service means the point where the water heater connects to the cold water service downstream of the isolation valve.
- (b) For sanitary plumbing means the point where the sanitary plumbing system connects to the sanitary drainage system.
- (c) For <u>sanitary drainage</u> sewage disposal means the point where the on-site <u>sanitary drainage</u> system connects <u>to</u> to the Network Utility Operator's sewerage system or to an on-site wastewater management system.
 - (i) the Network Utility Operator' sewerage system; or
 - (ii) an on-site wastewater management system.
- (d) For stormwater disposal means the point where the on-site <u>stormwater</u> *drainage* system connects to <u>the</u> <u>Network Utility Operator's stormwater system or to an approved disposal system</u>.
 - (i) the Network Utility Operator' stormwater system; or
 - (ii) an approved on-site disposal system.
- (e) For a fire-fighting water service means the point where the service connects to-
 - (i) a cold water service, downstream of a backflow prevention device; or
 - (ii) the Network Utility Operator's water supply system; or
 - (iii) the point of isolation to an alternative water source.
- (f) For a <u>cold</u> water service means the point where the <u>cold water</u> service <u>connects to</u> <u>pipe within the premises</u> <u>connects to the Network Utility Operator's property service or to an alternative water supply system.</u>
 - (i) the Network Utility Operator's water supply system; or
 - (ii) <u>the point of isolation to an alternative water source where there is no Network Utility Operator's water supply</u> <u>available or is not utilised.</u>
- (g) For a rainwater service means the point where the rainwater service connects to the point of isolation to the rainwater storage.

Notes:

A domestic fire sprinkler service conforming to FPAA101D is considered part of the cold water service.

Explanatory Information:

The point of connection is usually determined by the Network Utility Operator according to the water and sewerage

Acts, Regulations and codes that apply within the Network Utility Operator's licensed area and/or jurisdiction.

Point of discharge: The outlet of a-

- (a) tap or outlet that discharges water over plumbing fixtures; or
- (b) cistern inlet valve or flushing device of a sanitary fixture; or
- (c) <u>water service used for the connection of an appliance which is readily accessible and easily connected or</u> <u>disconnected; or</u>
- (d) <u>tap, outlet or end of line valve where water is discharged to the atmosphere under normal operating conditions;</u> or
- (e) isolating valve or the outlet provided for the connection of industrial or specialist equipment to the water service; or
- (f) backflow prevention device connected to a fire service or irrigation system; or
- (g) <u>relief drain line or vent pipe from a water heater, temperature and pressure relief valve or expansion control valve.</u>

Explanatory Information:

The point of discharge of a tap or fixture commonly includes the outlets of a basin or bath taps, shower heads, drinking fountains, flush valves or cistern inlet valves.

The point of discharge of a water service used for the connection of an appliance commonly includes outlets of an isolation valve provided for the connection of dishwashers, clothes washers, coffee machines and fridges with beverage dispensing and ice making capabilities.

The point of discharge for a tap discharging to atmosphere may include hose cocks. It does not include any subsequent connections to this outlet such as garden hoses.

<u>Contamination control may be required to avoid contamination of the water service where a hazard exists beyond the point of discharge.</u>

Water services downstream of the backflow prevention device are considered an unprotected water service.

Predicted Mean Vote (PMV): The Predicted Mean Vote of the thermal perception of building occupants determined in accordance with ANSI/ASHRAE Standard 55.

Preformed shower base: A preformed, prefinished *vessel* installed as the finished floor of a shower compartment, and which is provided with a connection point to a sanitary drainage system.

Explanatory Information:

Shower bases are commonly made of plastics, composite materials, vitreous enamelled pressed steel, or stainless steel.

Pressure vessel: A vessel subject to internal or external pressure, including interconnected parts and components, valves, gauges and other fittings up to the first point of connection to connecting piping, and—

- (a) includes fire heaters and gas cylinders; but
- (b) excludes-
 - (i) any vessel that falls within the definition of a *boiler*; and
 - (ii) storage tanks and equipment tanks intended for storing liquids where the pressure at the top of the tank is not exceeding 1.4 kPa above or 0.06 kPa below atmospheric pressure; and
 - (iii) domestic-type hot water supply heaters and tanks; and
 - (iv) pressure vessels installed for the purposes of fire suppression or which serve a fire suppression system.

QLD Primary building element

- (a) For the purposes of Volume One, a member of a building designed specifically to take part of the loads specified in B1D3 and includes roof, ceiling, floor, stairway or ramp and wall framing members including bracing members designed for the specific purpose of acting as a brace to those members.
- (b) For the purposes of Part 3.4 of the Housing Provisions, means a member of a building designed specifically to

take part of the building loads and includes roof, ceiling, floor, stairway or ramp and wall framing members including bracing members designed for the specific purpose of acting as a brace to those members.

Explanatory Information:

The loads to which a building may be subjected are dead, live, wind, snow and earthquake loads. Further information on building loads can be found in the AS 1170 series of Standards.

Private bushfire shelter: A structure associated with, but not attached to, or part of a Class 1a dwelling that may, as a last resort, provide shelter for occupants from immediate life threatening effects of a bushfire.

- (a) For the purposes of Volume One—
 - (i) any garage associated with a Class 1 building; or
 - (ii) any single *storey* of a building of another Class containing not more than 3 vehicle spaces, if there is only one such *storey* in the building; or
 - (iii) any separate single *storey* garage associated with another building where such garage contains not more than 3 vehicle spaces.
- (b) For the purposes of Volume Two-
 - (i) any garage associated with a Class 1 building; or
 - (ii) any separate single *storey* garage associated with another building where such garage contains not more than 3 vehicle spaces.

Product: Plumbing and drainage items within the scope of Volume Three including but not limited to-

- (a) materials, fixtures and components used in a *plumbing* or *drainage* installation; and
- (b) appliances and equipment connected to a *plumbing* or *drainage* system.

Product Technical Statement: A form of documentary evidence stating that the properties and performance of a building material, product or form of construction fulfil specific requirements of the NCC, and describes—

- (a) the application and intended use of the building material, product or form of construction: and
- (b) how the use of the building material, product or form of construction complies with the requirements of the NCC Volume One and Volume Two; and
- (c) any limitations and conditions of the use of the building material, product or form of construction relevant to (b).

TAS Professional engineer

Professional engineer: A person who is-

- (a) if legislation is applicable a registered professional engineer in the relevant discipline who has appropriate experience and competence in the relevant field; or
- (b) if legislation is not applicable-
 - (i) registered in the relevant discipline on the National Engineering Register (NER) of the Institution of Engineers Australia (which trades as 'Engineers Australia'); or
 - (ii) eligible to become registered on the Institution of Engineers Australia's NER and has appropriate experience and competence in the relevant field.

Public corridor: An enclosed corridor, hallway or the like which-

- (a) serves as a means of egress from 2 or more *sole-occupancy units* to a *required exit* from the *storey* concerned; or
- (b) is required to be provided as a means of egress from any part of a storey to a required exit.
- Rainwater <u>service</u>harvesting system: <u>A water service which distributes water from the isolation value of the rainwater</u> storage to the rainwater points of discharge for purposes such as for clothes washing, urinal and water closet flushing and external hose cocks.<u>A plumbing installation that comprises</u>

A plumbing installation that comprises

(a) any *plumbing* that connects a rainwater tank to any *drinking water* or *non-drinking water* outlets; andany top-up line that conveys drinking water from a Network Utility Operator's water supply to a rainwater tank.

Rainwater storage: Any storage of rainwater collected from a roof catchment area which is used to supply water for the
primary purposes of drinking, personal hygiene or other uses.

Notes:

<u>Generally this applies to water which is not supplied by a Network Utility Operator. This does not include rainwater</u> <u>storage for non-drinking purposes.</u>

Rapid roller door: A door that opens and closes at a speed of not less than 0.5 m/s.

TAS Recognised expert

Recognised expert: A person with qualifications and experience in the area of *plumbing* or *drainage* in question recognised by the authority having jurisdiction.

Explanatory Information:

A recognised expert is a person recognised by the authority having jurisdiction as qualified to provide evidence under A5G4(5). Generally, this means a hydraulic consultant or engineer, however the specific requirements are determined by the authority having jurisdiction.

Under A5G4(5), a report from a recognised expert may be used as evidence of suitability that a *product* listed on the *WaterMark Schedule of Excluded Products*, or a *plumbing* or *drainage* system, complies with a *Performance Requirement* or *Deemed-to-Satisfy Provisions*.

- (a) For the purposes of Volume One, a hypothetical building that is used to calculate the maximum allowable *annual greenhouse gas emissions* and determine the *thermal comfort level* for the proposed building.
- (b) For the purposes of Volume Two, means a hypothetical building that is used to determine the maximum allowable *heating load* and *cooling load* for the proposed building.
- **Reflective insulation:** A building membrane with a reflective surface such as a reflective foil laminate, reflective barrier, foil batt or the like capable of reducing radiant heat flow.

Explanatory Information:

For Volume Two:

- (a) Typical *R-Value* achieved by adding reflective insulation are given in the explanatory information accompanying Section 13 of the Housing Provisions. Information on specific products may be obtained from reflective insulation manufacturers.
- (b) The surface of reflective insulation may be described in terms of its emittance (or infra-red emittance) or in terms of its reflectance (or solar reflectance). Generally, for the surface of a particular reflective insulation –
- (c) emittance + reflectance = 1.
- (d) Some types of reflective insulation may also serve the purposes of waterproofing or vapour proofing.
- **Regulated energy:** The energy consumed by a building's *services* minus the amount of *renewable energy* generated and used on *site*.
- **Reinforced masonry:** Masonry reinforced with steel reinforcement that is placed in a bed joint or grouted into a core to strengthen the masonry.

Reliability: The probability that a system performs to a level consistent with the system specification.

Renewable energy: Energy that is derived from sources that are regenerated, replenished, or for all practical purposes cannot be depleted and the energy sources include, but are not limited to, solar, wind, hydroelectric, wave action and geothermal.

Reportable fire: A fire that would be reported to the fire brigade.

Required: Required to satisfy a *Performance Requirement* or a *Deemed-to-Satisfy Provision* of the NCC as appropriate.

- Required safe egress time (RSET): The time required for safe evacuation of occupants to a place of safety prior to the onset of untenable conditions.
- **Residential aged care building:** A Class 3 or 9a building whose residents, due to their incapacity associated with the ageing process, are provided with physical assistance in conducting their daily activities and to evacuate the building during an emergency.

Residential care building: A Class 3, 9a or 9c building which is a place of residence where 10% or more of persons who reside there need physical assistance in conducting their daily activities and to evacuate the building during an emergency (including any *aged care building* or *residential aged care building*) but does not include a hospital.

Resident use area: Part of a Class 9c building normally used by residents, and-

- (a) includes sole-occupancy units, lounges, dining areas, activity rooms and the like; but
- (b) excludes offices, storage areas, commercial kitchens, commercial laundries and other spaces not for the use of residents.
- **Resistance to the incipient spread of fire:** In relation to a ceiling membrane, means the ability of the membrane to insulate the space between the ceiling and roof, or ceiling and floor above, so as to limit the temperature rise of materials in this space to a level which will not permit the rapid and general spread of fire throughout the space.

Explanatory Information:

Resistance to the incipient spread of fire refers to the ability of a ceiling to prevent the spread of fire and thermally insulate the space between the ceiling and the roof or floor above. "Resistance to the incipient spread of fire" is superior to "fire-resistance" because it requires a higher standard of heat insulation.

The definition is used in Volume Two for separating floors/ceilings for a Class 1a dwelling located above a non-appurtenant *private garage*.

Rise in storeys: The greatest number of storeys calculated in accordance with C2D3 of Volume One.

Riser: The height between consecutive treads and between each *landing* and continuous tread.

Rolled fill: Material placed in layers and compacted by repeated rolling by an excavator.

Roof light: For the purposes of Section J and Part F4 in Volume One, Part H6 in Volume Two, and Part 10.5 and Section 13 of the Housing Provisions, a skylight, *window* or the like installed in a roof—

- (a) to permit natural light to enter the room below; and
- (b) at an angle between 0 and 70 degrees measured from the horizontal plane.
- **R-Value:** The thermal resistance of a component calculated by dividing its thickness by its thermal conductivity, expressed in m².K/W.

Safe place: Either-

- (a) a place of safety within a building-
 - (i) which is not under threat from a fire; and
 - (ii) from which people must be able to safely disperse after escaping the effects of an emergency to a road or *open space*; or
- (b) a road or open space.

Sanitary compartment: A room or space containing a closet pan or urinal (see Figures 6a and 6b).



Public Comment Draft Definitions



Sarking-type material: A material such as a *reflective insulation* or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

School: Includes a primary or secondary school, college, university or similar educational establishment.

Screed: A layer of material (usually cement based) of defined minimum thickness which sets in situ between a structural base and the finished floor material.

Self-closing: Is defined—

- (a) For the purposes of Volume One, applied to a door, means equipped with a device which returns the door to the fully closed position immediately after each opening.
- (b) For the purposes of Volume Two, applied to a door or *window*, means equipped with a device which returns the door or *window* to the fully closed and latched position immediately after each manual opening.

Self draining: Materials, systems or ballast that-

- (a) <u>are above the structural substrate; and</u>
- (b) <u>have sufficient gaps or openings to permit drainage of rainwater to a membrane on the structural substrate</u> <u>below.</u>

Sensible heat gain: The heat gained which causes a change in temperature.

Separating element: A barrier that exhibits fire *integrity*, *structural adequacy*, *insulation*, or a combination of these for a period of time under specified conditions (often in accordance with AS 1530.4).

Separating wall: A wall that is common to adjoining Class 1 buildings (see Figure 7).

Public Comment Draft Definitions





Figure Notes:

In Volume Two a separating wall may also be known as a party wall and typically is *required* to be *fire-resisting* construction (see Housing Provisions Parts and).

- Service: For the purposes of Section J in Volume One, means a mechanical or electrical system that uses energy to provide *air-conditioning*, mechanical ventilation, heated water supply, artificial lighting, vertical transport and the like within a building, but which does not include—
 - (a) systems used solely for emergency purposes; and
 - (b) cooking facilities; and
 - (c) portable appliances.
- Service station: A garage which is not a *private garage* and is for the servicing of vehicles, other than only washing, cleaning or polishing.

Shaft: The walls and other parts of a building bounding—

- (a) a well, other than an *atrium well*; or
- (b) a vertical chute, duct or similar passage, but not a chimney or flue.

Shower area: The area affected by water from a shower, including a shower over a bath.

