National Construction Code

Volume Two
Building Code of Australia

Australian Building Codes Board

2025

This document is part of a preview draft of NCC 2025, which may be adopted by Australian states and territories from 1 May 2026.

The preview draft contains national technical provisions approved for inclusion in NCC 2025 and is useful for practitioners seeking to familiarise themselves with the next edition of the NCC.

It is to be noted that the preview draft does not contain adoption information or state and territory variations and additions. Accordingly, it is not to be used for the regulation of building and plumbing design and construction.

Also, some sections in the body of the preview draft are omitted because publication of NCC 2025 is yet to be completed. Where an omission occurs, readers are directed to a supplementary document where omitted content is provided. When available, a preview draft without omission will be issued.

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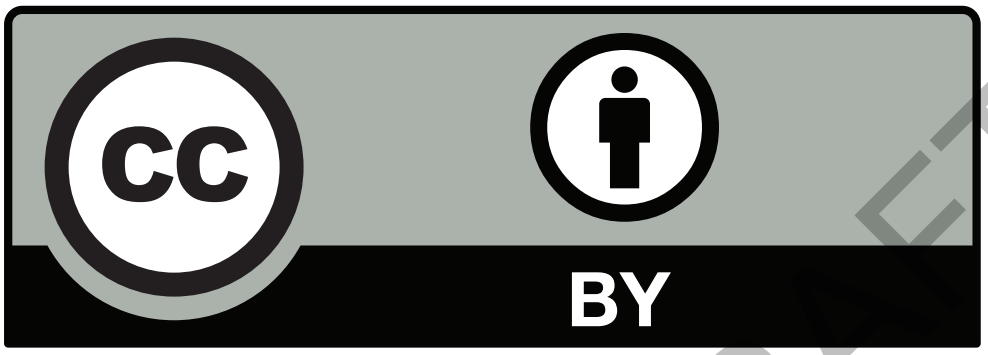

Enquiries about this publication can be sent to:

Australian Building Codes Board

GPO Box 2013, Canberra ACT 2601

Phone: 1300 134 631

Email: ncc@abcb.gov.au

Web: abcb.gov.au

Attribution

Disclaimer

Acknowledgment of Country

The Australian Building Codes Board acknowledges First Nations peoples as the Traditional Custodians and Lore Keepers of the oldest living culture. We recognise First Nations peoples as the first builders on this land and acknowledge their continuing connection to country. We pay respects to their Elders past and present and extend that respect to all First Nations peoples.

General table of contents

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 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
  - Part H8 – Livable housing design
- 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 no.	Title	References	
		Vols. One, Two and Housing Provisions	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	-

Spec no.	Title	References	
		Vols. One, Two and Housing Provisions	Vol. Three
18	Class 2 and 3 buildings not more than 25 m in effective height	E1D4; S17C2; S23C1; S23C3	-
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	J1V3; S35C1	-
35	Modelling profiles	S34C3	-
36	Material properties	J4D3	-
37	Calculation of U-Value and solar admittance	J3D9; J3D13; J4D3; J4D6	-
38	Spandrel panel thermal performance	S37C3; S37C4	-
39	Sub-floor thermal performance	J4D3	-
40	Lighting and power control devices	J7D3; J7D4; J7D5; J7D6; J7D7	-
41	Cross-connection hazards	-	B5D2; B5D3; B5D4
42	House energy rating software	H6D2	-
43	Bushfire protection for certain Class 9 buildings	G5D4	-
44	Calculation of heating load limit, cooling load limit and thermal energy load limit	J1P2; H6P1	-

List of amendments - NCC 2025 Volume Two

This list has been prepared by the Australian Building Codes Board to assist National Construction Code (NCC) users in identifying changes incorporated in the 2025 edition of the Volume Two of the NCC.

The notes provide a description of major changes made from the previous edition of Volume Two.

While the Australian Building Codes Board has attempted to include all major changes made from the previous edition of the Volume Two, the Board does not give any warranty nor accept any liability in relation to the contents of this list of amendments.

Table 1: List of amendments - NCC 2025 Volume Two

Reference	Changes and commentary
Section A—Governing requirements	
A2G1(1)(b)	Amended to indicate that Performance Requirement K1P1 (introduced in NCC 2025) is not a mandatory requirement of the NCC.
A2G2	A new sub-clause added to specify that Performance Solutions for the structural reliability of components must be at least equivalent to solutions developed using the Deemed-to-Satisfy Provisions. A Note has been included to outline transitional arrangements.
A2G2	A limitations statement has been added that prohibits the use of A2G2(2)(c)—Expert Judgement—in Performance Solutions for certain Performance Requirements, to the extent these Performance Requirements relate to structural or fire safety.
A4G1	Multiple amendments, including new Notes and Exemptions, to permit the use of an edition of a document edition found on the register of alternative referenced documents as an alternative to the edition listed in Schedule 2.
A5G6(1) & (3)	Multiple amendments to allow a building material, component or assembly to be deemed to have a fire hazard property where it differs in a minor degree to a tested prototype, as confirmed by an Accredited Testing Laboratory.
A5G6(2)	A new sub-clause has been added to specify methods for determining combustibility.
Part H1—Structure	
H1P1	Various amendments are included that improve the robustness of Performance Solutions regarding structural reliability by necessitating use of H1V1 and appropriate allowances to demonstrate achievement of specific reliability levels. A Note has been included to outline transitional arrangements.
H1V1	Revised to incorporate component variability factors, specify further design actions and align with amendments to B1P1.
H1D7(2)	Wind region B2 for metal roofing has been added.
H1D7(6)	A new subclause has been added for external wall insulation and finish cladding systems to AS 5346.
Part H2—Damp and weatherproofing	

Reference	Changes and commentary
H2P4	NCC 2022 contained a note indicating there were no Deemed-to-Satisfy Provisions for H2P4. This note has been deleted as a consequence of amendments to H2D2.
H2V1	Clarification amendments.
H2D1	Amended as a consequence of H2D2(2).
H2D2(2)	A new sub-clause has been included for swimming pool drainage.
Part H3—Fire safety	
H3D2(2)	Amended to require that determination of fire hazard properties via test is to be made by an Accredited Testing Laboratory. A transition period has been included for this amendment.
Part H4—Health and amenity	
H4D7(2)	Amended to include AS 1668.4 for the verification of natural ventilation.
Part H5—Safe movement and access	
H5P1	Amended to clarify that threshold ramps are not subject to H5P1.
Part H6—Energy efficiency	
S42C2(3)(b)	Reference to the definition for ‘floor area’ has been removed.
S42C4(1)	Amended to clarify (d) applies for slab edge insulation.
Part H7—Ancillary provisions and additional construction requirementsPart H7—Ancillary provisions and additional construction requirements	
H7D2(1)	Amended such that clause 2.3.1 of AS 1926.1 applies to boundary barriers.
Part H8—Livable housing design	
H8D2(2)(b)(iii)	‘Site’ corrected to ‘allotment’.
Schedule 1—Definitions	
Abbreviations	Diameter Nominal (DN) has been added to Abbreviations.
Symbols	Carbon dioxide equivalent per square metre hour (CO2-e/m2.hr) has been added to Symbols.
Symbols	Watt peak per meter squared output of a solar photovoltaic panel (Wp/m2) has been added to Symbols.
Allotment	A new defined term, ‘allotment’, has been added.
Ancillary components	A new defined term, ‘ancillary components’, has been added.
Cavity	The defined term ‘cavity’ has been amended to cover additional wall types.
Climate specific part load value	A new defined term, ‘climate specific part load value’, has been added.
Figure 2	Figure 2 has been updated.
Collected	A new defined term, ‘collected’, has been added.
Combustible	The defined term ‘combustible’ has been amended to require that determination using AS 1530.1 is to be undertaken by an Accredited Testing Laboratory. A transition period has been included for this amendment.
Condensation	The defined term ‘condensation’ has been amended to replace ‘moisture’ with ‘liquid water’.

Reference	Changes and commentary
Control layer	A new defined term, ‘control layer’, has been added.
Critical radiant flux	The defined term ‘critical radiant flux’ has been amended to require that determination using AS ISO 9239.1 is to be undertaken by an Accredited Testing Laboratory. A transition period has been included for this amendment.
Table 4	Amended to reflect updated wind classes B1 and B2.
Drainage system	A new defined term, ‘drainage system’, has been added.
Drained	A new defined term, ‘drained’, has been added.
Embodied carbon emissions	A defined term, ‘embodied carbon emissions’, has been added.
Envelope	The defined term ‘envelope’ has been amended.
Fire hazard properties	The defined term ‘fire hazard properties’ has been amended to align methods of determination.
Fire protected steel	A new defined term, ‘fire-protected steel’, has been added.
Fire-source feature	The defined term ‘fire-source feature’ has been amended to include the construction edge or perimeter of another building on the allotment, which is not a Class 10 building, which has a use that constitutes a fire load.
Flammability index	The defined term ‘flammability Index’ has been amended to require that determination using AS 1530.2 is to be made by an Accredited Testing Laboratory. A transition period has been included for this amendment.
House energy rating software	The defined term ‘house energy rating software’ has been amended to include reference to relevant Volume One provisions.
Kerb ramp	A new defined term, ‘kerb ramp’, has been added.
Mezzanine	The defined term ‘mezzanine’ has been amended for clarity.
NABERS Embodied Carbon	A new defined term, ‘NABERS Embodied Carbon’, has been added.
Non-combustible	The defined term ‘non-combustible’ has been amended to require that determination using AS 1530.1 is to be made by an Accredited Testing Laboratory. A transition period has been included for this amendment.
Occupiable outdoor area	Explanatory information has been provided to assist with interpretation.
Point of connection	The defined term, ‘Point of connection’, has been amended to incorporate rainwater storage.
Rainwater	A new defined term, ‘rainwater’, has been added.
Redirected	A new defined term, ‘redirected’, has been added.
Rising damp	A new defined term, ‘rising damp’, has been added.
Self-draining	A new defined term, ‘self-draining’, has been added.
Small sized, low-speed automatic lift	The defined term ‘small sized, low-speed automatic lift’ has been deleted.
Smoke-Developed Index	The defined term ‘Smoke-Developed Index’ has been amended to require that determination using AS/NZS 1530.3 is to be made by an Accredited Testing Laboratory. A transition period has been included for this amendment.