- (a) <u>Enclosed The area enclosed by walls or screens including hinged or sliding doors that control the spread of water to within the enclosure but excludes</u>
 - (i) <u>a shower fitted with a frameless or semi frameless shower screen, shower curtain or the like; and</u>
 - (ii) <u>a shower fitted over a bath with a screen less than 1500 mm long.</u>
- (b) <u>Unenclosed The area where, under normal use, water out of the shower rose is not contained within 1500</u> <u>mm of the shower rose.</u>

Shower screen: The panels, doors or windows enclosing or partially enclosing a shower area.

Single leaf masonry: Outer walls constructed with a single thickness of masonry unit.

- Single resistance paths: Situations where the failure of a part of a building or structure is resisted by only one member or connection, such that the failure of that member or connection will result in the collapse of a significant part of the building or structure.
- Site: The part of the allotment of land on which a building stands or is to be erected.
- Sitework: Work on or around a *site*, including earthworks, preparatory to or associated with the construction, *alteration*, demolition or removal of a building.
- Small-scale Technology Certificate: A certificate issued under the Commonwealth Government's Small-scale Renewable Energy Scheme.
- **Small-sized, low-speed automatic lift:** A restricted use power-operated device for the infrequent raising or lowering of people with limited mobility on a platform that is controlled automatically but has the capability of being electrically isolated by a key-lockable control.

- **Smoke-and-heat vent:** A vent, located in or near the roof for smoke and hot gases to escape if there is a fire in the building.
- Smoke-Developed Index: The index number for smoke as determined by AS/NZS 1530.3.
- **Smoke development rate:** The development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.
- Smoke growth rate index (SMOGRA_{RC}): The index number for smoke used in the regulation of *fire hazard properties* and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.
- Societal risk: Frequency and the number of people suffering from a specified level of harm in a given population from the realisation of specified hazards.

Solar admittance: The fraction of incident irradiance on a wall-glazing construction that adds heat to a building's space.

- **Sole-occupancy unit:** A room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—
 - (a) a dwelling; or
 - (b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
 - (c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
 - (d) a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.
- **Spandrel panel:** For the purposes of Section J, means the opaque part of a façade in curtain wall construction which is commonly adjacent to, and integrated with, *glazing*.
- **Specialist equipment:** Equipment used within hospitality or health care industries which is installed by specialist technicians.

Notes:

Examples may include medical equipment, commercial chemical or beverage dispensers, dental chairs or similar specialist equipment.

Spiral stairway: A stairway with a circular plan, winding around a central post with steps that radiate from a common centre or several radii (see Figures 11.2.2d and 11.2.2e in the Housing Provisions).

Spread-of-Flame Index: The index number for spread of flame as determined by AS/NZS 1530.3.

- **Sprinkler alarm switch:** For the purposes of Specification 23, a device capable of sending an electrical signal to activate an alarm when a residential sprinkler head is activated (e.g. a flow switch).
- Stage: A floor or platform in a Class 9b building on which performances are presented before an audience.
- Stairway platform lift: A power-operated device for raising or lowering people with limited mobility on a platform (with or without a chair) in the direction of a stairway.

Standard Fire Test: The Fire-resistance Tests of Elements of Building Construction as described in AS 1530.4.

- Storey: A space within a building which is situated between one floor level and the floor level next above, or if there is no floor above, the ceiling or roof above, but not—
 - (a) a space that contains only-
 - (i) a lift shaft, stairway or meter room; or
 - (ii) a bathroom, shower room, laundry, water closet, or other sanitary compartment; or
 - (iii) accommodation intended for not more than 3 vehicles; or
 - (iv) a combination of the above; or
 - (b) a *mezzanine*.
- **Structural adequacy:** In relation to an FRL, means the ability to maintain stability and adequate *loadbearing* capacity as determined by AS 1530.4.
- Structural member: A component or part of an assembly which provides vertical or lateral support to a building or structure.

Substantive parts of a building or structure: Those parts of a building or other structure that serve the purpose for which the building or structure has been constructed, including but are not limited to—

- (a) the whole of a building or structure; and
- (b) <u>any significant portion of a building or structure (such as habitable or non-habitable storey, a roof system, a floor system, a system of *loadbearing* walls and the like) which could result in loss of life or injury should it fail.</u>
- Sudden failure: Relatively rapid collapse of a structure that occurs with little warning with little plastic deformation and/or moment redistribution.
- Surface water: All naturally occurring water, other than sub-surface water, which results from rainfall on or around the *site* or water flowing onto the *site*.
- **Swimming pool:** Any excavation or structure containing water and principally used, or that is designed, manufactured or adapted to be principally used for swimming, wading, paddling, or the like, including a bathing or wading pool, or spa.
- **Tapered tread:** A stair tread with a walking area that grows smaller towards one end.
- Thermal comfort level: The level of thermal comfort in a building expressed as a PMV sensation scale.
- **Total R-Value:** The sum of the *R-Values* of the individual component layers in a composite element including any building material, insulating material, airspace, thermal bridging and associated surface resistances, expressed in m².K/W.
 - (a) For the purposes of Volume One, the fraction of incident irradiance on a *wall-glazing construction* or a *roof light* that adds heat to a building's space.
 - (b) For the purposes of Volume Two, the fraction of incident irradiance on *glazing* or a *roof light* that adds heat to a building's space.
 - (a) For the purposes of Volume One, the thermal transmittance of the composite element allowing for the effect of any airspaces, thermal bridging and associated surface resistances, expressed in W/m².K.
 - (b) For the purposes of Volume Two, means the thermal transmittance of the composite element allowing for the effect of any airspaces and associated surface resistances, expressed in W/m².K.
- **Transient actions:** The combination of structural actions in which the combined magnitude of the permanent gravity action and imposed gravity action is less than 50% of the magnitude of the total combined actions.
- **Treatment area:** An area within a *patient care area* such as an operating theatre and rooms used for recovery, minor procedures, resuscitation, intensive care and coronary care from which a patient may not be readily moved.
- **Uncontrolled discharge:** Any unintentional release of fluid from a *plumbing* and *drainage* system and includes leakage and seepage.
- **Unique wall:** For the purposes of F1V1 in Volume One and H2V1 in Volume Two, a wall which is neither a *cavity wall* nor a *direct fix cladding wall*.
- **Unobstructed opening:** For the purposes of Section 8 of the Housing Provisions, a glazed area that a person could mistake for an open doorway or clearway and walk into the glazed panel.
- Unreinforced masonry: Masonry that is not reinforced.
- Vapour pressure: The pressure at which water vapour is in thermodynamic equilibrium with its condensed state.
- Ventilation opening: An opening in the *external wall*, floor or roof of a building designed to allow air movement into or out of the building by natural means including a permanent opening, an openable part of a *window*, a door or other device which can be held open.
- **Verification Method:** A test, inspection, calculation or other method that determines whether a *Performance Solution* complies with the relevant *Performance Requirements*.
- **Vessel:** For the purposes of Volume One and Part 10.2 of the Housing Provisions, an open, pre-formed, pre-finished concave receptacle capable of holding water, usually for the purpose of washing, including a basin, sink, bath, laundry tub and the like.
- Visibility: The maximum distance at which an object of defined size, brightness and contrast can be seen and recognised.

Voltage: A difference of potential, measured in Volts (V) and includes *extra-low voltage* and *low voltage*.

- (a) <u>In relation to a building the volume of the total space of the building measured above the lowest floor (including, for a suspended floor, any subfloor space), over the enclosing walls, and to the underside of the roof covering.</u>
- (b) <u>In relation to a fire compartment</u> the volume of the total space of the fire compartment measured within the inner finished surfaces of the enclosing fire-resisting walls and/or floors, and—
 - (i) <u>if there is no fire-resisting floor at the base of the fire compartment, measured above the finished surface</u> of the lowest floor in the fire compartment; and
 - (ii) if there is no fire-resisting floor at the top of the fire compartment, measured to the underside of the roof

covering of the fire compartment; and

- (iii) <u>if there is no *fire-resisting* wall, measured over the enclosing wall and if there is no enclosing wall, includes any space within the *fire compartment* that has a use which contributes to the *fire load*.</u>
- (c) <u>In relation to an *atrium* the volume of the total space of the *atrium* measured within the finished surfaces of the bounding construction and if no bounding construction, within the *external walls*.</u>
- **Waffle raft:** A stiffened raft with closely spaced ribs constructed on the ground and with slab panels supported between ribs.
- **Wall-glazing construction:** For the purposes of Section J in Volume One, the combination of wall and *glazing* components comprising the *envelope* of a building, excluding—
 - (a) display glazing; and
 - (b) opaque non-glazed openings such as doors, vents, penetrations and shutters.
- Ward area: That part of a *patient care area* for resident patients and may contain areas for accommodation, sleeping, associated living and nursing facilities.
- Water control layer: A pliable building membrane or the exterior cladding when no pliable building membrane is present.
- WaterMark Certification Scheme: The ABCB scheme for certifying and authorising plumbing and drainage products.
- WaterMark Conformity Assessment Body (WMCAB): A conformity assessment body registered with and accredited by the JAS-ANZ to conduct evaluations leading to *product* certification and contracted with the *administering body* to issue the WaterMark Licence.
- WaterMark Licence: A licence issued by a WaterMark Conformity Assessment Body.
- WaterMark Schedule of Excluded Products: The list maintained by the *administering body* of *products* excluded from the *WaterMark Certification Scheme*.
- WaterMark Schedule of Products: The list maintained by the *administering body* of *products* included in the *WaterMark Certification Scheme*, and the specifications to which the *products* can be certified.

Explanatory Information:

The WaterMark Schedule of Products and the *WaterMark Schedule of Excluded Products* can be viewed on the ABCB website at www.abcb.gov.au.

Waterproof: The property of a material that does not allow moisture to penetrate through it.

- Waterproofing system: A combination of elements that are required to achieve a waterproof barrier as required by H4D2 and H4D3 including substrate, *membrane*, bond breakers, sealants, finishes and the like.
- Water resistant: The property of a system or material that restricts moisture movement and will not degrade under conditions of moisture.
- Water sensitive materials: Materials that have an inherent capacity to absorb water vapour and include timber, plasterboard, plywood, oriented strand board and the like.
- Waterstop: A vertical extension of the *waterproofing system* forming a barrier to prevent the passage of moisture in the floor.
- Watertight: Will not allow water to pass from the inside to the outside of the component or joint and vice versa.

Weighted average: Is calculated across the wetted surface area of a pipe, pipe fitting or plumbing fixture.

Wet area: An area within a building supplied with water from a water supply system, which includes bathrooms, showers, laundries and *sanitary compartments* and excludes kitchens, bar areas, kitchenettes or domestic food and beverage preparation areas.

Wetted surface area: Is calculated by the total sum of diameter (D) in contact with drinking water.

Winders: Treads within a straight flight that are used to change direction of the stair (see Figure 4).

- **Window:** includes a *roof light*, glass panel, glass block or brick, glass louvre, glazed sash, glazed door, or other device which transmits natural light directly from outside a building to the room concerned when in the closed position.
- Withstand: For the purposes of A8G3(1)means that in response to an imposed fire action the following conditions must not occur:
 - (a) Fire spread more than 5m above an opening in the façade through which flames are venting.

- (b) Fire spread more than 2m beyond the extent of flames from a burning item adjacent to the structure such as a vehicle, waste bin, collection of combustible rubbish depending on the use and access to adjacent areas.
- (c) Ignition and propagation as the result of the imposed heat flux from a fire in an adjacent building or potential building on an adjoining allotment (embers are likely to be present and therefore piloted ignition should be considered if combustible materials are present).
- (d) Ignition and fire propagation within cladding materials and building cavities.
- (e) <u>Release of flaming droplets.</u>
- (f) <u>Release of significant quantities of debris (criteria should be developed during the PBDB process having regard</u> for the proximity of other property and the requirements of the emergency services).
- (g) Structural failure.

Explanatory Information:

For item (f), the risk to life of occupants evacuating the building from falling debris should be evaluated under A8G2.

- Yield: The mass of a combustion product generated during combustion divided by the mass loss of the test specimen as specified in the *design fire*.
- **Zone protection:** The installation of a *backflow prevention device* at the point where a water service is connected to multiple fixtures or appliances, with no *backflow prevention device* installed as *individual protection* downstream of this point.

Schedule 2 Referenced documents

Referenced documents

Referenced documents

The Standards and other documents listed in this Schedule are referenced in the NCC.

| Schedule o | f referenced | documents |
|------------|--------------|-----------|
|------------|--------------|-----------|

| No. | Date | Title | Volume One | Volume Two | Housing Provisions | Volume Three |
|--------------------------|------|--|--|---------------------------|---|--------------|
| AS/NZS ISO 717 Part 1 | 2004 | Acoustics — Rating of sound insulation in buildings and of building elements — Airborne sound insulation (See Note 1) | F 5 7V1, F 5 7V2, F 5 7V3, F 5 7V4, F 5 7D3 | H4V4 | 10.7.2 | N/A |
| AS/NZS ISO 717 Part 2 | 2004 | Acoustics — Rating of sound insulation in buildings and of building elements — Impact sound insulation | F 5 7V1, F 5 7V3, F57D4 | N/A | N/A | N/A |
| AS 1056 Part 1 | 1991 | Storage water heaters — General requirements (incorporating amendments 1, 2, 3, 4 and 5) | N/A | N/A | N/A | B2D2 |
| AS/NZS 1170 Part 0 | 2002 | Structural design actions — General principles (incorporating amendments 1, 3 and 4) | B1V1, B1D2, Spec 4 | H1V1, H2D6 | 2.2.2 | N/A |
| AS/NZS 1170 Part 1 | 2002 | Structural design actions — Permanent, imposed and other actions (incorporating amendments 1 and 2) | B1D3 | N/A | 2.2.3, 2.2.4, 8.3.1, 11.2.2, 11.2.3, 11.3, 11.3.3 | N/A |
| AS/NZS 1170 Part 2 | 2011 | Structural design actions — Wind actions (incorporating amendments 1, 2, 3, 4 and 5) | B1D3, B1D4, Spec 4, F <u>43</u> V1, Schedule 2 | H4V4, H2D6 Schedule 2 | 2.2.3, Schedule 2 | Schedule 2 |
| AS/NZS 1170 Part 3 | 2003 | Structural design actions — Snow and ice actions (incorporating amendments 1 and 2) | B1D3, Schedule 2 | N/A | 2.2.3, Schedule 2 | Schedule 2 |
| AS 1170 Part 4 | 2007 | Structural design actions — Earthquake actions in Australia (incorporating amendments 1 and 2) | B1D3 | H1D4, H1D5, H1D6, H1D9 | 2.2.3 | N/A |
| AS 1191 | 2002 | Acoustics — Method for laboratory measurement of airborne sound transmission insulation of building elements | Spec 29 | N/A | N/A | N/A |
| AS 1273 | 1991 | Unplasticized PVC (UPVC) downpipe and fittings for rainwater | N/A | N/A | 7.4.2 | N/A |
| AS 1288 | 2006 | Glass in buildings — Selection and installation (incorporating amendments 1, 2 and 3) | B1D4, Spec 11, Spec 12 | H1D8, H2D7 | 8.2.1 | N/A |
| AS 1289.6.3.3 | 1997 | Methods of testing soils for engineering purposes — Method 6.3.3: Soil strength and consolidation tests — Determination of the penetration resistance of a soil — Perth | N/A | N/A | 4.2.4 | N/A |

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| AS 1397 | 2011 | Continuous hot-dip metallic coated steel sheet and strip — Coatings of zinc and zinc alloyed with aluminium and magnesium (incorporating amendment 1) | N/A | N/A | 7.2.2 | N/A |
| AS 1428 Part 1 | 2009 | Design for access and mobility — General requirements for access — New building work (incorporating amendments 1 and 2) | D3D11, D3D16, D3D22, D4D2, D4D3, D4D4, D4D7, D4D10, D4D11, D4D13, Spec 16, E3D10, F ²⁴ D5, G4D5, Schedule 2 | Schedule 2 | Schedule 2 | Schedule 2, E1D2 |
| AS 1428 Part 1 | 2001 | Design for access and mobility — General requirements for access — New building work | I2D6, I2D8, I2D10, I2D15 | N/A | N/A | E1D2 |
| AS 1428 Part 1 (Supplement 1) | 1993 | Design for access and mobility — General requirements for access — Buildings — Commentary | 12D2 | N/A | N/A | N/A |
| AS 1428 Part 2 | 1992 | Design for access and mobility — Enhanced and additional requirements — Buildings and facilities | I2D2, I2D3, I2D4, I2D5, I2D7, I2D10, I2D11, I2D12, I2D13, I2D14 | N/A | N/A | E1D2 |
| AS 1428 Part 4 | 1992 | Design for access and mobility — Tactile ground surface indicators for the orientation of people with vision impairment | I2D11 | N/A | N/A | N/A |
| AS/NZS 1428 Part 4.1 | 2009 | Design for access and mobility — Means to assist the orientation of people with vision impairment — Tactile ground surface indicators (incorporating amendments 1 and 2) | D4D9 | N/A | N/A | N/A |
| AS 1530 Part 1 | 1994 | Methods for fire tests on building materials, components and structures — Combustibility test for materials (See Note 2) | Schedule 2 | Schedule 2 | Schedule 2 | Schedule 2 |
| AS 1530 Part 2 | 1993 | Methods for fire tests on building materials, components and structures — Test for flammability of materials (incorporating amendment 1) (See Note 2) | Schedule 2 | Schedule 2 | Schedule 2 | Schedule 2 |
| AS/NZS 1530 Part | 1999 | Methods for fire tests on building materials, | Schedule 2, Spec | Schedule 2, Spec | Schedule 2, Spec 3 | Schedule 2, |

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| AS 1530 Part 4 | 2014 | Methods for fire tests on building materials, components and structures — Fire resistance tests for elements of construction (See Note 2) | A5G7, C4D15, C4D16, Spec 9, Spec 10, Spec 13, Spec 14, Schedule 2, Spec 3 | A5G7, Schedule 2, Spec 3 | A5G7, Schedule 2, Spec 3 | A5G7, Schedule 2, Spec 3 |
| <u>AS 1530 Part 8.1</u> | 2018 | Methods for fire tests on building materials, components and structures, Part 8.1: Tests on elements of construction for buildings exposed to simulated bushfire attack — Radiant heat and small flaming sources | <u>Spec 43</u> | | | |
| AS 1562 Part 1 | 2018 | Design and installation of sheet roof and wall cladding — Metal (See Note 3) | B1D4, F <u>43</u> D <u>2</u> 4 | H2D6 | N/A | N/A |
| AS/NZS 1562 Part 2 | 1999 | Design and installation of sheet roof and wall cladding — Corrugated fibre-reinforced cement | F4 <u>3</u> D <u>2</u> 4 | N/A | N/A | N/A |
| AS /NZS- 1562 Part 3 | 1996 2006 | Design and installation of sheet roof and wall cladding — Plastic | B1D4, F1D4F3D2 | H2D6H1D7 | N/A | N/A |
| AS 1657 | 2018 | Fixed platforms, walkways, stairways and ladders — Design, construction and installation | D2D21, D2D22, D3D23, I1D6, I3D5 | N/A | N/A | N/A |
| AS/NZS 1664 Part 1 | 1997 | Aluminium structures — Limit state design (incorporating amendment 1) | B1D4 | N/A | 2.2.4 | N/A |
| AS/NZS 1664 Part 2 | 1997 | Aluminium structures — Allowable stress design (incorporating amendment 1) | B1D4 | N/A | 2.2.4 | N/A |
| AS 1668 Part 1 | 2015 | The use of ventilation and air conditioning in buildings — Fire and smoke control in buildings (incorporating amendment 1) | C3D13, C4D15, Spec 11, D2D12, Spec 19, E2D3, E2D4, F46D12, Spec 21, Spec 31 | N/A | N/A | N/A |
| AS 1668 Part 2 | 2012 | The use of ventilation and air conditioning in buildings — Mechanical ventilation in buildings (incorporating amendments 1 and 2) | E2D4, F <mark>4</mark> <u>6</u> V1, F4 <u>6</u> D6, F <u>46</u> D11, F4 <u>6</u> D12, J5D4 | H4V3 | 9.5.5 | N/A |
| AS 1668 Part 4 | 2012 | The use of ventilation and air conditioning in buildings — Natural ventilation of buildings | F <u>46</u> D11 | N/A | N/A | N/A |
| AS 1670 Part 1 | 2018 | Fire detection, warning, control and intercom | C4D6, C4D7, | N/A | 9.5.1, 9.5.5 | N/A |

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| AS 1670 Part 3 | 2018 | Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire alarm monitoring (See Note 4) | Spec 20, Spec 23 | N/A | N/A | N/A |
| AS 1670 Part 4 | 2018 | Fire detection, warning, control and intercom systems — System design, installation and commissioning — Emergency warning and intercom systems (See Note 4) | E3V2, E4D9, Spec 31 | N/A | N/A | N/A |
| AS/NZS 1680 Part 0 | 2009 | Interior lighting — Safe movement | F <u>46</u> D4 | N/A | 10.5.2 | N/A |
| AS 1684 Part 2 | 2010 | Residential timber framed construction — Non-cyclonic areas (incorporating amendments 1 and 2) | B1D4, B1D5, F1D10 | H1D6, | 2.2.5, 4.2.13, 4.5.7, 6.2.1, 6.3.6, 7.5.2, 7.5.3, 7.5.5 | N/A |
| AS 1684 Part 3 | 2010 | Residential timber framed construction — Cyclonic areas (incorporating amendment 1) | B1D4, B1D5, F1D10 | H1D6 | 2.2.5, 4.2.13, 4.5.7, 6.2.1, 6.3.6, 7.5.2, 7.5.3, 7.5.5 | N/A |
| AS 1684 Part 4 | 2010 | Residential timber framed construction — Simplified — Noncyclonic areas (incorporating amendment 1) | B1D4, B1D5, F1D10 | H1D6 | 2.2.5, 4.2.13, 4.5.7, 6.2.1, 7.5.2, 7.5.3, 7.5.5 | N/A |
| AS 1720 Part 1 | 2010 | Timber structures — Design methods (incorporating amendments 1, 2 and 3) | B1V1, B1D4 | H2V2, H1D6 | 5.3.3 | N/A |
| AS <u>/NZS</u> 1720 Part 4 | 2006 2019 | Timber structures — Fire resistance for structural adequacy of timber members | Spec 1 | Spec <u>21</u> | Spec 2 | Spec <u>21</u> |
| AS 1720 Part 5 | 2015 | Timber structures — Nailplated timber roof trusses (incorporating amendment 1) | B1D4 | H1D6 | N/A | N/A |
| AS 1735 Part 11 | 1986 | Lifts, escalators and moving walks — Fire rated landing doors | C4D11 | N/A | N/A | N/A |
| AS 1735 Part 12 | 1999 | Lifts, escalators and moving walks — Facilities for persons with disabilities (incorporating amendment 1) | E3D7, I2D6 | N/A | N/A | N/A |
| AS/NZS 1859 Part 4 | 2018 | Reconstituted wood based panels — Specifications — Wet process fibreboard See Note 5 | N/A | N/A | 7.5.3, 7.5.4 | N/A |
| AS 1860 Part 2 | 2006 | Particleboard flooring — Installation (incorporating amendment 1) | B1D4 | H1D6 | N/A | N/A |
| AS 1905 Part 1 | 2015 | Components for the protection of openings in fire-resistant walls — Fire-resistant | C4D7, Spec 12 | N/A | N/A | N/A |

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| AS 1905 Part 2 | 2005 | Components for the protection of openings in fire-resistant walls — Fire-resistant roller shutters | Spec 12 | N/A | N/A | N/A |
| AS 1926 Part 1 | 2012 | Swimming pool safety — Safety barriers for swimming pools | G1D2, G1D4 | H7D2 | N/A | N/A |
| AS 1926 Part 2 | 2007 | Swimming pool safety — Location of safety barriers for swimming pools (incorporating amendments 1 and 2) | G1D2 | H7D2 | N/A | N/A |
| AS 1926 Part 3 | 2010 | Swimming pool safety — Water recirculation systems (incorporating amendment 1) | G1D2 | H7D2 | N/A | N/A |
| AS 2047 | 2014 | Windows and external glazed doors in buildings (incorporating amendments 1 and 2) See Note 6 | B1D4, F <u>43</u> V1, F <u>43</u> D <u>4</u> 11, J4D5 | H2V2, H1D8, H2D7 | 8.2.1, 13.4.4 | N/A |
| AS 2049 | 2002 | Roof tiles (incorporating amendment 1) | F <u>43</u> D <u>2</u> 4 | H1D7 | N/A | N/A |
| AS 2050 | 2018 | Installation of roof tiles | B1D4, F <mark>4<u>3</u>D<u>2</u>4</mark> | H2D6 | 7.3.2 | N/A |
| AS 2118 Part 1 | 2017 | Automatic fire sprinkler systems — General systems (incorporating amendments $1 \text{ and } 2$) | C1V3, E1D2, Spec 17, Spec 18 | N/A | N/A | N/A |
| AS 2118 Part 4 | 2012 | Automatic fire sprinkler systems — Sprinkler protection for accommodation buildings not exceeding four storeys in height | E1D2, Spec 17, Spec 18 | N/A | N/A | N/A |
| AS 2118 Part 6 | 2012 | Automatic fire sprinkler systems — Combined sprinkler and hydrant systems in multistorey buildings | E1D2, Spec 17 | N/A | N/A | N/A |
| AS 2159 | 2009 | Piling — Design and installation (incorporating amendment 1) | B1D4 | H1D4, H2D3 | N/A | N/A |
| AS/NZS 2179 Part 1 | 2014 | Specifications for rainwater goods, accessories and fasteners — Metal shape or sheet rainwater goods, and metal accessories and fasteners | N/A | N/A | 7.4.2 | N/A |
| AS/NZS 2269 Part 0 | 2012 | Plywood — Structural — Specifications (incorporating amendment 1) | N/A | N/A | 7.5.4 | N/A |
| AS/NZS 2293 Part 1 | 2018 | Emergency lighting and exit signs for buildings — System design, installation and operation | E4D4, E4D8, Spec 25, I3D15 | N/A | N/A | N/A |
| AS/NZS 2327 | 2017 | Composite structures — Composite steel- concrete construction in buildings_ | B1D4, Spec 1 | Spec <u>21</u> | 2.2.4, Spec 2 | Spec <u>21</u> |

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| AS 2419 Part 1 | 2005 | Fire hydrant installations — System design, installation and commissioning (incorporating amendment 1) | C3D13, E1D2, Spec 18, I3D9 | N/A | N/A | N/A |
| AS 2441 | 2005 | Installation of fire hose reels (incorporating amendment 1) | E1D3 | N/A | N/A | N/A |
| AS 2444 | 2001 | Portable fire extinguishers and fire blankets — Selection and location | E1D14, I3D11 | N/A | N/A | N/A |
| AS 2665 | 2001 | Smoke/heat venting systems — Design, installation and commissioning | Spec 22, Spec 31 | N/A | N/A | N/A |
| AS <mark>/NZS-</mark> 2699 Part 1 | 2000 2020 | Built-in components for masonry construction — Wall ties <u>. See Note (I)(i)</u> | C2D10 | N/A | 5.2.10, 5.6.5 | N/A |
| AS /NZS -2699 Part 3 | 2002 2020 | Built-in components for masonry construction — Lintels and shelf angles (durability requirements). <u>See Note (I)(ii)</u> | C2D10 | N/A | 5.2.12, 5.6.7 | N/A |
| AS 2870 | 2011 | Residential slabs and footings | F1D <u>9</u> 8 | H1D3, H1D4, H2D3, | 3.3.4, 3.4.3, 4.2.2, 4.2.6, 4.2.8, 4.2.11, 4.2.14, 4.3.3, 4.4.1, 4.5, 4.5.3, 4.5.7, 10.2.10 | N/A |
| AS/NZS 2890 Part 6 | 2009 | Parking facilities — Offstreet parking for people with disabilities | D4D6 | N/A | N/A | N/A |
| AS/NZS 2904 | 1995 | Damp-proof courses and flashings (incorporating amendments 1 and 2) | F1D <u>8</u> 7 | N/A | 5.2.7, 5.7.3, 7.5.6, 12.3.3 | N/A |
| AS/NZS 2908 Part 1 | 2000 | Cellulose-cement products — Corrugated sheets | B1D4, F <u>43</u> D <u>2</u> 4 | N/A | N/A | N/A |
| AS/NZS 2908 Part 2 | 2000 | Cellulose-cement products — Flat sheets | Schedule 2 | Schedule 2 | 7.5.3, 7.5.4, 7.5.5, 10.2.10,10.2.11, Schedule 2 | Schedule 2 |
| AS/NZS 2918 | 2018 | Domestic solid fuel burning appliances — Installation See Note 11 | G2D2 | H7D5, | 12.4.4, 12.4.5 | N/A |
| AS/NZS 3013 | 2005 | Electrical installations — Classification of the fire and mechanical performance of wiring system elements | C3D14 | N/A | N/A | N/A |
| AS/NZS 3500 Part 0 | 2003 | Plumbing and drainage — Glossary of terms | A1G1 | A1G1 | A1G1 | A1G1 |
| AS/NZS 3500 Part 1 | 2018 | Plumbing and drainage — Water services | N/A | N/A | N/A | B1D4, B3D3, B4D2, B5D2, |