Reference	Changes and commentary
Smoke development rate	The defined term ‘smoke development rate’ has been amended to require that determination using AS ISO 9239.1 is to be made by an Accredited Testing Laboratory. A transition period has been included for this amendment.
Solar Reflectance Index	A new defined term, ‘Solar Reflectance Index’, has been added.
Spread-of-Flame Index	The defined term ‘Spread-of-Flame Index’ has been amended to require that determination using AS 1530.3 is to be made by an Accredited Testing Laboratory. A transition period has been included for this amendment.
Step ramp	A new defined term, ‘step ramp’, has been added.
Stormwater	A new defined term, ‘stormwater’, has been added.
Structural substrate	A new defined term, ‘structural substrate’, has been added.
Sub-surface water	A new defined term, ‘sub-surface water’, has been added.
Surface finish	A new defined term, ‘surface finish’, has been added.
Surface water	The defined term ‘surface water’ has been amended for clarity.
Surface water seepage	A new defined term, ‘surface water seepage’, has been added.
Threshold ramp	A new defined term, ‘threshold ramp’, has been added.
Total Solar Reflectance	A new defined term, ‘Total Solar Reflectance (TSR)’, has been added.
Upfront embodied carbon	A new defined term, ‘upfront embodied carbon’, has been added.
Water	A new defined term, ‘water’, has been added.
Water services overflow	A new defined term, ‘water services overflow’, has been added.
Schedule 2—Referenced documents	
AS ISO 717 Part 1	The 2024 edition of AS ISO 717 Part 1 ‘Acoustics — Rating of sound insulation in buildings and of building elements — Airborne sound insulation’ has been referenced. The associated note (Note 1) has been updated accordingly.
AS ISO 717 Part 2	The 2024 edition of AS ISO 717 Part 2 ‘Acoustics — Rating of sound insulation in buildings and of building elements — Impact sound insulation’ has been referenced.
AS/NZS 1170 Part 2	Amdts 1 and 2 of the 2021 edition of AS/NZS 1170 Part 2 ‘Structural design actions — Wind actions’ have been referenced.
AS/NZS 1170 Part 4	The 2024 edition of AS/NZS 1170 Part 4 ‘Structural design actions — Earthquake actions in Australia’ has been referenced.
AS 1530 Part 1	The 2024 edition of AS/NZS 1530 Part 1 ‘Methods for fire tests on building materials, components and structures — Combustibility test for materials (ISO 1182:2020, NEQ)’ has been referenced. A note concerning existing tests (Note 2) has been incorporated accordingly.

Reference	Changes and commentary
AS 1530 Part 8.1	Amdt 1 of the 2018 edition of AS 1530 Part 8.1 'Methods for fire tests on building materials, components and structures — Tests on elements of construction for buildings exposed to simulated bushfire attack — Radiant heat and small flaming sources' has been referenced. A note concerning existing tests (Note 3) has been incorporated accordingly.
AS 1668 Part 2	The 2024 edition of AS 1668 Part 2 'The use of ventilation and air conditioning in buildings — Mechanical ventilation in buildings' has been referenced.
AS 1668 Part 4	The 2024 edition of AS 1668 Part 4 'The use of ventilation and air conditioning in buildings — Natural ventilation of buildings' has been referenced.
AS 1670 Part 1	The 2024 edition of AS 1670 Part 1 'Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire' has been referenced.
AS 1670 Part 3	The 2024 edition of AS 1670 Part 3 'Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire alarm monitoring' has been referenced.
AS 1670 Part 4	The 2024 edition of AS 1670 Part 4 'Fire detection, warning, control and intercom systems — System design, installation and commissioning — Emergency warning and intercom systems' has been referenced.
AS 1682.1	The 2015 edition of AS 1682.1 'Fire, smoke and air dampers — Specification' has been referenced.
AS 1682.2	The 2015 edition of AS 1682.2 'Fire, smoke and air dampers — Installation' has been referenced.
AS 1684 Part 2	Amdt 1 of the 2021 edition of AS 1684 Part 2 'Residential timber-framed construction — Non-cyclonic areas' has been referenced.
AS 1684 Part 3	Amdt 1 of the 2021 edition of AS 1684 Part 3 'Residential timber-framed construction — Cyclonic areas' has been referenced.
AS 1684 Part 4	The 2024 edition of AS 1684 Part 4 'Residential timber-framed construction — Simplified — Non-cyclonic areas' has been referenced.
AS 1926 Part 1	The 2024 edition of AS 1926 Part 1 'Swimming pool safety — Safety barriers for swimming pools' has been referenced.
AS 2118 Part 6	The 2024 edition of AS 2118 Part 6 'Automatic fire sprinkler systems — Combined sprinkler and hydrant systems in multistorey buildings' has been referenced.
AS 2200	The 2006 edition of AS 2200 'Design charts for water supply and sewerage (incorporating amendment 1)' has been referenced. edition of AS 2200 'Design charts for water supply and sewerage (incorporating amendment 1)' has been referenced.
AS/NZS 3500 Part 1	The 2025 edition of AS/NZS 3500 Part 1 'Plumbing and drainage — Water services' has been referenced.
AS/NZS 3500 Part 2	The 2025 edition of AS/NZS 3500 Part 2 'Plumbing and drainage — Sanitary plumbing and drainage' has been referenced.

Reference	Changes and commentary
AS/NZS 3500 Part 3	The 2025 edition of AS/NZS 3500 Part 3 ‘Plumbing and drainage — Stormwater drainage’ has been referenced.
AS/NZS 3500 Part 4	The 2025 edition of AS/NZS 3500 Part 4 ‘Plumbing and drainage — Heated water services’ has been referenced.
AS 3786	The 2023 edition of AS 3786 ‘Smoke alarms using scattered light, transmitted light or ionization’ has been referenced. The note regarding existing tests (Note 7) has been updated accordingly.
AS/NZS 3823.1.4	The 2012 edition of AS 3823.1.4 ‘Performance of electrical appliances — Airconditioners and heat pumps’ has been referenced.
AS/NZS 4020	Amdt 1 of the 2018 edition of AS/NZS 4020 ‘Testing of products for use in contact with drinking water’ has been referenced.
AS 4055	The 2024 edition of AS 4055 ‘Wind loads for housing’ has been referenced.
AS/NZS 4859 Part 1	Amdt 1 of the 2018 edition of AS/NZS 4859 Part 1 ‘Thermal insulation materials for buildings — General criteria and technical provisions’ has been referenced. AS 5346 The 2023 edition of AS 5346 ‘Exterior insulation and finish cladding systems’ has been referenced.
AS 5346	The 2023 edition of AS 5346 ‘Exterior insulation and finish cladding systems’ has been referenced.
AS/NZS 5601 Part 1	The 2022 edition of AS/NZS 5601 Part 1 ‘Gas installations — General installations (incorporating amendments 1 and 2)’ has been referenced.
AS/NZS ISO 5151	The 2023 edition of AS/NZS ISO 5151 ‘Non-ducted air conditioners and heat pumps — Testing and rating for performance’ has been referenced.
AS/NZS ISO 13256.1	The 2023 edition of AS/NZS ISO 13256.1 ‘Water source heat pumps — Testing and rating for performance — Water-to-air and brine-to-air heat pumps’ has been referenced.
ASTM-E1980-11	The 2019 edition of ASTM-E1980-11 ‘Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low Sloped Opaque Surfaces’ has been referenced.
EN14511-2	The 2022 edition of EN14511-2 ‘Air-conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electricity driven compressors — Test conditions’ has been referenced.
EN14825	The 2022 edition of EN14825 ‘Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling, commercial and process cooling — Testing and rating at part load conditions and calculation of seasonal performance’ has been referenced.
NSF/ANSI/CAN 372	The 2024 edition of NSF/ANSI/CAN 372 ‘Drinking Water System Components — Lead Content’ has been referenced. A note regarding existing tests (Note 10) has been incorporated.
SA TS 5367	The 2021 edition of SA TS 5367 ‘Photoluminescent exit signage — Product specification, installation and operation’ has been referenced.