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| AS/NZS 3500 Part 2 | 2018 | Plumbing and drainage — Sanitary plumbing and drainage | N/A | N/A | N/A | C1D3, C2V2, C2D3, C2D4 |
| AS/NZS 3500 Part 3 | 2018 | Plumbing and drainage — Stormwater drainage | F1D2 | H1D3, H1D7 | 3.3.4, 7.4.3 | N/A |
| AS/NZS 3500 Part 4 | 2018 | Plumbing and drainage — Heated water services (incorporating amendment 1) | N/A | N/A | N/A | B2D2, B2D6, B2D7, B2D8, B2D9 |
| AS/NZS 3600 | 2018 | Concrete structures (incorporating amendment 1) | B1V1, B1D4, Spec 2 | H1V1, H1D4, Spec 2 | 2.2.4, 3.4.3, 4.2.6, 4.2.10, 4.2.13, 4.3.2, 4.5.7, 5.3.3, 10.2.10, Spec 2 | Spec 2 |
| AS 3660 Part 1 | 2014 | Termite management — New building work (incorporating amendment 1) | B1D4, F1D <u>8</u> 7 | N/A | 3.4.1, 3.4.2 | N/A |
| AS 3660 Part 3 | 2014 | Termite management — Assessment criteria for termite management systems | N/A | N/A | 3.4.2 | N/A |
| AS/NZS 3666 Part 1 | 2011 | Air-handling and water systems of buildings — Microbial control — Design, installation and commissioning | F2D10, F <u>46</u> D6 | N/A | N/A | N/A |
| AS 3700 | 2018 | Masonry structures | B1D4, Spec 2 | H1D5, H2D4, | 5.2.4, 5.4.2, 5.6.3, 6.3.6, 10.2.10, 12.4.3, Spec 2 | Spec 2 |
| AS 3740 | 2010 | Waterproofing of domestic wet areas (incorporating amendment 1) | F1D <u>2</u> 6 | H4D3 | 10.2.9 | N/A |
| AS 3786 | 2014 | Smoke alarms using scattered light, transmitted light or ionization (incorporating amendment 1 and 2) See Note 7 | Spec 20 | N/A | 9.5.1, 9.5.5 | N/A |
| AS/NZS 3823 Part 1.2 | 2012 | Performance of electrical appliances — Airconditioners and heat pumps — Ducted airconditioners and air-to-air heat pumps — Testing and rating for performance | Spec 33, J5D12 | N/A | N/A | N/A |
| AS 3959 | 2018 | Construction of buildings in bushfire-prone areas | <u>G5D2, </u> G5D3, Spec 44 | H7D4 | N/A | N/A |
| AS/NZS 4020 | 2018 | Testing of products for use in contact with drinking waterSee Note 8 | A5G4 | A5G4 | A5G4 | A5G4, A5G7 |
| AS 4055 | 2012 | Wind loads for housing (incorporating amendment 1) | Schedule 2 | H1D8, Schedule 2 | Schedule 2 | Schedule 2 |
| AS 4072 Part 1 | 2005 | Components for the protection of openings | C4D15, C4D16 | N/A | 9.3.2 | N/A |

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| AS 4100 | 1998 2020 | Steel structures (incorporating amendment 1) | B1D4, Spec 2 1 | H1D6, Spec <u>21</u> | 4.2.13, 4.5.7. 5.2.12 , 5.6.7, 12.3.2, Spec 2 | Spec <u>21</u> |
| AS/NZS 4200 Part 1 | 2017 | Pliable building membranes and underlays — Materials | F <u>43</u> D <u>3</u> 5, F <u>68</u> D3, Spec 2 | Spec 2 | 7.3.4, 7.5.2, 7.5.8, 10.8.1, Spec 2 | Spec 2 |
| AS 4200 Part 2 | 2017 | Pliable building membranes and underlays — Installation requirements (incorporating amendment 1) | F1D5, F <mark>68D3</mark> | N/A | 10.8.1 | N/A |
| AS/NZS 4234 | 2008 | Heated water systems — Calculation of energy consumption (incorporating amendments 1, 2 and 3) | N/A | N/A | N/A | B2V1, B2D2 |
| AS 4254 Part 1 | 2012 | Ductwork for airhandling systems in buildings — Flexible duct | Spec 7, J5D7 | H3D2 | 13.6.4 | N/A |
| AS 4254 Part 2 | 2012 | Ductwork for airhandling systems in buildings — Rigid duct | Spec 7, J5D5, J5D7 | N/A | 13.6.4 | N/A |
| A S/NZS 4256 Part 4 | 1994 | Plastic roof and wall cladding materials General requirements | F1D4 | N/A | N/A | N/A |
| AS/NZS 4256 Part- 2 | 1994 | Plastic roof and wall cladding materials Unplasticized polyvinyl chloride (uPVC)- building sheets | F1D4 | N/A | N/A | N/A |
| A S/NZS-4256 Part- 3 | 1994 | Plastic roof and wall cladding materials Glass fibre reinforced polyester (GRP) | F1D4 | N/A | N/A | N/A |
| AS/NZS 4256 Part 5 | 1996 | Plastic roof and wall cladding materials — Polycarbonate | F1D4 | N/A | N/A | N/A |
| AS/NZS 4284 | 2008 | Testing of building facades | F <mark>4</mark> <u>3</u> V1 | H1V1 | N/A | N/A |
| AS/NZS 4505 | 2012 | Garage doors and other large access doors (incorporating amendment 1) | B1D4 | N/A | 2.2.4 | N/A |
| AS 4552 | 2005 | Gas fired water heaters for hot water supply and/or central heating | N/A | N/A | N/A | B2D2 |
| AS 4586 | 2013 | Slip resistance classification of new pedestrian surface materials (incorporating amendment 1) See Note 10 | D3D11, D3D14, D3D15. Spec 27 | N/A | 11.2.4 | N/A |
| AS 4597 | 1999 | Installation of roof slates and shingles (Noninterlocking type) | B1D4, F <u>3</u> 4D <u>2</u> 4 | H2D6 | N/A | N/A |
| AS/NZS 4600 | 2018 | Cold-formed steel structures | B1D4, Spec 2 | H1D6, Spec 2 | 5.3.3, 6.3.6, Spec 2 | Spec 2 |
| AS 4654 Part 1 | 2012 | Waterproofing membranes for external above-ground use — Materials | F1D3 | H2D8 | N/A | N/A |

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| AS 4654 Part 2 | 2012 | Waterproofing membranes for external above-ground use — Design and installation | F1D3 | H2D8 | N/A | N/A |
| AS 4678 | 2002 | Earth-retaining structures | N/A | H1D3 | N/A | N/A |
| AS 4773 Part 1 | 2015 | Masonry in small buildings — Design (incorporating amendment 1) | N/A | H1D5, H2D4 | 5.2.4, 5.6.3, 12.4.3 | N/A |
| AS 4773 Part 2 | 2015 | Masonry in small buildings — Construction | N/A | H1D5, H2D4 | 5.2.4, 5.6.3, 12.4.3 | N/A |
| AS/NZS 4859 Part 1 | 2018 | Thermal insulation materials for buildings — General criteria and technical provisions | J3D3, J5D6, J5D9 | N/A | 13.2.2, 13.2.6, 13.6.2, 13.6.3, 13.6.4 | N/A |
| AS/NZS 4859 Part 2 | 2018 | Thermal insulation materials for buildings — Design | J3D3, Spec 37 | N/A | N/A | N/A |
| AS 5113 | 2016 | Classification of external walls of buildings based on reaction-to-fire performance (incorporating amendment 1) | C1V3 | N/A | N/A | N/A |
| AS 5146 Part 1 | 2015 | Reinforced autoclaved aerated concrete — Structures (incorporating amendment 1) | B1D4 | H2D6 | N/A | N/A |
| AS 5216 | 2018 | Design of post-installed and cast-in fastenings in concrete | B1D4 | N/A | 2.2.4 | N/A |
| AS 5637 Part 1 | 2015 | Determination of fire hazard properties — Wall and ceiling linings | Spec 7, Schedule 2 | Schedule 2 | Schedule 2 | Schedule 2 |
| AS ISO 9239 Part 1 | 2003 | Reaction to fire tests for floorings — Determination of the burning behaviour using a radiant heat source | Schedule 2 | Schedule 2 | Schedule 2 | Schedule 2 |
| AS/NZS ISO 9972 | 2015 | Thermal performance of buildings — Determination of air permeability of buildings — Fan pressurization method | J1V4 | H6V3 | N/A | N/A |
| AIRAH-DA09 | 1998 | Air conditioning load estimation | Spec 35 | N/A | N/A | N/A |
| AIRAH-DA28 | 2011 | Building management and control systems | Spec 34 | N/A | N/A | N/A |
| ANSI/ASHRAE Standard 55 | 2013 | Thermal environmental conditions for human occupancy | Schedule 2 | Schedule 2 | Schedule 2 | Schedule 2 |
| ANSI/ASHRAE Standard 140 | 2007 | Standard method of test for the evaluation of building energy analysis computer programs | J1V1, J1V2, J1V3 | H6V2 | N/A | N/A |
| ASTM E2073-10 | 2010 | Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings | Spec 25 | N/A | N/A | N/A |
| ASTM E72-15 | 2015 | Standard Test Methods of Conducting Strength Tests of Panels for Building | Spec 6 | N/A | N/A | N/A |

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| ASTM E695-03 | 2003 | Standard Test Method of Measuring Relative Resistance of Wall, Floor and Roof Construction to Impact Loading | Spec 6 | N/A | N/A | N/A |
| ASTM E903 | 2012 | Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres | N/A | N/A | 13.2.3 | N/A |
| AHRI 460 | 2005 | Performance rating of remote mechanical- draft air-cooled refrigerant condensers | J5D13 | N/A | N/A | N/A |
| AHRI 551/591 | 2015 | Performance rating of water-chilling and heat pump water-heating packages using the vapor compression cycle. | Spec 33, J5D11 | N/A | N/A | N/A |
| ABCB | 2011 | Protocol for Structural Software, Version 2011.2 | B1D5 | H1D6 | 2.2.5 | N/A |
| ABCB | 2012 | Standard for Construction of Buildings in Flood Hazard Areas, Version 2012.3 | B1D6 | H1D10 | N/A | N/A |
| ABCB | 2022 | Fire Safety Verification Method | <u>C1V4, D1V4,</u> <u>E1V1, E2V1,</u> <u>E3V1, E4V2</u> | | | |
| ABCB | 2019 | Standard for NatHERS Heating and Cooling Load Limits, Version 2019.1 | J2D3 | H6D3 | N/A | N/A |
| CIBSE Guide A | 2015 | Environmental design | Spec 34, Spec 35, J3D3, J3D7 | N/A | N/A | N/A |
| Disability Standards for Accessible Public Transport | 2002 | | F2D12, I2D1 | N/A | N/A | N/A |
| Education and Care Services National Law Act (Vic) | 2010 | | Schedule 2 | Schedule 2 | Schedule 2 | Schedule 2 |
| European Union Commission Regulation 547/2012 | 2012 | Ecodesign requirements for water pumps | J5D8 | N/A | N/A | N/A |
| European Union Commission Regulation 622/Annexx II, point | 2012 | Eco-design requirements for glandless standalone circulators and glandless circulators integrated in products | J5D8 | N/A | N/A | N/A |

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| FPAA101D | 2018 | Automatic Fire Sprinkler System Design and Installation — Drinking Water Supply | C1V3, C2D6, C3D14, C3D2, C3D7, C4D6, C4D7, C4D8, C4D9, C4D12, Spec 5, Spec 7, D2D4, D2D17, D3D26, D3D30, E1D2, Spec 17, Spec 18, E2D3, Spec 20, G3D1, G3D6, Spec 31, I1D2 | N/A | N/A | B4D2 |
| FPAA101H | 2018 | Automatic Fire Sprinkler System Design and Installation — Hydrant Water Supply | C1V3, C2D6, C3D14, C3D2, C3D7, C4D6, Spec 5, Spec 7, E1D2, Spec 17, Spec 18, E2D3, Spec 20, G3D1, G3D6, Spec 31, I1D2 | N/A | N/A | B4D2 |
| ISO 140 Part 6 | 1998E | Acoustics — Measurement of sound insulation in buildings and of building elements — Laboratory measurements of impact sound insulation of floors | Spec 29 | N/A | N/A | N/A |
| ISO 540 | 2008 | Hard coal and coke — Determination of ash fusibility | Spec 13 | N/A | N/A | N/A |
| ISO 8336 | 1993E | Fibre-cement flat sheets | Schedule 2 | Schedule 2 | 7.5.3, 7.5.4, 7.5.5, Schedule 2 | Schedule 2 |
| ISO 25745 Part 2 | 2015 | Energy performance of lifts, escalators and moving walks: Energy calculation and classification for lifts (elevators) | J6D8 | N/A | N/A | N/A |
| NASH Standard | 2014 | Steel Framed Construction in Bushfire Areas (incorporating amendment A) | N/A | H1D6 | N/A | N/A |
| NASH Standard Part 1 | 2005 | Residential and LowRise Steel Framing — Design Criteria (incorporating amendments A, B and C) | B1D4 | H1D6 | N/A | N/A |
| NASH Standard | 2014 | Residential and LowRise Steel Framing — | B1D4, B1D5, | H1D6 | 2.2.5, 6.2.1, 6.3.6, | N/A |

| No. | Date | Title | Volume One | Volume Two | Housing Provisions | Volume Three |
|------------|------|--|------------|------------|--------------------|--------------|
| N/A | N/A | Northern Territory Deemed to Comply Standards Manual | N/A | N/A | 2.2.4 | N/A |
| SA TS 5344 | 2019 | Permanent labelling for Aluminium Composite Panel (ACP) products | A5G8 | A5G8 | A5G8 | A5G8 |
| TN 61 | | Cement Concrete and Aggregates Australia — Technical note — Articulated walling | N/A | H1D4 | N/A | N/A |

Table Notes:

1. For AS/NZS ISO 717.1:

- (i) Test reports based on AS 1276—1979 and issued prior to AS/NZS 1276.1—1999 being referenced in the NCC remain valid.
- (ii) The STC values in reports based on AS 1276—1979 shall be considered to be equivalent to R_w values.

(iii) Test reports based on AS/NZS 1276.1 prepared after the NCC reference date for AS/NZS 1276.1—1999 must be based on that version.

- (iv) Test reports based on ISO 717-1—1996 and issued prior to AS/NZS ISO 717.1—2004 being referenced in the NCC remain valid.
- (v) Reports based on AS/NZS ISO 717.1 relating to tests carried out after the NCC reference date for AS/NZS ISO 717.1—2004 must relate to the amended Standard.
- 2. For AS 1530 Parts 1 to 4:
 - (i) Until 1 May 2022, subject to the note to AS 4072.1, reports relating to tests carried out under earlier editions of AS 1530 Parts 1 to 4 remain valid.
 - (ii) Reports relating to tests carried out after the date of an amendment to a Standard must relate to the amended Standard.
- 3. For AS 1562.1, tests carried out based on AS 1562.1—1992 and issued prior to AS 1562.1—2018 being referenced in the NCC remain valid. Reports relating to tests carried out after the NCC reference date for AS 1562.1 must relate to the revised Standard.
- 4. For AS 1670.1, AS 1670.3 and AS1670.4:
 - (i) Notwithstanding A4G1(5), until 1 May 2022 either the current edition or the previous editions of the documents listed in Table 1.8 of AS 1670.1, AS 1670.3 and AS 1670.4 may be used to meet the requirements of AS 1670.1, AS 1670.3 and AS 1670.4 as applicable.
 - (ii) From 1 May 2022 A4G1(5) applies and only the edition of the documents listed in Table 1.8 of AS 1670.1, AS 1670.3 and AS 1670.4 that existed at the time of publication of the primary document may be used.
 - (iii) For AS/NZS 1859.4, the 2004 edition has been retained for a transitional period ending on 30 April 2020.
- 5. For AS 2047:
 - (i) Tests carried out under earlier editions of AS 2047 remain valid.
 - (ii) Reports based on AS 2047 relating to tests carried out after the NCC reference date for AS 2047—2014 Amendment 2 must relate to the amended Standard.
- 6. For AS 3786:

Page

- (i) Tests carried out under AS 3786-2014 Amendment 1 remain valid.
- (ii) Reports based on AS 3786 relating to tests carried out after the NCC reference date for AS 3786—2014 Amendment 2 must relate to the amended Standard.
- 7. Test reports based on the 2005 edition of AS/NZS 4020 will continue to be accepted until 1 May 2024. Test reports prepared after the NCC reference date for the

- 2018 edition of AS/NZS 4020 must be based on the 2018 edition.
- 8. For AS 4072.1, until 1 May 2022, systems tested to AS 1530.4 prior to 1 January 1995 need not be retested to comply with the provisions in AS 4072.1.
- 9. For AS 4586:
 - (i) Test reports based on the 2004 edition of AS/NZS 4586 and issued prior to the 2013 edition of AS 4586 being referenced in the NCC remain valid.
 - (ii) Test reports prepared after the NCC reference date of the 2013 edition of AS 4586 must be based on that version.
 - (iii) For the purposes of assessing compliance, the slip-resistance classifications of V, W and X in reports based on the 2004 edition of AS/NZS 4586 may be considered to be equivalent to slip-resistance classifications of P5, P4 and P3 respectively in the 2013 edition of AS4586.
 - (iv) Test reports based on Appendix D of AS 4586—2013 and issued prior to the NCC reference date for AS 4586—2013 (incorporating Amendment 1) remain valid.
 - (v) Test reports based on Appendix D of AS 4586—2013 and prepared after the NCC reference date for AS 4586—2013 (incorporating Amendment 1) must be based on that version.
- 10. Tests carried out based on AS/NZS 2918—2001 and issued prior to AS/NZS 2918—2018 being referenced in the BCA remain valid. Reports relating to tests carried out after the NCC reference date for AS/NZS 2918 must relate to the revised Standard.
- 11. For AS 2699 Parts 1 and 3:
 - (i) For AS 2699.1, the 2000 edition has been retained for a transitional period ending on 30 April 2025.
 - (ii) For AS 2699.3, the 2002 edition has been retained for a transitional period ending on 30 April 2025.

Public Comment Draft Commonwealth of Australia

Schedule 3 Commonwealth of Australia

Footnote: Other legislation and policies affecting buildings

Footnote: Other legislation and policies affecting buildings

In addition to any applicable provisions of this Code, there are a number of other legislative technical requirements and policies affecting the design, construction and/or performance of buildings that practitioners may need to be aware of, including, but not necessarily limited to, the following list. Additional legislative instruments such as regulations, codes and standards may exist under the legislation listed.

1. Australian Capital Territory

Administering Agency

Department of Finance

Relevant Legislation

Australian Capital Territory (Planning and Land Management) Act 1988 Parliament Act 1974

2. Defence Buildings

Administering Agency

Department of Defence

Relevant Legislation

Defence Act 1903

Relevant Regulations

DefenceRegulation 2016, Part 11A

Relevant Codes, Standards and Publications

Manual of Fire Protection Engineering

Requirements for the Provision of Disabled Access and other Facilities for People with a Disability in Defence

Heating, Ventilation and Air Conditioning Policy

Microbial Control in Air Handling and Water Systems of Defence Buildings

Building Energy Performance Manual

Manual of Infrastructure Engineering - Electrical

Manual of Infrastructure Engineering - Bulk Fuel Installation Design

Defence Communications Cabling Standard

Defence Training Area Management Manual

Defence Safety Manual

Defence Security Manual

Defence Explosive Ordinance Publications

TheDefenceEstateQualityManagementSystem(http://www.defence.gov.au/estatemanagement/governance/policy/principlesdevelopment/default.asp) contains furtherrequirements including the principles of development, zone planning, site selection, engineering requirements andenvironmental impact assessment and approval requirements.

3. Disability Discrimination

Administering Agency

Attorney-General's Department

Relevant Legislation

Disability Discrimination Act 1992 Disability (Access to Premises - Buildings) Standards 2010 Disability Standards for Accessible Public Transport 2002

4. Environment

Administering Agency

Department of the Environment

Relevant Legislation

Environmental Protection and Biodiversity Conservation Act 1999 Environmental Protection and Biodiversity Conservation Regulations 2000

Administering Agency

Department of Industry

Relevant Policy

Energy Efficiency in Government Operations (2006)

5. Jervis Bay Territory

Administering Agency

Department of Infrastructure and Regional Development

Relevant Legislation

Jervis Bay Territory Acceptance Act 1915

6. Occupational Health and Safety

Administering Agency

Department of Employment

Relevant Legislation

Work Health and Safety Act 2011 Work Health and Safety Regulations 2011

7. Territory of Christmas Island

Administering Agency

Department of Infrastructure and Regional Development

Relevant Legislation

Christmas Island Act 1958

Public Comment Draft Australian Capital Territory

Schedule 4 Australian Capital Territory

Footnote: Other legislation affecting buildings

ACT Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Building Act 2004 and this Code, there are other legislative technical requirements affecting the design, construction and/or performance of buildings that practitioners may need to be aware of. A list of relevant legislation and links to where it can be found on the ACT Legislation Register can be found in the ACT Appendix at https://www.legislation.act.gov.au/a/2004-11/.

Public Comment Draft New South Wales

| Schedule 5 | New Sou | ith Wales | | | |
|------------|--------------------------|---|--|--|--|
| Section A | Governing requirements | | | | |
| | Part A6 | Building classification | | | |
| | NSW A6G7 | Class 6 buildings | | | |
| Section H | Class 1 and 10 buildings | | | | |
| | Part H1 | Structure | | | |
| | H1D4 | Footings and slabs | | | |
| | Part H2 | Damp and weatherproofing | | | |
| | NSW H2P3 | Rising damp | | | |
| | Part H7 | Ancillary provisions and additional construction requirements | | | |
| | NSW H7P1 | Swimming pool access | | | |
| | NSW H7D2 | Swimming pools | | | |
| | NSW H7D4 | Construction in bushfire prone areas | | | |
| Schedule 1 | Definitions | | | | |

Footnote: Other legislation affecting buildings

Section A Governing requirements

Part A6 Building classification

Insert clause NSW A6G7 as follows:

NSW A6G7 Class 6 buildings

[2019: NSW A6.6]

A Class 6 building is a shop or other building for sale of goods by retail or the supply of services direct to the public, including—

- (a) an eating room, cafe, restaurant, milk or soft drink bar; or
- (b) a dining room, bar, shop or kiosk part of a hotel or motel; or
- (c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or
- (d) market or sale room, showroom, or service station.



Section H Class 1 and 10 buildings

Part H1 Structure

H1D4 Footings and slabs

[2019: 3.2.0, 3.2.1]

Delete H1D4(1) and replace with NSW H1D4(1) as follows:

- (1) Performance Requirement H1P1 is satisfied for footings and slabs if they are installed in accordance with either (a) or (b):
 - (a) One of the following:
 - (i) The footing or slab is constructed in accordance with AS 2870 except that for the purposes of Clause 5.3.3.1 of AS 2870 a damp-proofing membrane is required to be provided.
 - (ii) Piled footings are designed in accordance with AS 2159.
 - (b) Subject to (2), Section 4 of the ABCB Housing Provisions.

Part H2 Damp and weatherproofing

Insert clause NSW H2P3 as follows:

NSW H2P3 Rising damp

[2019: NSW P2.2.3]

- (1) Moisture from the ground must be prevented from causing-
 - (a) unhealthy or dangerous conditions, or loss of amenity for occupants; and
 - (b) undue dampness or deterioration of building elements.
- (2) Barriers installed beneath slab on ground construction for the purposes of (1) must have a high resistance to damage during construction.

Limitations:

NSW H2P3 does not apply to a Class 10 building where in the particular case there is no necessity for compliance.

Explanatory Information:

The intent of requiring the barrier to have a high resistance to damage during construction is to increase the barrier's ability to resist punctures during construction. By being less susceptible to puncturing, the barrier will provide increased protection against moisture containing dissolved salts from coming into contact with the concrete slab.

Part H7 Ancillary provisions and additional construction requirements

Insert clause NSW H7P1 as follows:

NSW H7P1 Swimming pool access

[2019: NSW P2.7.1]

A barrier must be provided to a *swimming pool* and must—

- (a) be continuous for the full extent of the hazard; and
- (b) be of a strength and rigidity to withstand the foreseeable impact of people; and

- (c) restrict the access of young children to the pool and the immediate pool surrounds; and
- (d) have any gates and doors fitted with latching devices not readily operated by young children, and constructed to automatically close and latch.

Applications:

H7P1 only applies to a swimming pool with a depth of water more than 300 mm, in conjunction with the Swimming Pools Act 1992 and the Swimming Pools Regulation 2018.

Insert clause NSW H7D2 as follows:

NSW H7D2 Swimming pools

[2019: NSW 3.10.1.0]

- (1) *Performance Requirement* H7P1 is satisfied for a *swimming pool* with a depth of water more than 300 mm and which is associated with a Class 1 building, if it has safety barriers installed in accordance with—
 - (a) AS 1926 Parts 1 and 2; or
 - (b) if the swimming pool is a spa pool—
 - (i) the requirements of (1)(a); or
 - (ii) clause 9 of the Swimming Pools Regulation 2018.
- (2) Performance Requirement H7P2 is satisfied for a water recirculation system of a swimming pool with a depth of water more than 300 mm, if it complies with AS 1926.3.

Applications:

NSW H7D2 applies in New South Wales to the technical construction requirements for barriers to restrict access to *swimming pools*, subject to out-of-ground pool walls and the walls of above ground pools, including inflatable pools, not being considered to be effective barriers.

Notes:

The Swimming Pools Act 1992 and the Swimming Pool Regulation 2018, applicable to *swimming pools* with a depth of water of more than 300 mm, regulate the circumstances in which a barrier is required and prevail in the case of any inconsistency.

Insert clause NSW H7D4 as follows:

NSW H7D4 Construction in bushfire prone areas

[2019: NSW 3.10.5.0]

- (1) The requirements of (2) to (5) only apply in a designated bushfire prone area.
- (2) Performance Requirement H7P5 is satisfied for a Class 1 building, or a Class 10a building or deck associated with a Class 1 building, if it is constructed in accordance with—
 - (a) AS 3959; or
 - (b) NASH Standard Steel Framed Construction in Bushfire Areas.
- (3) For the purposes of (2)(a), AS 3959 applies except-
 - (a) as amended by Planning for Bush Fire Protection; and
 - (b) for Section 9 for Bushfire Attack Level FZ (BAL-FZ).
- (4) For the purposes of (2)(b), NASH Standard Steel Framed Construction in Bushfire Areas applies except—
 - (a) as amended by Planning for Bush Fire Protection; and
 - (b) for buildings subject to Bushfire Attack Level FZ (BAL-FZ).

- (5) The requirements of (2), (3) and (4) apply as modified by-
 - (a) development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or
 - (b) development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.

Explanatory Information:

In New South Wales, buildings subject to BAL-FZ must comply with specific conditions of development consent for construction at this level.

S

Public Comment Draft New South Wales

Schedule 1 Definitions

Aisle: A walkway at the end of *rows* of seating, not being *continental seating*, leading to a cross-over or to an egress doorway.

Appropriate authority: The relevant authority with the responsibility to determine the particular matter.

Assembly building: A building where people may assemble for-

- (a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or
- (b) educational purposes in a school, early childhood centre, preschool, or the like; or
- (c) entertainment, recreational or sporting purposes including-
 - (i) a cinema; or
 - (ii) a sports stadium, sporting or other club; or
- (d) transit purposes including a bus station, railway station, airport or ferry terminal.

Designated bushfire prone area: Land that:

- (a) has been designated under legislation; or
- (b) has been identified under an environmental planning instrument, development control plan or in the course of processing and determining a development application,

as land that can support a bushfire or is likely to be subject to bushfire attack.

NSW Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Environmental Planning and Assessment Act 1979, the Environmental Planning and Assessment Regulation 2000 and this Code, there is a variety of other regulatory provisions, including legislation, regulation and departmental policies that impose requirements affecting the design, construction and/or performance of buildings in NSW.

The following is a non-definitive list of such provisions. It does not include Commonwealth provisions that may apply in NSW, nor planning and environmental standards that may impose building requirements in individual circumstances. It is meant as an indicative guide only and is not to be relied upon in any way as a substitute for further research, investigation and legal advice needed to determine building standards in individual circumstances.