Section A Governing requirements

Part A1 Interpreting the NCC

Governing Requirements

A1G1	Scope of NCC Volume One
A1G2	Scope of NCC Volume Two
A1G3	Scope of NCC Volume Three
A1G4	Interpretation

Part A2 Compliance with the NCC

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A2G3	Deemed-to-Satisfy Solution
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Part A3 Application of the NCC in States and Territories

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A3G1	State and Territory compliance

Part A4 Referenced documents

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A4G2	Differences between referenced documents and the NCC
A4G3	Adoption of referenced documents

Part A5 Documentation of design and construction

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A5G3	Evidence of suitability — Volumes One and Two (BCA)
A5G4	Evidence of suitability — Volume Three (PCA)
A5G5	Fire-resistance of building elements
A5G6	Fire hazard properties and combustibility
A5G7	Resistance to the incipient spread of fire
A5G8	Labelling of Aluminium Composite Panels
A5G9	NatHERS

Part A6 Building classification

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A6G1	Determining a building classification
A6G2	Class 1 buildings
A6G3	Class 2 buildings
A6G4	Class 3 buildings
A6G5	Class 4 buildings
A6G6	Class 5 buildings
A6G7	Class 6 buildings
A6G8	Class 7 buildings

		crete and poured gypsum
	S2C26	Reinforcing for column and beam protection — 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

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

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) certain Class 10b structures including access requirements for people with a disability in Class 10b *swimming pools*.

A1G2 Scope of NCC Volume Two

NCC Volume Two contains the requirements for—

(a) Class 1 and 10a buildings (other than access requirements for people with a disability in Class 1b and 10a buildings); and

(b) certain Class 10b structures (other than access requirements for people with a disability in Class 10b *swimming pools*); and

(c) Class 10c *private bushfire shelters*.

A1G3 Scope of NCC Volume Three

(1) 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.

(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 designed, constructed, installed, replaced, repaired, altered and maintained independently of buildings.

(4) NCC Volume Three applies from the *point of connection* to the point of discharge.

A1G4 Interpretation

(1) The following components of the NCC are non-mandatory and informative:

(a) Content identified as “explanatory information”.

(b) The “Introduction” 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 1, 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 definitions, 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 A1G4(7)

Notes

For Volume Three, if a word is not defined in Schedule 1, 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 information contained in the NCC is non-mandatory and 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.

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.

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.

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

(1) Compliance with the NCC is achieved by complying with—

(a) the Governing Requirements of the NCC; and

(b) the *Performance Requirements*.

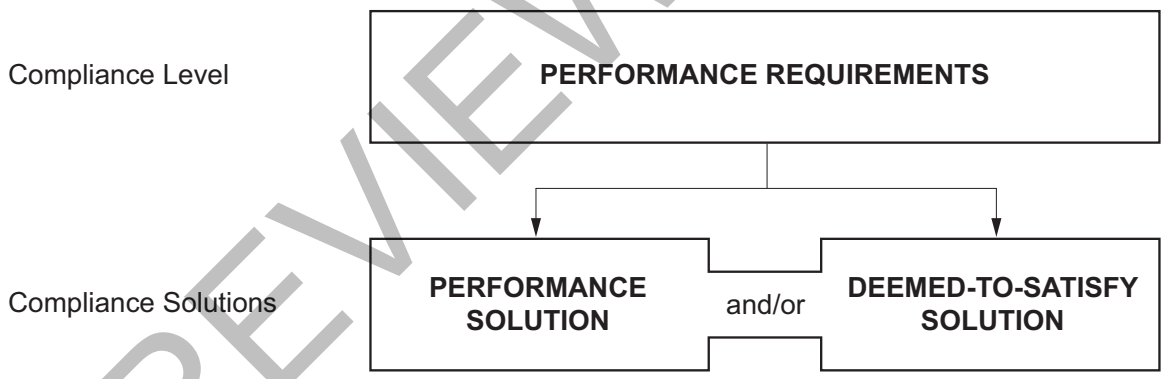
(2) *Performance Requirements* are satisfied by one of the following, as shown in Figure A2G1:

(a) *Performance Solution*.

(b) *Deemed-to-Satisfy Solution*.

(c) A combination of (a) and (b).

Figure A2G1: NCC compliance structure



A2G2 Performance Solution

(1) Subject to (5), 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) Subject to (5), 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, 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*.

(5) Where compliance with B1P1(2) or H1P1(2) is proposed to be satisfied by a *Performance Solution* for materials included in B1D4(a) to (f) or clauses 2.2.4(d) and 2.2.4(g) to (k) of the ABCB Housing Provisions, the *Performance Solution* must be achieved by demonstrating the solution is at least equivalent to the *Deemed-to-Satisfy Provisions*.

VIC A2G2(5)

Limitations

A2G2(2)(c) does not apply to demonstrating compliance with Volume One *Performance Requirements* B1P1(2), C1P1, C1P2, C1P3, C1P4, C1P5, C1P6, C1P7, C1P8, C1P9, D1P1, D1P2, D1P3, D1P4, D1P5, D1P6, D1P7, D1P8, D1P9, D1P10, E1P1, E1P2, E1P3, E1P4, E1P5, E1P6, E2P1, E2P2, E3P1, E3P2, E3P3, E3P4, E4P1, E4P2, E4P3 and Volume Two Performance Requirement H1P1(2), to the extent they relate to structural or fire safety.

Notes

A2G2(5) does not take effect until 1 year after the adoption date for NCC 2025.

A2G3 Deemed-to-Satisfy Solution

(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

(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.

Governing requirements

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 *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*.

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*.

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

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

(1) For application within a particular State or Territory, the volumes of the NCC comprise inclusively of—
   (a) Sections A to G, I and 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 2 of the NCC or included in the Register of Alternative Referenced Documents on the ABCB website. 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

(1) A reference in the NCC to a document refers to the edition or issues and any amendment listed in—

(a) Schedule 2; or

(b) the register of alternative referenced documents.

(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 2 or the register of alternative referenced documents, the new edition, issue or amendment is not referenced for the purposes of the NCC.

(4) Any document described in (1) is a primary referenced document.

(5) Any document referenced in a primary referenced document is known as a secondary referenced document.

(6) 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.

Notes

(1) The register of alternative referenced documents is maintained by the ABCB and is available on the ABCB website at www.abcb.gov.au.

(2) A document listed in Schedule 2 cannot be used simultaneously with a different edition, issue or amendment of that same document included in the register of alternative referenced documents for the purposes of a *Deemed-to-Satisfy Provision* or *Verification Method* provided in the NCC.

(3) For the purposes of a State or Territory variation to the NCC, a document listed in the register of alternative referenced documents cannot be used where—

(i) an edition, issue or amendment of that document appears in a State or Territory variation to Schedule 2, unless permitted by the register of alternative referenced documents.; or

(ii) a State or Territory variation refers to another document that amends, varies or alters the application or scope of a document listed in Schedule 2.

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

(1) Where the primary referenced document is listed in Schedule 2, if the secondary or other referenced document is also a primary referenced document listed in Schedule 2, A4G1(6) does not apply.

(2) Where the primary referenced document is listed in the register of alternative referenced documents, if the secondary or other referenced document is listed in Schedule 2, A4G1(6) does not apply unless the register of alternative referenced documents indicates otherwise.

Explanatory Information

The use of referenced documents and alternative referenced documents should be documented in building permits, occupancy certificates and other relevant project documentation and include the edition of the document used, such as the publication date.

A4G2 Differences between referenced documents and the NCC

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

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 2 is only mandatory to *Deemed-to-Satisfy Provisions*, Specifications and *Verification Methods*. Where the register of alternative referenced documents is used, the documents listed are only mandatory to *Deemed-to-Satisfy Provisions*, Specifications and *Verification Methods* in lieu of editions included in Schedule 2. However, referenced documents are only applicable to the NCC provision that references that 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 2 or the register of alternative referenced documents.

Schedule 2 and the register of alternative referenced documents list the specific edition (or editions) of the Standard or

other document adopted, including any amendments considered appropriate for Schedule 2, the register of alternative referenced documents, 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(6) 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.

A4G3 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.

Note 2 to A4G1 prevents simultaneous use of various editions of a referenced document for a given project under a *Deemed-to-Satisfy Solution* or a *Performance Solution* using a *Verification Method* found in the NCC. Never-the-less, it is possible to use various editions of a referenced document under a different *Performance Solution* where it is demonstrated that the relevant *Performance Requirements* are met.

Note 3 to A4G1 prevents the use of a document included in the register of alternative referenced documents for a State or Territory variation to 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

(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 skillfully 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

(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)

(1) Subject to A5G5, A5G6, A5G7 and A5G9, 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).

Notes

Current documentary evidence, such as a certificate or report, containing references to NCC 2019 provisions remains valid despite amended provision references in NCC 2022 and subsequent editions, subject to technical requirements remaining the same between editions.

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.

If under a *Deemed-to-Satisfy Provision* a building element is *required* to have an FRL, it is necessary that the FRL is determined in accordance with Specification 1 and 2 as applicable (see A5G5). With the FRL thus determined, A5G3 may be used for producing evidence to document that the FRL has been determined in accordance with Specifications 1 and 2.

Where the FRL of a building element is determined using S1C2(b) or (c), an applicable form of evidence described by A5G3 is a report from an *Accredited Testing Laboratory* (see A5G3(1)(d)). For this form of evidence, the following applies:

-
  - the test report referred to in clause 2.16.2 of AS 1530.4 (also referred to as a full 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).
- For documenting a FRL determined under S1C2(c), the *Accredited Testing Laboratory* will issue a report (sometimes referred to as an 'assessment report') that certifies the building element achieves the FRL.

Reports are to be unabridged. This is in order to—

- fulfill the description in A5G3(d) (i.e. 'A report issued by an *Accredited Testing Laboratory*'); and
- comply with A5G2(2).

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.

In some circumstances, in order to meet the requirements of the NCC, it is necessary for a test to be undertaken by an *Accredited Testing Laboratory*. These circumstances include:

- The *Standard Fire Test*.
- When determining (by test) if a material is *combustible*.
- When discovering (by test) a material's *fire hazard properties*.

- Classification of an *external wall* system using AS 5113.

In such circumstances a report as specified in A5G3(1)(d) would be suitable evidence. However, A5G3(1) does not require that this form of evidence be used; A5G3(1) permits various forms of evidence independent of how compliance was determined.

Refer to 'Guide' material accessed through NCC online (ncc.abcb.gov.au) for further information on *fire hazard properties*, including—

- *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)

(1) Any *product* that is intended for use in contact with *drinking water* must comply with the relevant requirements of AS/NZS 4020, verified in the form of either—

(a) a test report provided by an *Accredited Testing Laboratory*, in accordance with AS/NZS 4020; or

(b) a *WaterMark Licence* issued in accordance with (3), if it includes compliance with AS/NZS 4020.

(2) Any *product* that contains copper alloy and is intended for use in contact with *drinking water* must have a *weighted average* lead content of not 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/CAN 372; or

(b) a *WaterMark Licence* issued in accordance with (3), if it includes compliance with NSF/ANSI/CAN 372.

(3) 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.

(4) 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.

(5) Any *product* that is not covered by (3) or (4) must be subjected to a risk assessment in accordance with the WaterMark Scheme Rules.

(6) 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(10)

TAS A5G4(7)

TAS A5G4(8)

TAS A5G4(9)

Notes

On-site wastewater management systems larger than covered by the standards are exempt and a *Performance Solution* is required.

Notes

(1) A5G4(2) does not take effect until the completion of the transition period specified by WaterMark Notice of Direction 2021/4.

(2) Note 1 does not prevent the use of *products* certified in accordance with A5G4(2) prior to the completion of the transition period specified by the WaterMark Notice of Direction 2021/4.

Applications

Products subject to the requirements of A5G4(2) are specifically nominated in the *WaterMark Schedule of Products* and the *WaterMark Schedule of Excluded Products*.

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).

Explanatory Information

Some examples of products subject to A5G4(2) include the following:

- Copper alloy fittings.
- Stainless-steel braided hoses.
- Valves (such as valves for isolation, backflow prevention, alteration of pressure and temperature).
- Taps and mixers.
- Water meters.
- Pumps (for use with cold and heated water services).
- Water heaters.
- Residential water filtration equipment.
- Water dispensers (such as boiling and cooling units, drinking fountains and bottle fillers).
- Fire sprinkler systems connected to the cold water service that are not isolated from fixtures and fittings intended to supply water for human consumption.

Some examples of products excluded from the requirements of A5G4(2) include the following:

- Shower heads for bathing.
- Emergency showers, eye wash and/or face wash equipment.
- Pumps used for irrigation, fire-fighting or other non-drinking water purposes.
- Fire-fighting water services and equipment including residential fire sprinklers.
- Appliances, including washing machines and dishwashers.
- Commercial boilers associated with heating, ventilation and air-conditioning systems.

- Sanitary fixtures (such as toilets, cistern inlet valves, bidets and urinals.
- Non-drinking water systems (such as recycled water systems).

Product certification transition arrangements are outlined in Notices of Direction issued through the *WaterMark Certification Scheme*.

Lead is currently permitted in small proportions in the raw materials used to manufacture some *plumbing products*. Whilst the allowable lead levels permitted in *products* manufactured prior to 1 May 2026 ensures compliance with the Australian Drinking Water Guidelines, the use of products compliant with the lead levels in A5G4(2) is encouraged, to avoid the potential for adverse effects on human health.

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*.

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.

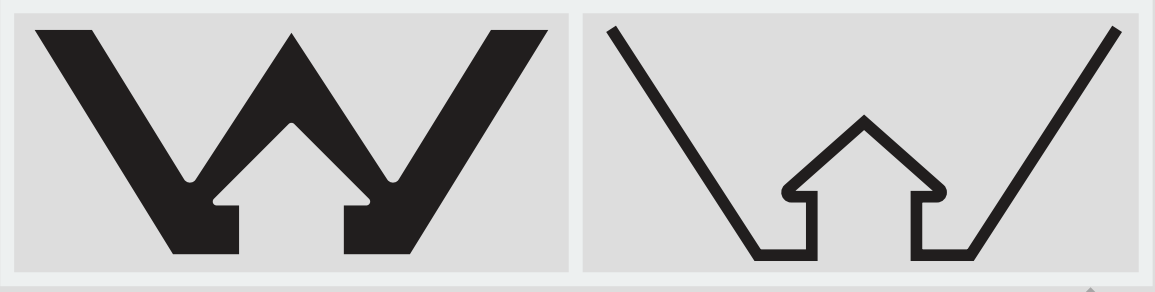
The *WaterMark Certification Scheme* is governed by the WaterMark Scheme Rules, which are available for download from the ABCB website at: www.abcb.gov.au. These rules set out the requirements for risk assessments, evaluation, certification, and the drafting of WaterMark Technical Specifications.

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

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 and combustibility

(1) Subject to (3), where a *Deemed-to-Satisfy Provision* requires a building material, component, or assembly to have a *fire hazard property* it must be determined as follows:

(a) For *critical radiant flux* and *smoke development rate*, in accordance with AS ISO 9239.1.

(b) For *Smoke-Developed Index* and *Spread-of-Flame Index*, in accordance with AS/NZS 1530.3.

(c) For *group number*, *average specific extinction area* and *smoke growth rate index* ($SMOGRA_{RC}$), in accordance with AS 5637.1.

(d) For *Flammability Index*, in accordance with AS 1530.2.

(2) Subject to (4) and (5), where a *Deemed-to-Satisfy Provision* requires a building material, component, or assembly to be *non-combustible*, its combustibility may be determined in accordance with AS 1530.1 or C2D10(5).

(3) A building material, component, or assembly is deemed to have a *fire hazard property* if—

(a)

(i) describes the method and conditions of the test and form of construction of the tested prototype in full; and

(ii) confirms that the application of restraint to the prototype complies with the test standard; or

(b)

(i) confirms that the building product, component, or assembly can achieve the *fire hazard property* despite the minor departures from the tested prototype; and

(ii) describes the materials, construction, conditions of restraint and other limitations which are necessary to achieve the *fire hazard property*.

(4) A building material is deemed to be non-combustible if—

(a) it is identical with a material that has been tested in accordance with AS 1530.2 and has not been deemed *combustible*, as confirmed in a report issued from an *Accredited Testing Laboratory*; or

(b) it is deemed *non-combustible* in accordance with C2D10(5); or

(c)

(5) A building component or assembly is deemed to be if it is constructed wholly of materials that are deemed to be *non-combustible*.

Notes

Until adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

A5G7 Resistance to the incipient spread of fire

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

An *Aluminium Composite Panel* must be labelled in accordance with SA TS 5344.

A5G9 NatHERS

Where *house energy rating software* is *required* to be used, evidence of the *house energy rating software* output must be in the form of a NatHERS certificate issued in accordance with the NatHERS scheme.

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, 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

(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, a Class 9b *early childhood centre*, or a Class 2, 3 or 4 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, *sole-occupancy units* in Class 2, 3 or 4 parts, and Class 9b *early childhood centres* 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 occupants of the other parts of the building which have a lower *fire hazard* potential. In relation to Class 9b *early childhood centres*, the intent is to ensure that these facilities cannot be regarded as another class and that the specific fire safety requirements applicable to Class 9b *early childhood centres* are implemented. Also, the intent is not to allow *sole-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

(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—

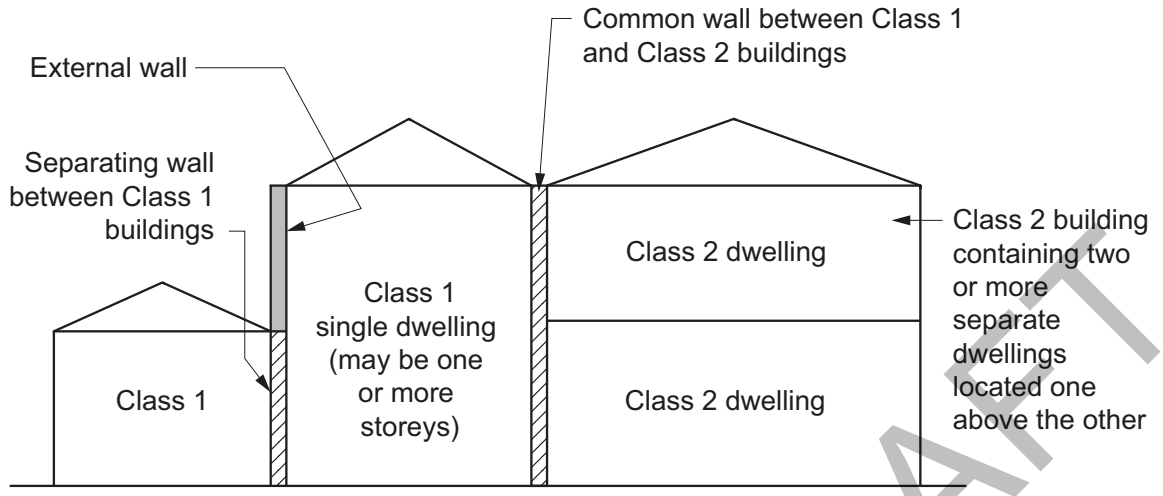
(i) a boarding house, guest house, hostel or the like that—