1. Boarding Houses

Administering Agency

Department of Family and Community Services - Ageing, Disability and Home Care

Relevant Legislation

Boarding Houses Regulation 2013

2. Children's Services

Administering Agency

NSW Department of Education

Relevant Legislation

Children (Education and Care Services National Law Application) Act 2010 Children (Education and Care Services) Supplementary Provisions Regulation 2012

3. Crown Land – Construction Approval

Administering Agency

Department of Industry

Relevant Legislation

Crown Land Management Act 2016 Crown Land Management Regulation 2018

Administering Agency

NSW Rural Fire Service

Relevant Legislation

Rural Fires Act 1997

4. Dining Rooms

Administering Agency

NSW Food Authority

Relevant Legislation

Food Regulation 2015
5. Electrical Installations

Administering Agency

NSW Fair Trading

Relevant Legislation

Gas and Electricity (Consumer Safety) Regulation 2018 Gas and Electricity (Consumer Safety) Act 2017

Administering Agency

SafeWork NSW

Relevant Legislation Work Health and Safety Regulation 2017

6. Fire Prevention in Existing Buildings

Administering Agency

Department of Planning and Environment

Relevant Legislation

Environmental Planning and Assessment Act 1979 Environmental Planning and Assessment Regulation 2000

7. Gas Installations

Administering Agency

Department of Planning and Environment, Energy, Water and Portfolio Strategy

Relevant Legislation

Gas Supply Act 1996 Gas Supply (Safety and Network Management) Regulation 2013

Administering Agency

NSW Fair Trading

Relevant Legislation

Gas and Electricity (Consumer Safety) Act 2017 Gas and Electricity (Consumer Safety) Regulation 2018

8. Historic Buildings

Administering Agency

Office of Environment and Heritage

Relevant Legislation

Heritage Regulation 2012

9. Lift Installations

Administering Agency

SafeWork NSW

Relevant Legislation

Work Health and Safety Regulation 2017

10. Moveable Dwellings (in Caravan Parks)

Administering Agency

Office of Local Government

Relevant Legislation

Local Government Act 1993

Administering Agency

Department of Planning and Environment

Relevant Legislation

Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005

11. Work Health and Safety

Administering Agency

SafeWork NSW

Relevant Legislation

Work Health and Safety Regulation 2017

12. Planning Controls

Administering Agency

Department of Planning and Environment

Relevant Legislation

Environmental Planning and Assessment Act 1979 Environmental Planning and Assessment Regulation 2000

13. Sanitary Plumbing, Water Supply and Sewerage

Administering Agency

Office of Local Government

Relevant Legislation Local Government Act 1993 Local Government (General) Regulation 2005

Administering Agency

NSW Fair Trading

Relevant Legislation

Plumbing and Drainage Act 2011 Plumbing and Drainage Regulation 2017

Approval to Connect to Network Utility Operator's System

Refer to the Network Utility Operator for the current Act & Regulation Hunter Water Act 1991 Sydney Water Act 1994 Water Industry Competition Act (WICA) 2006

14. Septic Tank Installations

Administering Agency

Office of Local Government

Relevant Legislation

Local Government Act 1993 Local Government (General) Regulation 2005

15. Sleeping Accommodation

Administering Agency NSW Ministry of Health

Relevant Legislation Public Health Regulation 2012

16. Swimming Pool Fences

Administering Agency NSW Fair Trading

Relevant Legislation Swimming Pools Act 1992 Swimming Pools Regulation 2018

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Public Comment Draft Northern Territory

| Schedule 6 | Norther | n Territory |
|------------|---------------|---|
| Section H | Class 1 and 1 | I0 buildings |
| | Part H2 | Damp and weatherproofing |
| | NT H2P4 | Drainage from swimming pools |
| | Part H4 | Health and amenity |
| | NT H4P6 | Sound insulation |
| | NT H4V4 | Sound insulation |
| | Part H7 | Ancillary provisions and additional construction requirements |
| | NT H7P1 | Swimming pool access |
| | H7D2 | Swimming pools |

Footnote: Other legislation affecting buildings

Section H Class 1 and 10 buildings

Part H2 Damp and weatherproofing

Delete H2P4 and insert NT H2P4 as follows:

NT H2P4 Drainage from swimming pools

This clause has deliberately been left blank.

Part H4 Health and amenity

Insert clause NT H4P6 as follows:

NT H4P6 Sound insulation

[2019: NT P2.4.6]

- (1) Walls separating dwellings must provide insulation against the transmission of airborne and impact generated sound sufficient to prevent illness or loss of amenity to the occupants.
- (2) The *required* sound insulation of walls must not be compromised by the incorporation or penetration of a pipe or other service element.

Delete H4V4 and insert NT H4V4 as follows:

NT H4V4 Sound insulation

This clause has deliberately been left blank.

Part H7 Ancillary provisions and additional construction requirements

Delete H7P1 and insert NT H7P1 as follows:

NT H7P1 Swimming pool access

This clause has deliberately been left blank.

Restriction of access to swimming pools in the Northern Territory is regulated under the Swimming Pool Safety Act.

H7D2 Swimming pools

[2019: 3.10.1]

Restriction of acces to swimming pools in the Northern Territory is regulated under the Swimming Pool Safety Act.

NT Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Building Act, Building Regulations and this Code, there are a number of other legislative technical requirements affecting the design, construction and/or performance of buildings that practitioners may need to be aware of, including, but not necessarily limited to, the following list. Additional legislative instruments such as regulations, codes and standards may exist under the legislation listed.

1. Accommodation

Administering Agency

Department of Health

Relevant Legislation

Public and Environmental Health Act Public and Environmental Health Regulations

2. Child Care

Administering Agency

Department of Education

Relevant Legislation

Education and Care Services National Law Education and Care Services National Regulations

3. Crown Land

Administering Agency Department of Infrastructure, Planning and Logistics

Relevant Legislation

Crown Lands Act

4. Electrical Installations

Administering Agency

Department of Attorney-General and Justice (NT Worksafe)

Relevant Legislation

Electrical Workers and Contractors Act Electricity Reform Act Electricity Reform (Safety and Technical) Regulations

5. Fences — dividing

Administering Agency

Department of Attorney-General and Justice

Relevant Legislation

Fences Act

6. Gas Installations

Administering Agency

Department of Attorney-General and Justice (NT Worksafe)

Relevant Legislation

Dangerous Goods Act Work Health (Occupational Health and Safety) Regulations

7. Historic Building

Administering Agency

Department of Tourism and Culture

Relevant Legislation

Heritage Act

8. Occupational Health and Safety

Administering Agency

Department of Attorney-General and Justice (NT Worksafe)

Relevant Legislation

Work Health and Safety (National Uniform Legislation) Act

9. Planning Controls

Administering Agency

Department of Infrastructure, Planning and Logistics

Relevant Legislation

Planning Act Planning Scheme

10. Plumbing Installations

Administering Agency

Department of Infrastructure, Planning and Logistics

Relevant Legislation

Building Act Building Regualtions Plumbers and Drainers Licensing Act

11. Stormwater Drainage (Municipal Roads)

Administering Agency

Council or Municipality in which building is located

Relevant Legislation

Local Government Act

12. Stormwater Drainage (Territory Roads)

Administering Agency

Department of Infrastructure, Planning and Logistics

Relevant Legislation

Control of Roads Act

13. Swimming Pools

Administering Agency

Department of Infrastructure, Planning and Logistics

Relevant Legislation

Swimming Pool Safety Act

14. Water Supply and Sewage Services

Administering Agency

Power and Water Corporation

Relevant Legislation

Water Supply and Sewerage Services Act Water Supply and Sewerage Services Regulations

Public Comment Draft Queensland

| Schedule 7 | Queensla | and | |
|------------|--------------------------|---|--|
| Section H | Class 1 and 10 buildings | | |
| | Part H1 | Structure | |
| | QLD H1P2 | Buildings in flood areas | |
| | QLD H1P3 | Termite management measures | |
| | H1D3 | Site preparation | |
| | H1D6 | Framing | |
| | QLD H1D10 | Flood hazard areas | |
| | Part H7 | Ancillary provisions and additional construction requirements | |
| | QLD H7P1 | Swimming pool access | |
| | H7D2 | Swimming pools | |
| | H7D4 | Construction in bushfire prone areas | |
| Schedule 1 | Definitions | | |

Footnote: Other legislation affecting buildings

n affecting ...

Section H Class 1 and 10 buildings

Part H1 Structure

Delete H1P2 and insert QLD H1P2 as follows:

QLD H1P2 Buildings in flood areas

This clause has deliberately been left blank.

Building work in designated flood hazard areas is regulated by the Building Act 1975 and Development Code 3.5 - Construction of buildings in flood hazard areas.

Insert clause QLD H1P3 as follows:

QLD H1P3 Termite management measures

[2019: QLD P2.1.3]

- (1) The risk of in a Class 1 or 10 building being damaged by subterranean termites must be adequately minimised by the use of a suitable termite management measure that—
 - (a) if it serves a non-temporary Class 1 building, has a design life of at least 50 years; or
 - (b) if it serves a building not specified in (a), has a design life of at least 50 years or the specified design life of the building, whichever is the lesser; or
 - (c) is easily and readily accessible for replenishment or replacement and is capable of being replenished or replaced.
- (2) A termite management measure required by (1), to the degree necessary, must-
 - (a) be accessible to enable the installation, maintenance and inspection of the termite management measure to be carried out; and
 - (b) incorporate suitable measures to adequately minimise the risk of the termite management measure inadvertently being damaged, bridged or breached.

Explanatory Information:

QLD H1P3(1) requires a termite management measure in Queensland to have a design life of at least 50 years unless it is easily and readily accessible for replenishment or replacement and is capable of being replenished or replaced. In recognition that some buildings other than non-temporary Class 1 buildings may be designed to last less than 50 years, the option of the termite management measure having a design life at least equal to that specified for the building is given. If this option is used, the design life of the building should be agreed upon by all relevant stakeholders at the design stage and should form part of the documentation kept by the *appropriate authority*. It should not be assumed that the design life of 50 years in QLD H1P3(1)(a) and (b) applies to any other provisions of the BCA, unless stated.

An example of a termite management measure that may satisfy QLD H1P3(1)(c) is a chemical reticulation system beneath a concrete floor slab laid directly on the ground, provided that the system is easily and readily accessible for replenishment and is capable of being replenished.

An example of a termite management measure that may not satisfy QLD H1P3(1) for a non-temporary Class 1 building is a hand-sprayed chemical beneath a concrete floor slab laid directly on the ground if the chemical does not have a design life of at least 50 years. The concrete floor slab being laid directly on the ground would prevent the area beneath the slab from being easily and readily accessible for replenishment or replacement of the termite management measure.

An example of a termite management measure being inadvertently bridged or breached is when a person places a garden or mulch over the top of or above the level of a termite management measure enabling termites to bypass the measure.

[2019: 3.1.1, 3.1.2, 3.1.4]

[2019: 3.4.0, 3.4.2-3.4.4]

H1D3 Site preparation

Delete H1D3(3) and replace with QLD H1D3(3) as follows:

(3) Compliance with Part 3.4 of the ABCB Housing Provisions satisfies Performance Requirement H1P1 and QLD H1P3.

H1D6 Framing

Delete H1D6(54) and replace with QLD H1D6(54) as follows:

- (54) Performance Requirement H1P1 is satisfied for a timber frame if it is designed and constructed in accordance with the following, as appropriate:
 - (a) Design of timber structures: AS 1720.1.
 - (b) Design of nailplated timber roof trusses: AS 1720.5.
 - (c) Residential timber-framed construction non-cyclonic areas: AS 1684.2.
 - (d) Residential timber-framed construction cyclonic areas: AS 1684.3.
 - (e) Residential timber-framed construction non-cyclonic areas (simplified): AS 1684.4.
 - (f) Installation of particleboard flooring: AS 1860.2.
 - (g) Timber species: In addition to sub-clauses (a) to (f) above, timber used for structural purposes must be a species scheduled for the appropriate use in Schedules A, B or C of Book 2 of the December 2017 version of the "Queensland Government, Department of Agriculture, Fisheries and Forestry Construction timbers in Queensland, Book 1 and Book 2: Properties and specifications for satisfactory performance of construction timbers in Queensland Class 1 and 10 buildings (Houses, carports, garages, greenhouses and sheds)".

Delete H1D10 and insert QLD H1D10 as follows:

QLD H1D10 Flood hazard areas

This clause has deliberately been left blank.

Building work in designated flood hazard areas is regulated by the Building Act 1975 and the Queensland Development Code 3.5 - Construction of buildings in flood hazard areas

Part H7 Ancillary provisions and additional construction requirements

Delete H7P1 and insert QLD H7P1 as follows:

QLD H7P1 Swimming pool access

This clause has deliberately been left blank.

Restriction of access to swimming pools in Queensland is regulated under the Building Act 1975.

H7D2 Swimming pools

[2019: 3.10.1]

Restriction of access to swimming pools in Queensland is regulated under the Building Act 1975.

H7D4 Construction in bushfire prone areas

Insert subclause QLD H7D4(3) in clause H7D4 as follows:

(3) The requirements of (2) do not apply when, in accordance with AS 3959, the classified vegetation is Group F rainforest

(excluding wet sclerophyll forest types), mangrove communities or grasslands under 300 mm high.

S

Public Comment Draft Queensland

Schedule 1 Definitions

- (a) A member of a building specifically designed to take part of the building loads and includes roof, ceiling, floor, stairway or ramp and wall framing members including bracing members designed for the specific purpose of acting as a brace to those members.
- (b) Door jambs, window frames and reveals, architraves and skirtings.

QLD Footnote: Other legislation affecting buildings

All legislative technical requirements affecting the design, construction and/or performance of buildings are consolidated into the Building Act 1975 and other legislative instruments under that Act, such as regulations, codes (including this Code) and standards.

| Schedule 8 | South Aus | tralia | |
|------------|--------------------------|---|--|
| Section A | Governing requirements | | |
| | Part A6 | Building classification | |
| | SA A6G7 | Class 6 buildings | |
| Section H | Class 1 and 10 buildings | | |
| | Part H1 | Structure | |
| | SA H1P2 | Buildings in flood areas | |
| | Part H2 | Damp and weatherproofing | |
| | SA H2P3 | Rising damp | |
| | H2D4 | Masonry | |
| | Part H3 | Fire safety | |
| | H3P1 | Spread of fire | |
| | Part H7 | Ancillary provisions and additional construction requirements | |
| | H7D2 | Swimming pools | |
| | Specification 42 | Heating and cooling loads | |
| | S42C2 | Heating and cooling loads | |
| | | | |

Schedule 1 Definitions

Footnote: Other legislation affecting buildings

Public Comment Draft South Australia

Section A Governing requirements

Part A6 Building classification

Insert clause SA A6G7 as follows:

SA A6G7 Class 6 buildings

[2019: SA A6.6]

A Class 6 building is a shop or other building for the sale of goods by retail or the supply of services direct to the public, including—

- (a) an eating room, cafe, restaurant, milk or soft drink bar; or
- (b) a dining room, bar, shop or kiosk part of a hotel or motel; or
- (c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or
- (d) market or sale room, showroom, or service station; or
- (e) a small arts venue.

Section H Class 1 and 10 buildings

Part H1 Structure

Delete H1P2 and insert SA H1P2 as follows:

SA H1P2 Buildings in flood areas

This clause has deliberately been left blank.

Part H2 Damp and weatherproofing

Insert clause SA H2P3 as follows:

SA H2P3 Rising damp

[2019: SA P2.2.3]

[2019: 3.3.4]

- (1) Moisture from the ground must be prevented from causing—
 - (a) undue dampness or deterioration of building elements; and
 - (b) unhealthy or dangerous conditions, or loss of amenity for occupants.
- (2) Barriers installed to prevent transfer of moisture from the ground must have-
 - (a) high resistance to moisture penetration; and
 - (b) high resistance to damage during construction; and
 - (c) high resistance to degradation by dissolved salts.