(A) would ordinarily accommodate not more than 12 people; and

(B) have a total area of all floors not more than 300 m^2 (measured over the enclosing walls of the building or buildings); or

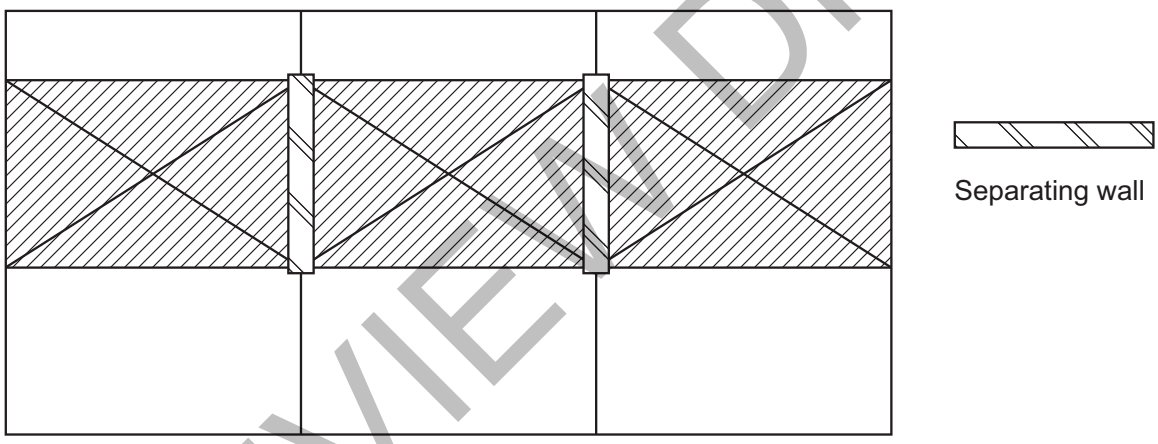
(ii) four or more single dwellings located on one allotment and used for short-term holiday accommodation.

Figure A6G2a: Identification of Class 1 buildings

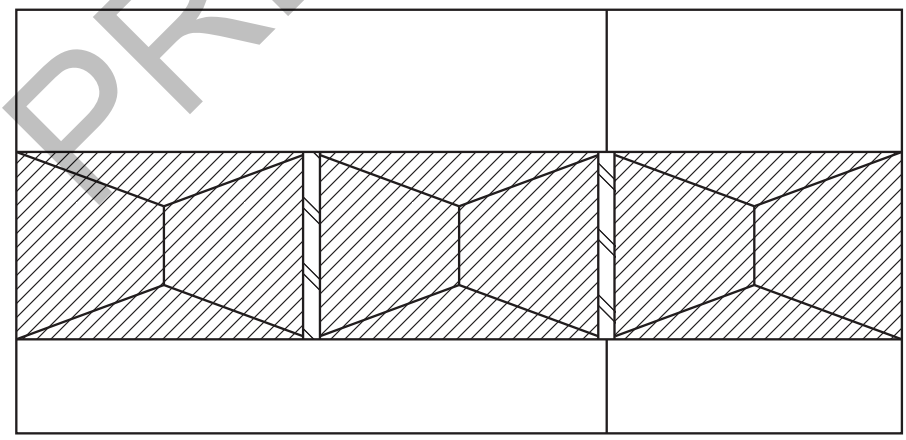


Elevation

Figure A6G2b: Typical Class 1 building configurations



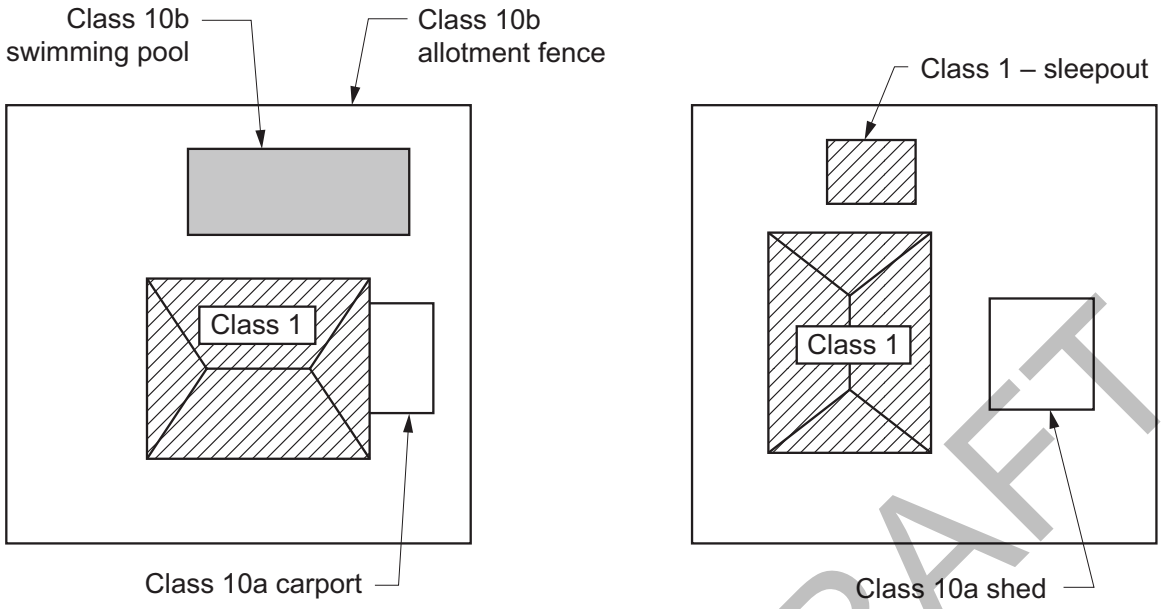
(a) 3 Class 1 buildings on 3 separate allotments



(b) 3 Class 1 buildings on 2 separate allotments

Plan view

Figure A6G2c: Domestic allotment — classification of buildings and structures



Notes

Figures A6G2a, A6G2b and A6G2c illustrate requirements of this provision.

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 primarily 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 1a 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 to 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

(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.

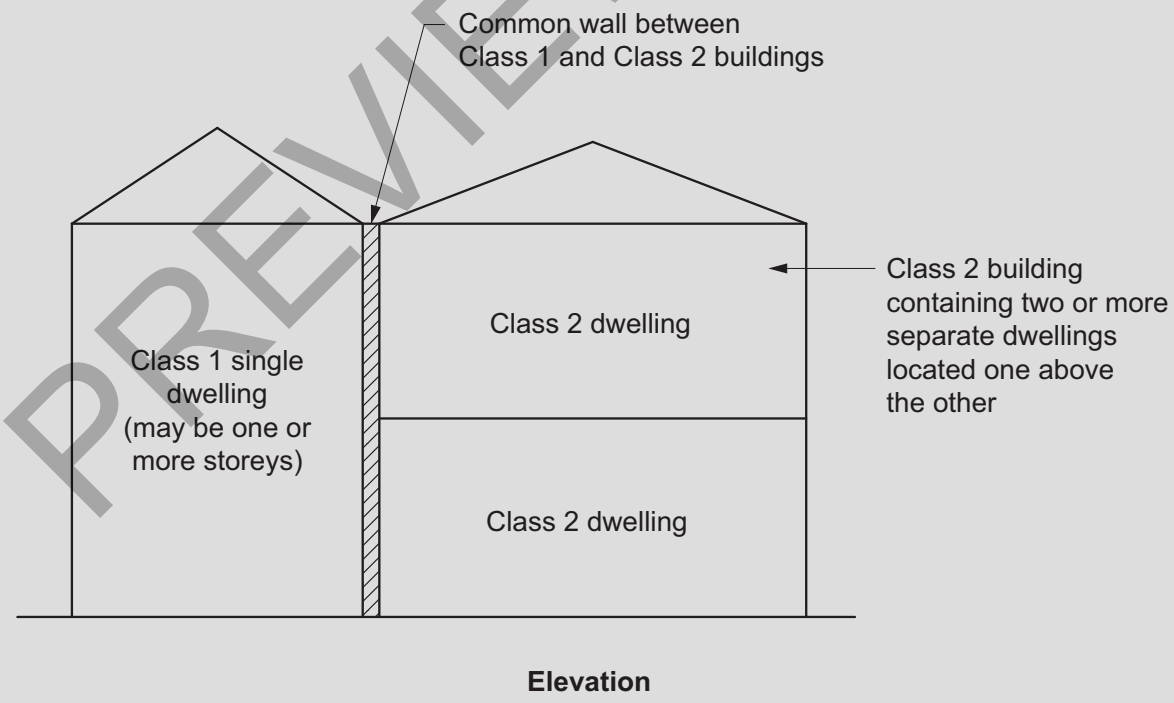
Where a sole-occupancy residential unit is located above another sole-occupancy residential unit, the building containing the units can be either a Class 2 or a Class 3 building, depending on the other circumstances of the building proposal.

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*.

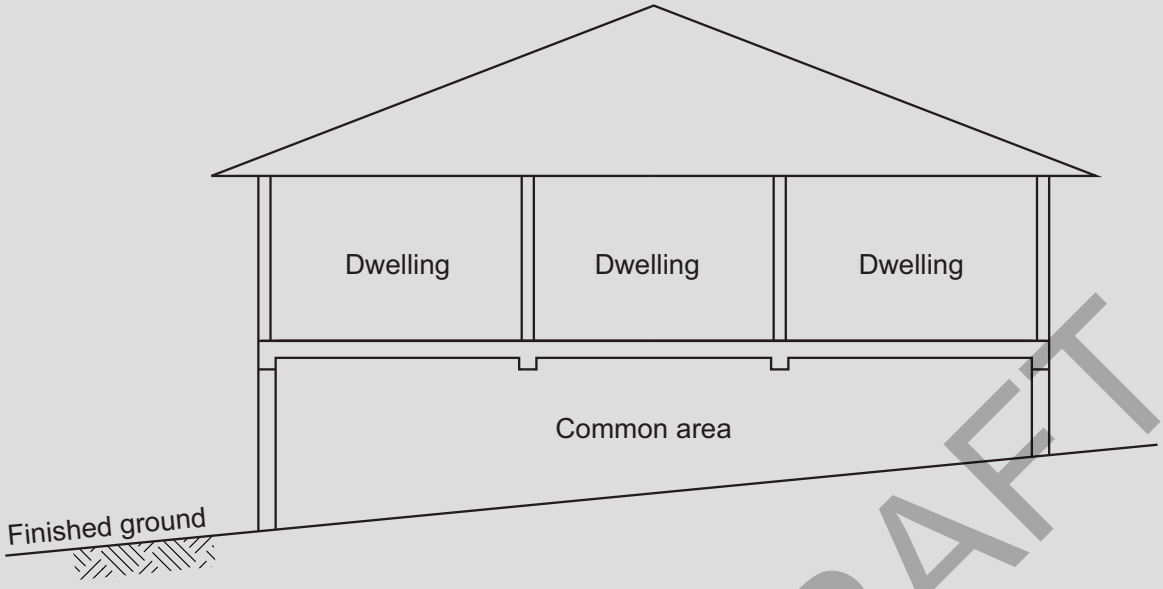
When two or more dwellings are attached to another class, they cannot be Class 4 parts, as any building can only contain one Class 4 dwelling.

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



Elevation

Figure A6G3b (explanatory): Elevation showing a single storey of Class 2 with a common area below



A6G4 Class 3 buildings

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

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

- dormitory accommodation, in schools or elsewhere, noting that a dormitory is generally (but not always) considered to be a *sole-occupancy unit*; and
- bed and breakfast accommodation, a boarding house, guest house, hostel, or lodging house; and
- backpackers' accommodation; and
- 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 - it is recommended the local building regulatory body be consulted); and
- workers' quarters, including shearers' or fruit pickers' accommodation, or hotel workers' accommodation.

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

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.

A6G6 Class 5 buildings

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) A supermarket or sale room, showroom, or *service station*.

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—

- 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

(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.

A6G10 Class 9 buildings

(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.

Class 9b buildings are *assembly buildings*.

These buildings can include—

- theatres, cinemas and halls, churches, schools, early childhood centres, kindergartens, preschools and child-minding 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 Exemption (1) to A6G1.

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

(1) A Class 10 building or structure is non-habitable.

(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 Explanatory 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.

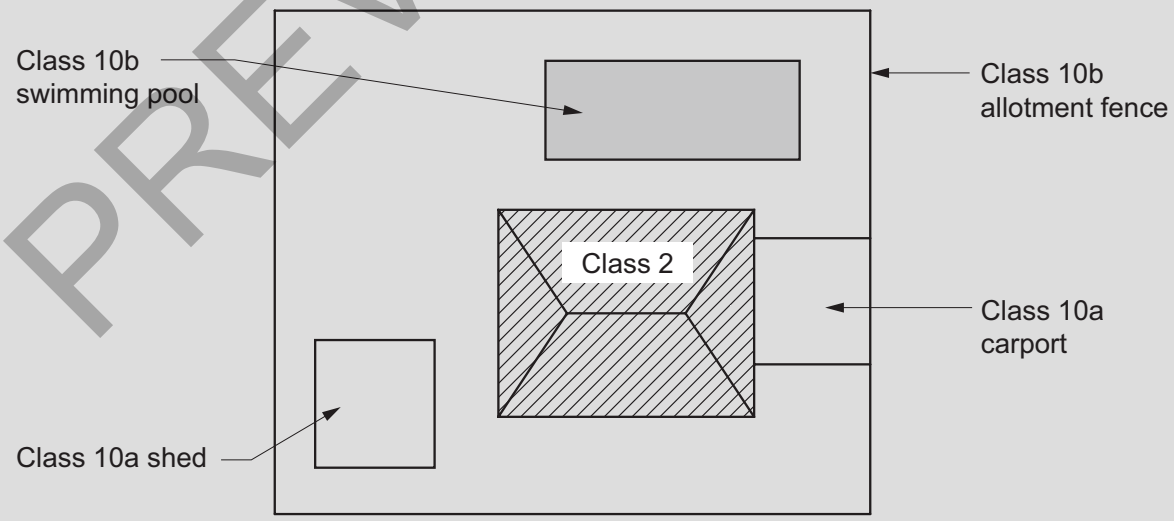
Typical outbuilding classifications include the following:

- 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 shelters* 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



Plan view

A6G12 Multiple classifications

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.

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

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

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.

Specification 1 Fire-resistance of building elements

S1C1 Scope

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

S1C2 Rating

A building element meets the requirements of this Specification if—

(a) it is listed in, and complies with Tables S1C2a, S1C2b, S1C2c, S1C2d, S1C2e, S1C2f, S1C2g, S1C2h, S1C2i, S1C2j, S1C2k, S1C2l, S1C2m or S1C2n of this Specification as applicable; 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	120/120/120	180/180/180	240/240/240
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	120/120/120	180/180/180	240/240/240
Solid gypsum blocks	75	90	100	110	125
Gypsum — perlite or gypsum vermiculite-plaster on metal lath and channel (non-*loadbearing* 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	120/120/120	180/180/180	240/240/240
Prestressed	See clause S1C2(d)(ii)				
Reinforced					

Table S1C2e: FRLs deemed to be achieved by hot-rolled steel columns (including a fabricated column) exposed on not 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-*loadbearing* unplastered	25	30	40	50	75
Concrete cast in-situ — non-*loadbearing* plastered 13 mm	25	25	30	40	50
Gypsum cast in-situ	-	-	-	-	50
Gypsum — perlite or gypsum-vermiculite plaster—sprayed to contour	20	25	35	50	55

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
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	120/120/120	180/180/180	240/240/240
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	120/120/120	180/180/180	240/240/240
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 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 — *loadbearing*	25	40	45	65	90
Concrete cast in-situ — non-*loadbearing* unplastered	35	30	40	50	65
Concrete cast in-situ — non-*loadbearing* plastered 13 mm	25	25	30	40	50
Gypsum cast in-situ	-	-	-	-	50

Fire protection	Minimum thickness (mm) of principal material for FRLs				
	60/–/–	90/–/–	120/–/–	180/–/–	240/–/–
Gypsum — perlite or gypsum-vermiculite plaster — sprayed to contour	25	30	40	55	65
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 S1C2l: 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

Fire protection	Minimum thickness (mm) of principal material for FRLs				
	60/–/–	90/–/–	120/–/–	180/–/–	240/–/–
Gypsum — perlite or gypsum-vermiculite plaster — sprayed to contour	20	25	35	50	55
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 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 Notes

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

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 S1C2(d)(ii)				
Reinforced					

S1C3 FRLs determined by calculation

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

(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

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

S1C6 Non-loadbearing elements

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.

Specification 2 Descriptions of elements referred to in Specification 1

S2C1 Scope

This Specification sets out the descriptions of elements referred to in Tables S1C2a, S1C2b, S1C2c, S1C2e, S1C2f, S1C2g, S1C2h, S1C2i, S1C2j, S1C2l and S1C2m of Specification 1.

S2C2 Mortar for masonry

Masonry units of ashlar, calcium silicate, concrete or fired clay (including terracotta blocks) must be laid in cement mortar or composition mortar complying with the relevant provisions of AS 3700.

S2C3 Gypsum blocks

Gypsum blocks must be laid in gypsum-sand mortar or lime mortar.

S2C4 Gypsum-sand mortar and plaster

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

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 *required* thickness of the plaster is not more than 25 mm; and

(b) in 2 coats if the *required* 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

Plaster prescribed in Tables S1C2c, S1C2e, S1C2f, S1C2g, S1C2h, S1C2i, S1C2j, S1C2l and S1C2m—

(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.

S2C7 Plaster reinforcement

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/m^2; 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

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

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

S2C10 Solid units

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

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

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 Increase in thickness by plastering — walls

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 S1C2b and S1C2c (but not for the purposes of S2C5) may be increased by the thickness of the plaster on one side.

S2C15 Increase in thickness by plastering — columns

(1) Where Tables S1C2e, S1C2f, S1C2g, S1C2h, S1C2i and S1C2j 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 Gypsum-perlite or gypsum-vermiculite plaster or metal lath — walls

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 Gypsum-perlite or gypsum-vermiculite plaster or metal lath — columns

(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 Gypsum-perlite or gypsum-vermiculite plaster or metal lath — beams

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 Exposure of columns

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 Exposure of 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

(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

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 Reinforcing for column and beam protection — 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 Reinforcing for column and beam protection — gypsum blocks and hollow terracotta blocks

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 Reinforcing for column and beam protection — structural concrete and poured gypsum

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 Reinforcing for column and beam protection — gypsum-perlite or gypsum-vermiculite plaster sprayed to contour

(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 Table S2C26a or 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 10º to the vertical; and

(b) "horizontal" includes a surface at not more than 10º 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

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

This Specification sets out the procedures for determining the *fire hazard properties* of assemblies tested to AS/NZS 1530.3.