H2D4 Masonry

Delete H2D4(24) and replace with SA H2D4(24) as follows:

- (24) Performance Requirements H2P2 and H2P3 are satisfied for weatherproofing of masonry if it is carried out in accordance with the appropriate provisions of—
 - (a) AS 3700 Masonry structures; or
 - (b) AS 4773 Masonry for small buildings, Parts 1 and 2.

Insert subclause SA H2D4(35) in clause H2D4 as follows:

(35) For the purposes of SA H2D4(2), metals and bitumen-coated metals referred to in clauses 7.2. and 7.3 of AS/NZS 2904 are not acceptable materials for use as damp-proof courses in South Australia.

Insert subclause SA H2D4(4) in clause H2D4 as follows:

- (4) In low rainfall intensity areas where the site classification is A, S, M, M-D, H, H1, H2, H-D, H1-D or H2-D in accordance with AS 2870, the height of the damp-proof course may be
 - (a) 15 mm above finished paved, concreted or landscaped areas; or
 - (b) 0 mm if the damp-proof course is protected from the direct effects of the weather by a carport, verandah or the like.

Part H3 Fire safety

H3P1 Spread of fire

Delete H3P1(1) and replace with SA H3P1(1) as follows:

- (1) A Class 1 building must be protected from the spread of fire from-
 - (a) another building other than an associated Class 10 building; and
 - (b) the allotment boundary, other than a boundary adjoining a road or public space; and
 - (c) a Class 10b brush fence.

Part H7 Ancillary provisions and additional construction requirements

H7D2 Swimming pools

Insert subclause SA H7D2(3) in clause H7D2 as follows:

(3) For the purpose of clause 6.1.1 of AS 1926.3, a skimmer box is an outlet and must have a means of releasing the vacuum pressure should the suction become blocked.

Specification 42 Heating and cooling loads

S42C2 Heating and cooling loads

Delete S42C2(1) and replace with SA S42C2(1) as follows:

- (1) A building must achieve an energy rating, including the separate heating and cooling load limits, using , of greater than or equal to—
 - (a) 6 stars; or
 - (b) for a building in *climate zones* 1 or 2, 5.5 stars if the building has an outdoor living area as described in (3) if the outdoor living area—
 - (i) is fully covered with an impervious roof having a greater than or equal to 1.5 (for downward heat flow); or
 - (ii) has at least one permanently installed ceiling fan; or
 - (c) for a building in *climate zones* 1 or 2, 5 stars if the building has an outdoor living area as described in (3) if the outdoor living area—
 - (i) is fully covered with an impervious roof having a greater than or equal to 1.5 (for downward heat flow); and
 - (ii) has at least one permanently installed ceiling fan; or
 - (d) for an elevated building with a lightweight flooring system that has a *floor area* up to and including 60 m²—5 stars; or
 - (e) for an elevated building with a lightweight flooring system that is located in *climate zone* 4, a local government area listed in (7), or an area not within a local government council and it has an on-*site renewable energy* source provided in accordance with (6) installed and connected to the building—5 stars.

Insert subclause SA S42C2(6) in clause S42C2 as follows:

(6) The minimum level of energy generated annually by on-*site renewable energy* source provided in accordance with (1)(e) must be determined by multiplying the *floor area* of the building by the appropriate value in SA Table S42C2for the energy rating achieved by the building.

Insert subclause SA S42C2(7) in clause S42C2 as follows:

- (7) The local government areas where (1)(e) applies are:
 - (a) Ceduna Council.

[2019: P2.3.1]

Part H3

[2019: 3.10.1]

[2019: 3.12.0.1]

- (b) Cleve Council.
- (c) The Coorong District Council.
- (d) Elliston Council.
- (e) Flinders Ranges Council.
- (f) Franklin Harbour Council
- (g) Goyder Council.
- (h) Kangaroo Island Council.
- Kooroonda East Murray Council. (i)
- Kimba Council. (j)
- (k) Lower Eyre Peninsula Council.
- (I) Mid Murray Council.
- (m) Mount Remarkable Council.
- (n) Orroroo Carrieton Council.
- (o) Peterborough Council.
- (p) Southern Mallee Council.
- (q) Streaky Bay Council.
- (r) Tatiara Council.
- (s) Tumby Bay Council.
- (t) Wudinna Council

| | | source | |
|-----------|--------------|---------------------------|---|
| SA Table | e S42C2: | Required minimum level of | f energy to be generated by an on-site renewable energy |
| Insert SA | A Table S42C | 2 as follows: | |
| (t) | Wudinna Co | puncil | |
| (s) | Tumby Bay | Council. | |
| (r) | Tatiara Cou | ncil. | |

| Climate zone | Star rating of Class 1 building 5.0 - 5.4 stars | Star rating of Class 1 building 5.5 - 5.9 stars |
|--------------|--|--|
| 4 | 4.6 kWh/m ² | 3.8 kWh/m ² |
| 5 | 3.9 kWh/m ² | 3.4 kWh/m ² |
| 6 | 8.5 kWh/m ² | 7.6 kWh/m ² |

Schedule 1 Definitions

Assembly building: A building where people may assemble for-

- (a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or
- (b) educational purposes in a school, early childhood centre, preschool, or the like; or
- (c) entertainment, recreational or sporting purposes including-
 - (i) a discotheque or nightclub; or
 - (ii) a cinema; or
 - (iii) a sports stadium, sporting or other club; or
- (d) transit purposes including a bus station, railway station, airport or ferry terminal.

Farm building: A single storey Class 7 or 8 building that is-

- (a) primarily associated with agriculture and located on land used primarily for agriculture; and
- (b) the total number of people accommodated in the building does not exceed one person per 200 m² of total *floor area*, or six people, whichever is greater; and
- (c) the *floor area* of each building does not exceed the maximum *floor area* and volume specified in Table SA 1 for the type of farm building; and
- (d) the building does not contain occupancies of excessive fire hazard as listed in E1D5 to E1D12; and
- (e) if the building is used for the storage of hay, an open space complying with C3D5(1) is provided around the perimeter of each building.

Insert SA Table SA 1 as follows:

SA Table SA 1: Farm building categories and maximum floor area

| Building group | Type of farm building | Maximum floor area | Maximum volume |
|----------------|--|----------------------|-----------------------|
| Group A | Buildings used for keeping, growing and/or harvesting of animals and/or plants, and includes greenhouses with rigid covering material and large implement/vehicle storage sheds. | 5,000 m ² | 30,000 m ³ |
| Group B | Buildings used for packing, sorting and/or storage of produce and may include workshops. | 2,000 m ² | 12,000 m ³ |
| Group C | Greenhouses with non-rigid, plastic or fabric covering material. | 5,000 m ² | 30,000 m ³ |

SA Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Development Act 1993, the Development Regulations 2008, The Planning, Development and Infrastructure Act 2016 and its associated regulations and this Code, there are a number of other legislative technical requirements affecting the design, construction and/or performance of buildings that practitioners may need to be aware of, including, but not necessarily limited to, the following list. Additional legislative instruments such as regulations, codes and standards may exist under the legislation listed.

1. Accommodation

Administering agency

Department for Human Services

Relevant legislation

Supported Residential Facilities Act 1992 Supported Residential Facilities Regulations 2009

2. Asbestos Removal

Administering agency

SafeWork SA, Department of the Premier and Cabinet

Relevant legislation

Work, Health and Safety Act 2012 Work, Health and Safety Regulations 2012

3. Crown Land

Administering agency Department for Environment and Water

Relevant legislation

Crown Land Management Act 2009 Crown Land Management Regulations 2010

4. Electrical Installations

Administering agency

Office of the Technical Regulator, Department for Industry and Skills

Relevant legislation

Electricity Act 1996 Electricity (General) Regulations 2012 Energy Products Act 2012 Energy Products (Safety and Efficiency) Regulations 2012

5. Encroachments

Administering agency

Attorney-General's Department

Relevant legislation

Encroachments Act 1944

6. Fences

Administering agency

Attorney-General's Department

Relevant legislation

Fences Act 1975 Fences Regulations 2018

7. Fire Prevention in Existing Buildings

Administering agency

Department of Planning, Transport and Infrastructure

Relevant legislation

Development Act 1993 Development Regulations 2008

Administering agency SA Fire and Emergency Services Commission

Relevant legislation

Fire and Emergency Services Act 2005 Fire and Emergency Services Regulations 2005

8. Gas Installations

Administering agency

Office of the Technical Regulator, Department for Industry and Skills

Relevant legislation

Gas Act 1997 Gas Regulations 2012 Energy Products Act 2012 Energy Products (Safety and Efficiency) Act 2000 Energy Products (Safety and Efficiency) Regulations 2012

9. Historic Buildings

Administering agency

Department for Environment and Water

Relevant legislation

Heritage Places Act 1993 Heritage Places Regulations 2005

10. Housing

Administering agency

Department of Human Services

Relevant legislation Housing Improvement Act 2016 Housing Improvement Regulations 2017

11. Lift Installations

Administering agency

Safework SA, Department of the Premier and Cabinet

Relevant legislation

Work, Health and Safety Act 2012 Work, Health and Safety Regulations 2012

12. Occupational Health and Safety

Administering agency

SafeWork SA, Department of the Premier and Cabinet

Relevant legislation

Work, Health and Safety Act 2012 Work, Health and Safety Regulations 2012

13. Sanitary Plumbing, Water Supply and Sewerage

Administering agency

Office of the Technical Regulator, Department for Industry and Skills

Relevant legislation

Water Industry Act 2012 Water Industry Regulations 2012

14. Septic Tank and Grey Water Installations

Administering agency

Department for Health and Wellbeing

Relevant legislation

South Australian Public Health Act 2011 South Australian Public Health (Wastewater) Regulations 2013

15. Subdivision of Property

Administering agency

Land Services Group, Department of Planning, Transport and Infrastructure

Relevant legislation

Community Titles Act 1996 Community Titles Regulations 2011 Real Property Act 1886 Real Property Regulations 2009 Strata Titles Act 1988 Strata Titles Regulations 2018

16. Waste Management and Environment Protection

Administering agency

Environment Protection Authority

Relevant legislation

Environment Protection Act 1993 Environment Protection Regulations 2009

Public Comment Draft Tasmania

| Schedule 9 | Tasmania | |
|----------------|-----------------------|---|
| Section A | Governing requi | rements |
| | Part A1 | Interpreting the NCC |
| | A1G <mark>1</mark> 4 | Interpretation |
| | Part A4 | Referenced documents |
| | A4G1 | Referenced documents |
| | Part A5 | Documentation of design and construction |
| | A5G4 | Evidence of suitability — Volume Three (PCA) |
| Section H | Class 1 and 10 b | uildings |
| | Part H7 | Ancillary provisions and additional construction requirements |
| | TAS H7P3 | Heating appliances |
| | TAS H7P5 | Buildings in bushfire prone areas |
| Schedule 1 | Definitions | |
| Footnote: Othe | r legislation affecti | ng buildings |

Public Comment Draft Tasmania

Section A Governing requirements

Part A1 Interpreting the NCC

A1G¹4 Interpretation

[2019: A1.0]

Insert subclause TAS A1G14(7) in clause A1G14 as follows:

(7) The Director of Building Control may issue written advice to deal with arising issues such as interpretation of codes, standards and regulations.

Part A4 Referenced documents

A4G1 Referenced documents

[2019: A4.0]

Delete A4G1(3) and replace with TAS A4G1(3) as follows:

- (3) The following applies:
 - (a) Where a new edition, issue or amendment of a primary referenced document is not listed under Schedule <u>32</u>, for the purposes of the PCA the new addition, issue or amendment shall be referenced upon the publication of that addition, issue or amendment.
 - (b) All Tasmanian legislative documents referenced within the PCA are taken to be the latest published versions thereof unless noted otherwise.

Part A5 Documentation of design and construction

A5G4 Evidence of suitability – Volume Three (PCA)

[2019: A5.3]

Delete A5G4(1) and replace with TAS A5G4(1) as follows:

(1) The following applies:

- (a) Any product that is intended for use in contact with drinking water must comply with the relevant requirements of AS/NZS 4020 in the form of either—
 - (i) a test report provided by a certification body or NATA accredited testing laboratory, in accordance with AS/NZS 4020; or
 - (ii) a WaterMark Licence issued in accordance with (2) if it includes compliance with AS/NZS 4020.
- (b) Product certification and authorisation must comply with the procedures set out in the WaterMark Certification Scheme (see ABCB website for details), Tas Part I101 or Tas Part I102 (as appropriate).

Delete A5G4(34) and replace with TAS A5G4(34) as follows:

- (34) A product of a type listed on the WaterMark Schedule of Excluded products requires evidence of suitability in the form of—
 - (a) a current certificate issued by a certification body stating that the properties and performance of a product can meet the requirements of the PCA; or
 - (b) a report issued by a NATA accredited testing laboratory which-
 - (i) demonstrates that the product complies with the relevant requirements of the PCA; and
 - (ii) sets out the tests the *product* has been submitted to and the results of those tests and any other relevant information that has been relied upon to demonstrate suitability for the use in a *plumbing* or *drainage* installation.

Delete A5G4(56) and replace with TAS A5G4(56) as follows:

(56) Evidence to support that a design or system meets the relevant PCA Performance Requirements must be in the form of any one or any combination of the following:

- (a) The design or system complies with a Deemed-to-Satisfy Provision.
- (b) The design or system is a Performance Solution from a professional engineer or a recognised expert that-
 - (i) certifies that the design or system complies with the relevant requirements of the PCA; and
 - (ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon; and
 - (iii) meets the requirements of TAS Part I101 or TAS Part I102 (as appropriate).

Insert subclause TAS A5G4(67) in clause A5G4 as follows:

(67) Any new or innovative material or *product* must be assessed, certified and authorised — if required — in accordance with the *WaterMark Certification Scheme* (see ABCB website for details), Tas Part I101 or Tas Part I102 (as appropriate) prior to their use in a *plumbing* or *drainage* installation.

Insert subclause TAS A5G4(78) in clause A5G4 as follows:

- (78) A material or *product* excluded from certification under the Plumbing Code of Australia is authorised for use in a *plumbing* or *drainage* installation if—
 - (a) it is certified as complying with the appropriate Australian Standard(s); or
 - (b) other evidence of suitability can be provided in accordance with TAS A5G4(5)(b)(iii).

Insert subclause TAS A5G4(89) in clause A5G4 as follows:

(89) A material or *product* used in a fire-fighting water service is authorised for use if it is certified by a *recognised expert* as complying with the relevant Australian Standards for the specific application in accordance with TAS A5G4(5)(b)(iii).

Insert subclause TAS A5G4(910) in clause A5G4 as follows:

(910) A material or *product* used in a stormwater installation is authorised for use if it is certified by a *recognised expert* as complying with Section 2 of AS/NZS 3500.3 in accordance with TAS A5G4(5)(b)(iii).