Assemblies

S3C2 General requirement

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.

S3C3 Form of test

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

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

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.

Section H Class 1 and 10 buildings

Part H1 Structure

Objectives

H1O1 Objective

Functional Statements

H1F1 Functional Statements

Performance Requirements

H1P1 Structural reliability and resistance

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Part H2 Damp and weatherproofing

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H2O1 Objective

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H2F1 Surface water

H2F2 Weatherproofing and dampness

H2F3 Drainage from swimming pools

Performance Requirements

H2P1 Rainwater management

H2P2 Weatherproofing

H2P3 Rising damp

H2P4 Drainage from swimming pools

Verification Methods

H2V1 Weatherproofing

Deemed-to-Satisfy Provisions

H2D1 Deemed-to-Satisfy Provisions

H2D2 Drainage

Part H1 Structure

Introduction to this Part

This Part focuses on safeguarding people from injury caused by structural failure, loss of *amenity* caused by structural behaviour (deflections, creep, vibration, settlement and the like), protection of other property from physical damage caused by structural failure and safeguarding people from injury that may be caused by failure of, or impact with, glazing.

Objectives

H1O1 Objective

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

(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 reliability and resistance

(1) By resisting the actions to which it may reasonably be expected to be subjected, a building or structure, during construction and use, with appropriate levels of reliability, 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*.

(2) Each component of the building or structure must withstand all actions with the minimum levels of reliability specified in Tables H1P1a, H1P1b and H1P1c as determined in accordance with H1V1.

(3) The actions to be considered to satisfy (1) and (2) 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
(l) 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.

(4) The structural resistance of materials and forms of construction must be determined using material properties with appropriate allowance for type and use of the material and the degree of accuracy inherent in the methods used to assess the structural behaviour.

(5) 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 is not likely to cause injury to people; and
(b) resists a reasonably foreseeable human impact without breaking; and
(c) is protected or marked in a way that will reduce the likelihood of human impact.

Table H1P1a: Minimum annual reliability indices (β) for additive load combinations (gravity actions only)

All Importance Levels
β = 4.30

Table Notes

(a) The annual reliability indices in Table H1P1a must be met for all components necessary to comply with H1P1(1) at the relevant Importance Level.
(b) *Ancillary components* may have a reliability index appropriate to the component, but not less than that required for Importance Level 1, irrespective of the Importance Level of the whole building or structure.
(c) Importance Level must be assigned in accordance with Table 2.2.3a of the ABCB Housing Provisions.

Table H1P1b: Minimum annual reliability indices (β) for additive load combinations (combined gravity and other actions)

Importance Level 1	Importance Level 2
β = 3.45	β = 3.70

Table Notes

(a) The annual reliability indices in Table H1P1b must be met for all component necessary to comply with H1P1(1) at the relevant Importance Level.
(b) *Ancillary components* may have a reliability index appropriate to the component, but not less than that required for Importance Level 1, irrespective of the Importance Level of the whole building or structure.

(c) Importance Level must be assigned in accordance with Table 2.2.3a of the ABCB Housing Provisions.

Table H1P1c: Minimum annual reliability indices (β) for action reversal and stability load combinations (combined gravity and other actions)

Importance of Level 1	Importance Level 2
β = 3.00	β = 3.35

Table Notes

(a) The annual reliability indices in Table H1P1c must be met for all components necessary to comply with H1P1(1) at the relevant Importance Level.

(b) *Ancillary components* may have a reliability index appropriate to the component, but not less than that required for Importance Level 1, irrespective of the Importance Level of the whole building or structure.

(c) Importance Level must be assigned in accordance with Table 2.2.3a of the ABCB Housing Provisions.

Notes

(1) H1P1(2) does not take effect until 1 year after the adoption date for NCC 2025.

(2) When assessing compliance with H1P1(3)(a) to (e), the actions must include those derived from the relevant part of the AS/NZS 1170 series of standards.

Explanatory Information

Structural reliability in terms of failure and behaviour is considered for each component (beams, columns, struts, ties, slabs, external walls, roof cladding, etc, that are subject to a combination of loads) and for the structure as a whole. The *Performance Requirements* for components are prescribed as minimum reliability indices for combinations of loads and building importance. H1P1(1) requires that the structure as a whole achieves levels of reliability that take into account material properties, the nature of imposed actions, failure modes, building use, serviceability requirements and occupant vulnerability which may require that components have higher levels of reliability than those specified in Tables H1P1a, H1P1b and H1P1c. For further guidance refer to ABCB Handbook — Structural reliability Verification Method.

The actions imposed by gravity, wind, snow and earthquake loads are set out in AS/NZS 1170 Parts 1 to 4. The reliability indices in Tables H1P1a, H1P1b and H1P1c are derived from load combinations based on AS/NZS 1170 and are a weighted average of indices for individual load combinations and components derived from various provisions in the below listed Australian Standards. These standards set the minimum structural requirements for timber, concrete, masonry and steel components for structural design:

- AS 1720 Timber structures.
- AS 3600 Concrete structures.
- AS 3700 Masonry structures.
- AS 4100 Steel structures.
- AS/NZS 4600 Cold-formed steel structures.

These standards apply to many types of structures, including buildings, and were adopted as the requirement for building structures in the BCA in 1989. As existing requirements they are classified as *Deemed-to-Satisfy Solutions* from BCA 1996 onwards. They remain the principal minimum requirements for timber, concrete, masonry and steel components in buildings for both *Performance Solutions* and *Deemed-to-Satisfy Solutions*. By retaining them as *Deemed-to-Satisfy Solutions* they can be applied without the need for a *performance-based design brief*.

The derived reliability indices in Tables H1P1a, H1P1b and H1P1c give a consistent base for assessing components of building structures made from materials other than materials in clauses 2.2.4(d) and 2.2.4(g) to (k) of the ABCB Housing Provisions or for components using these materials in a way not covered by these standards.

A2G2(6) requires that components made from materials included in clauses 2.2.4(d) and 2.2.4(g) to (k) of the ABCB Housing Provisions be assessed as part of a *Deemed-to-Satisfy Solution* using clauses 2.2.3 and 2.2.4 of the ABCB Housing Provisions, or as part of a *Performance Solution* utilising comparison with *Deemed-to-Satisfy Provisions* clauses 2.2.3 and 2.2.4 of the ABCB Housing Provisions.

Explanatory Information: Interpretation of probability

Annual probability of failure (P_F) can be derived from the reliability index (β) where $\beta = -\phi^{-1}(P_F)$ where ϕ^{-1} is the inverse standardised normal distribution. Approximate equivalent probabilities of failure to the reliability indices in Tables H1P1a, H1P1b and H1P1c are contained in Table H1P1 (explanatory).

Values in Table H1P1 (explanatory) are notional, accounting for uncertainties in design parameters but excluding accidents and gross human errors.

For further guidance refer to ABCB Handbook — Structural Reliabiity Verification Method.

Table H1P1 (explanatory): Equivalent probabilities of failure

Additive load combination (gravity actions only)	Additive load combinations (combined gravity and other actions)		Action reversal and stability load combinations (combined gravity and other actions)	
All Importance Levels	Importance Level 1	Importance Level 2	Importance Level 1	Importance Level 2
P_F = 1/117,000 per year	P_F = 1/3,500 per year	P_F = 1/9,200 per year	P_F = 1/700 per year	P_F = 1/2,400 per year

QLD H1P2

SA H1P2

H1P2 Buildings in flood areas

(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 of components

(1) This *Verification Method* is applicable to components with a resistance coefficient of variation of not more than 40%.

(2) Where the calculated resistance coefficient of variation value is less than 10%, then a minimum value of 10% should be used.

(3) The resistance model for the component must be established by taking into account variability due to material properties, fabrication and construction processes, structural modelling and time dependent effects.

(4) Annual action models must be determined for all reasonably expected actions and combinations of actions in accordance with Table H1V1a.

(5) Compliance with H1P1(2) is verified for the design of a component where—

(a) the calculated reliability index β is not less than the applicable *required* values.

(b) the reliability index β is calculated in accordance with the equation; $\beta = \frac{In\left[\frac{\overline{R}}{\overline{S}}\sqrt{\frac{C_S}{C_R}}\right]}{\sqrt{In\,(C_S C_R)}}$, where—

(i) $C_R = 1 + V^2_R$; and

(ii) $C_S = 1 + V^2_S$, where, subject to (iii)—

(A) $\overline{R}$ = mean resistance; and

(B) $\overline{s}$ = mean action; and

(C) V_S = coefficient of variation of the action; and

(D) V_R = coefficient of variation of the resistance; and

(iii) where the load action s is due to the combination of multiple structural actions—

(A) $S = S_1 + S_2 + ... + S_n$; and

(B) the mean of the combined load action is calculated in accordance with the equation: $\overline{S} = \overline{S}_1 + \overline{S}_2 + ... + \overline{S}_n$, where $\overline{S}_i$ is the mean of the *i*th action S_i; and

(C) the standard deviation of the combined load action is calculated in accordance with the equation: $\sigma^2_S = \sigma^2_{S1} + \sigma^2_{S2} + ... + \sigma^2_{Sn}$, where σ_{si} is the standard deviation of the *i*th action S_i; and

(D) the coefficient of the variation of the combined action s is calculated in accordance with the equation: $V_S = \frac{\sigma_S}{\overline{S}}$.