Insert subclause TAS A5G4(1011) in clause A5G4 as follows:

(1011) A prefabricated or constructed on-site cold-water storage tank used in a *drinking water* supply system is authorised for use if evidence of compliance with Tas Part B101 in accordance with TAS A5G4(5)(b)(iii).is given.



Public Comment Draft Tasmania

Section H Class 1 and 10 buildings

Part H7 Ancillary provisions and additional construction requirements

Insert clause TAS H7P3 as follows:

TAS H7P3Heating appliances

[2019: TAS P2.7.3]

A heating appliance and its associated components within a building, including an open fire-place, chimney, or the like, must be installed—

- (a) to withstand the temperatures likely to be generated by the appliance; and
- (b) so that it does not raise the temperature of any building element to a level that would adversely affect the element's physical or mechanical properties or function; and
- (c) so that hot products of combustion will not-
 - (i) escape through the walls of the associated components; and
 - (ii) discharge in a position that will cause fire to spread to nearby *combustible* materials or allow smoke to penetrate through nearby *windows*, ventilation inlets, or the like in the building containing the heating appliance; and
 - (iii) in the case of solid-fuel burning appliances, be discharged above appropriate emission limits.

Insert clause TAS H7P5 as follows:

TAS H7P5 Buildings in bushfire prone areas

[2019: TAS P2.7.5]

A Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a must, to the degree necessary, be—

- (a) designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the-
 - (i) potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and
 - (ii) intensity of the bushfire attack on the building; and
- (b) provided with vehicular access to the *site* to assist fire fighting and emergency personnel defend the building or evacuate occupants; and
- (c) provided with access at all times to a sufficient supply of water for fire fighting purposes on the site.

Public Comment Draft Tasmania

Schedule 1 Definitions

- **Early childhood centre:** Any premises or part thereof providing or intending to provide a centre-based education and care service within the meaning of the Education and Care Services National Law Act 2010 (Vic), the Education and Care Services National Regulations and centre-based services that are licensed or approved under State and Territory children's services law, but excludes—
 - (a) education and care primarily provided to school aged children in outside school hours settings; and
 - (b) services licensed as *centre-based care class 4* under the Child Care Act.

Expert Judgement: For Volume Three, the judgement of a person who has the qualifications and expertise to determine whether a *Plumbing or Drainage Solution* complies with the *Performance Requirements*.

Explanatory Information:

The level of qualification and/or experience required to determine whether a *Plumbing or Drainage Solution* complies with the *Performance Requirements* may differ depending on the degree of complexity and the requirements of the Tasmanian Building Act. Practitioners should seek advice from the *Permit Authority*.

Network Utility Operator: A person who-

- (a) undertakes the piped distribution of *drinking water* or *non-drinking water* for supply; or
- (b) is the operator of a sewerage system or a stormwater *drainage* system.
- **On-site wastewater management system:** An on-site wastewater management system as defined by the Tasmanian Building Act.
- **Professional engineer:** A person who is an engineer accredited under the Tasmanian Building Act in the relevant discipline who has appropriate experience and competence in the relevant field.
- **Recognised expert:** A person with qualifications and experience in the area of *plumbing* or *drainage* in question, as determined by the Director of Building Control.

TAS Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Building Act and other legislative and regulatory instruments under that Act, such as regulations, codes (including this Code) and standards there may be a number of other legislative technical requirements, and regulatory instruments affecting the design, construction and/or performance of buildings of which practitioners may need to be aware. Additional legislative and regulatory instruments such as regulations, codes and standards may apply.

All referenced documents including legislation, codes, Australian Standards, guidelines and codes of practice are the version current at the time of the project documentation approval, unless noted otherwise.

1. Administering Agency

Department of Justice - Consumer, Building and Occupational Services

Relevant Legislation

Director's determinations and guidelines

Public Comment Draft Victoria

| Schedule 10 | Victoria | |
|-------------|-------------------|------------------------------|
| Section H | Class 1 and 10 bu | ildings |
| | Part H1 | Structure |
| | H1D7 | Roof and wall cladding |
| | VIC H1D10 | Flood hazard areas |
| | Part H6 | Energy efficiency |
| | VIC H6P1 | Building |
| | VIC H6P2 | Services |
| | VIC H6V1 | Application of H6V2 and H6V3 |
| | H6D2 | Application of Part H6 |
| Schedule 1 | Definitions | |

Footnote: Other legislation affecting buildings

Public Comment Draft Victoria

Section H Class 1 and 10 buildings

Part H1 Structure

H1D7 Roof and wall cladding

[2019: 3.5, 3.5.1-3.5.5]

Delete H1D7(4) and replace with VIC H1D7(4) as follows:

- (4) Performance Requirement H1P1 is satisfied for gutters and downpipes if they are designed and constructed in accordance with AS/NZS 3500.3.
- (5)

Insert clause VIC H1D10 as follows:

VIC H1D10 Flood hazard areas

[2019: VIC 3.10.3.0]

- (1) Performance Requirement H1P2 for Class 1 buildings constructed in a flood hazard area is satisfied if the building is constructed in accordance with the ABCB Standard for Construction of Buildings in Flood Hazard Areas.
- (2) The definitions of flood hazard area and freeboard in the ABCB Standard for Construction of Buildings in Flood Hazard Areas are replaced with those in Vic Schedule 3.
- (3) The definition of defined flood level in the ABCB Standard for Construction of Buildings in Flood Hazard Areas is replaced with that in Schedule 3.

Part H6 Energy efficiency

Insert clause VIC H6P1 as follows:

VIC H6P1 Building

[2019: VIC 2.6.1]

A building must have, to the degree necessary, a level of thermal performance to facilitate the efficient use of energy for artificial heating and cooling and a level of water use performance to facilitate the efficient use of water, appropriate to—

- (a) the function and use of the building; and
- (b) the internal environment; and
- (c) the geographic location of the building; and
- (d) the effects of nearby permanent features such as topography, structures and buildings; and
- (e) solar radiation being-
 - (i) utilised for heating; and
 - (ii) controlled to minimise energy for cooling; and
- (f) the sealing of the building envelope against air leakage; and
- (g) the utilisation of air movement to assist cooling; and
- (h) water resources available; and
- (i) pertinent water management measures of the responsible water authority.

Insert clause VIC H6P2 as follows:

VIC H6P2 Services

[2019: VIC P2.6.2]

- (1) Domestic services, including any associated distribution system and components must, to the degree necessary-
 - (a) have features that facilitate the efficient use of energy appropriate to-
 - (i) the *domestic service* and its usage; and
 - (ii) the geographic location of the building; and
 - (iii) the location of the *domestic service*; and
 - (iv) the energy source; and
 - (b) obtain heating energy from-
 - (i) a source that has a greenhouse gas intensity that does not exceed 100 g CO₂-e/MJ of thermal energy load; or
 - (ii) an on-site renewable energy source; or
 - (iii) another process such as reclaimed energy.
- (2) The requirements of (1) do not apply to a hot water supply system.

Explanatory Information:

In Victoria, the design and installation of a hot water supply system is regulated under the Plumbing Regulations 2018.

Insert clause VIC H6V1 as follows:

VIC H6V1 Application of H6V2 and H6V3

[2019: VIC V2.6.1]

The Verification Methods in this Part only apply to-

- (a) a new Class 1 building that has either a rainwater tank connected to all sanitary flushing systems, or a solar water heater system, installed in accordance with the Plumbing Regulations 2018; and
- (b) a Class 1 building other than a new Class 1 building; and
- (c) an enclosed Class 10a building attached to a Class 1 building.

H6D2 Application of Part H6

[2019: 3.12.0]

Insert subclause VIC H6D2(3) in clause H6D2 as follows:

(3) For the purposes of (1)(a) or (b), in the case of a new Class 1 building, the building must have either a rainwater tank connected to all sanitary flushing systems, or a solar water heater system, installed in accordance with the Plumbing Regulations 2018.

Schedule 1 Definitions

Early childhood centre: Includes-

- (a) any premises, or part thereof, providing or intending to provide a centre-based education and care service within the meaning of the Education and Care Services National Law Act 2010, and the Education and Care Services National Regulations, excluding a service where education and care is primarily provided to school aged children; and
- (b) a children's service.
- **Flood hazard area:** The *site* (whether or not mapped) encompassing land in an area liable to flooding within the meaning of Regulation 153 of the Building Regulations 2018.
- **Freeboard:** The minimum height of the lowest floor of the building above the *defined flood level*, regulated by the relevant planning scheme, or specified or otherwise determined by the relevant council under Regulation 153 of the Building Regulations 2018 (see Figure 3).

VIC Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Building Act 1993, Building Regulations 2018 and this Code, there are a number of other legislative technical requirements affecting the design, construction and/or performance of buildings that practitioners may need to be aware of, including, but not necessarily limited to, the following list. Additional legislative instruments such as regulations, codes and standards may exist under the legislation listed.

1. Accommodation – Residential (Boarding Houses, Guest Houses, Hostels, Motels)

Administering Agency

Department of Health and Human Services Consumer Affairs Victoria Municipal council

Relevant Legislation

Public Health and Wellbeing Act 2008 Public Health and Wellbeing Regulations 2009 Residential Tenancies Act 1997 Residential Tenancies (Rooming House Standards) Regulations 2012

2. Alpine Resorts

Administering Agency

Department of Environment, Land, Water and Planning Alpine Resorts Management Boards

Relevant Legislation

Alpine Resorts (Management) Act 1997

3. Asbestos Removal

Administering Agency

Victorian WorkCover Authority Environment Protection Authority

Relevant Legislation

Occupational Health and Safety Act 2004 Environment Protection Act 1970

4. Crown Land

Administering Agency

Department of Environment, Land, Water and Planning Crown Land committees of management

Relevant Legislation

Crown Land (Reserves) Act 1978

5. Electrical Installations

Administering Agency

Energy Safe Victoria Electrical transmission and distribution companies

Relevant Legislation

Electricity Industry Act 2000 Electricity Industry (Residual Provisions) Act 1993 Electricity Safety Act 1998 State Electricity Commission Act 1958 Electricity Safety (Installations) Regulations 2009 Standards Australia Wiring Rules, AS/NZS 3000/3013

6. Fences - dividing

Administering Agency

Department of Justice and Regulation Dispute Settlement Centre of Victoria

Relevant Legislation

Fences Act 1968

7. Fire Prevention in Existing Buildings

Administering Agency

Municipal council

Relevant Legislation

Building Act 1993 Building Regulations 2018

8. Gas Installations

Administering Agency

Energy Safe Victoria

Relevant Legislation

Gas Industry Act 2001 Gas Safety Act 1997 Gas Safety (Gas Installation) Regulations 2008 AS/NZS 5601 Gas Installations

9. Historic Buildings

Administering Agency

Department of Environment, Land, Water and Planning Executive Director under the Heritage Act 2017
Relevant Legislation

Heritage Act 2017

10. Moveable Dwellings (in Caravan Parks)

Administering Agency

Department of Environment, Land, Water and Planning Municipal council

Relevant Legislation

Residential Tenancies Act 1997 Residential Tenancies (Caravan Parks and Moveable Dwellings Registration and Standards) Regulations 2010

11. Occupational Health and Safety

Administering Agency

Victorian WorkCover Authority

Relevant Legislation

Occupational Health and Safety Act 2004 Occupational Health and Safety Regulations 2017 Codes of practice published by the Victorian WorkCover Authority

12. Planning Controls

Administering Agency

Department of Environment, Land, Water and Planning Municipal council

Relevant Legislation

Planning and Environment Act 1987 Planning schemes

13. Sanitary Plumbing, Water Supply and Sewerage

Administering Agency

Victorian Building Authority

Relevant Legislation

Building Act 1993 Plumbing Regulations 2018 Plumbing Code of Australia AS/NZS 3500 Plumbing and Drainage

14 Septic Tank Installations

Administering Agency

Environment Protection Authority Municipal council

Relevant Legislation

Environment Protection Act 1970 Guidelines For Environmental Management: Code of Practice-Onsite wastewater management

15. Subdivision of Buildings

Administering Agency

Department of Environment, Land, Water and Planning Municipal council

Relevant Legislation

Subdivision Act 1988

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Public Comment Draft Western Australia

Schedule 11 Western Australia

Footnote: Other legislation affecting buildings

WA Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Building Act 2011, Building Regulations 2012 and this Code, there are a number of other legislative technical requirements affecting the design, construction and/or performance of buildings that practitioners may need to be aware of, including, but not necessarily limited to, the following list. Additional legislative instruments such as regulations, codes and standards may exist under the legislation listed.

1. Building

Administering Agency

Department of Mines, Industry Regulation and Safety

Relevant Legislation

Building Services (Complaint Resolution and Administration) Act 2011 Building Services (Complaint Resolution and Administration) Regulations 2011 Building Service (Registration) Act 2011 Building Service (Registration) Regulations 2011

2. Caravan Parks and Camping Grounds

Administering Agency

Department of Local Government, Sport and Cultural Industries

Relevant Legislation

Caravan Park and Camping Grounds Act 1995 Caravan Park and Camping Grounds Regulations 1997

3. Child Care

Administering Agency

Department of Communities

Relevant Legislation

Child Care Services Act 2007 Child Care Services Regulations 2007 Child Care Services (Child Care) Regulations 2006

4. Fences

Administering Agency

Department of Mines, Industry Regulation and Safety

Relevant Legislation

Dividing Fences Act 1961

5. Health

Administering Agency

Department of Health

Relevant Legislation

Health Act (Miscellaneous Provisions) 1911 Health Act (Laundries & Bathrooms) Regulations Health (Air Handling and Water Systems) Regulations 1994 Health (Asbestos) Regulations 1992 Health (Aquatic Facilities) Regulations 2007 Health (Construction Work) Regulations 1973 Construction Camp Regulations Health (Public Buildings) Regulations 1992 Health (Public Buildings) Regulations 1992 Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 Health (Rottnest Island) By-laws 1989 Sewerage (Lighting, Ventilation and Construction) Regulations 1971 Health Local Laws where adopted by Local Government

6. Heritage

Administering Agency Heritage Council of Western Australia

Relevant Legislation Heritage of Western Australia Act 1990 Heritage of Western Australia Regulations 1991

7. Housing

Administering Agency Department of Communities

Relevant Legislation Housing Act 1980

8. Land

Administering Agency Western Australian Land Information Authority

Relevant Legislation Strata Titles Act 1985

9. Occupational Health and Safety

Administering Agency

Department of Mines, Industry Regulation and Safety

Relevant Legislation

Occupational Safety and Health Act 1984

10. Planning Controls

Administering Agency

Department of Planning, Land and Heritage

Relevant Legislation

Planning and Development Act 2005 Planning and Development (Consequential and Transitional Provisions) Act 2005

11. Public Works

Administering Agency Department of Finance, Building Management and Works

Relevant Legislation

Public Works Act 1902



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