Table H1V1: Annual action models

Design action	Ratio of mean action to nominal	Coefficient of variation of the action
Permanent action	1.05	0.10
Annual maximum imposed action	0.35	0.45
Arbitrary-point-in-time imposed action	0.25	0.78
Wind (non-cyclonic regions, Importance Level 1)	0.37	0.47
Wind (non-cyclonic regions, Importance Level 2)	0.31	0.47
Wind (cyclonic regions, Importance Level 1)	0.19	0.76

Design action	Ratio of mean action to nominal	Coefficient of variation of the action
Wind (cyclonic regions, Importance Level 2)	0.16	0.76
Earthquake (Importance Level 1)	0.28	0.90
Earthquake (Importance Level 2)	0.15	0.90
Snow	0.29	0.57

Table Notes

(1) Actions not listed must be considered and derived on a case-by-case basis.

(2) Nominal loads are based on AS/NZS 1170 series of standards.

Notes

(1) H1V1 of NCC 2022 may apply instead of H1V1 of NCC 2025 until 1 year after the adoption date of NCC 2025.

(2) When determining appropriate combinations of actions to meet the requirements of H1V1(5)(b)(iii), consideration must be made for those given in AS/NZS 1170.

(3) H1V1 may be used for all materials and actions to determine compliance with H1P1(2).

H1V2 Structural robustness

(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—

(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 A2G4(3) as applicable.

H1D2 Structural provisions

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

(a) Section 2 of the ABCB Housing Provisions; or

(b) the relevant provisions of H1D3 to H1D12; or

(c) any combination thereof.

H1D3 Site preparation

(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 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 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:

- The relevant structural design provisions referenced in H1D2.
- The relevant provisions of other Parts of the ABCB Housing Provisions relating to earth retaining structures.
- 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

NSW H1D4(1)

(1) *Performance Requirement* H1P1 is satisfied for the design and construction of footings and slabs if they comply with either (a) or (b):

(a) One of the following:

(i) AS 2870.

(ii) AS 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 or M *site* (classified in accordance with AS 2870) with a uniform bearing capacity; and

(b) any slab—

(i) is not more than 18 m long or wide; and

(ii) does not contain permanent joints excluding construction joints; and

(iii) is of a geometric shape containing only external right angles, other than a slab in (c); and

(c) any footing and slab in (b) has not 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 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 Provisions; and

(j) the *site* is not located in an *alpine area*; and

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

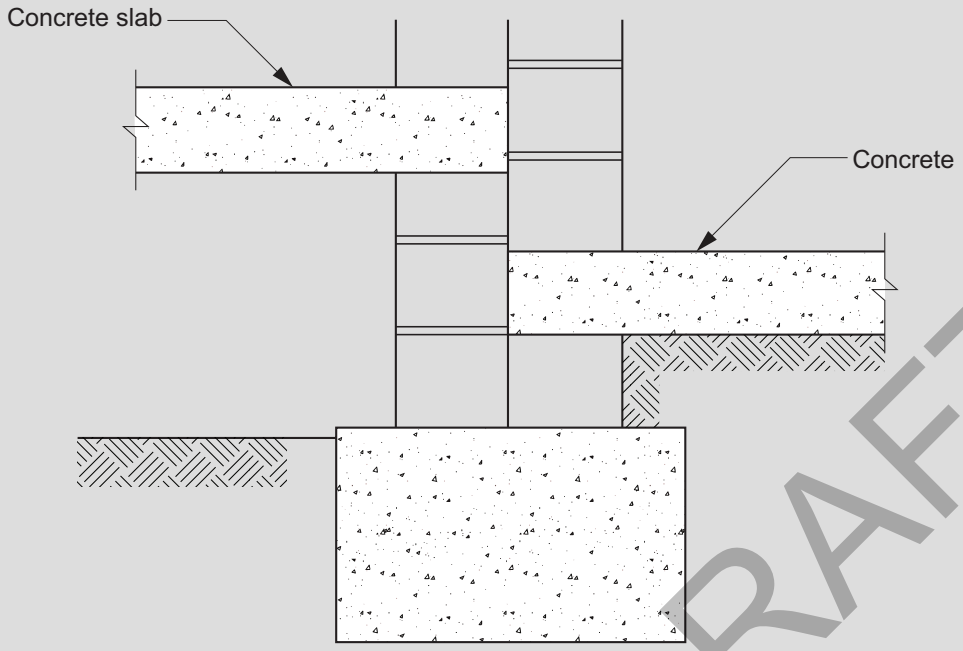
Explanatory Information: Composite construction

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 slab

For the purposes of H1D4(2)(e), split level slabs are considered as one slab. See Figure H1D4a.

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 in explanatory Figures H1D4b or H1D4c.

Figure H1D4b (explanatory): Geometric slab without re-entrant corner

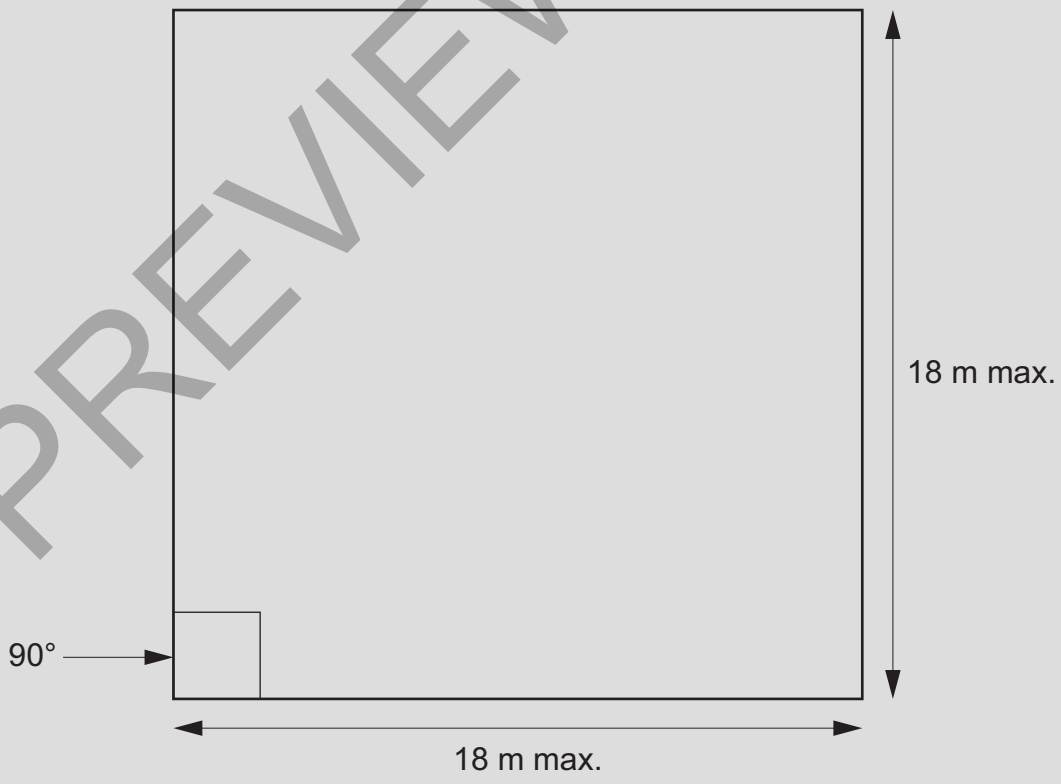
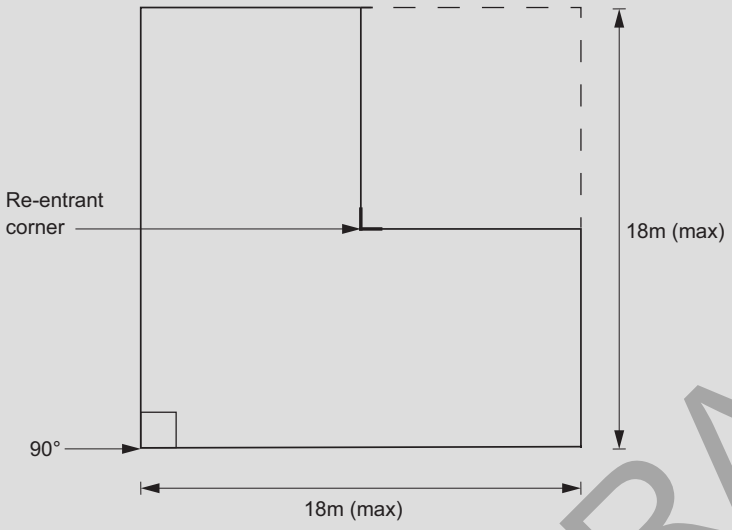


Figure H1D4c (explanatory): Geometric slab with re-entrant corner



H1D5 Masonry

(1) *Performance Requirement* H1P1 is satisfied for masonry veneer if it is designed and constructed in accordance with—

(a) AS 3700; or

(b) AS 4773.1 and AS 4773.2; or

(c) Part 5.2 of the ABCB Housing Provisions provided—

(i) the building is located in an area with a wind class of not more than N3; and

(ii) masonry veneer walls—

(A) are constructed on footings and/or slabs that comply with H1D4; and

(B) comply with Part 5.6 using components that comply with Part 5.7 of the ABCB Housing Provisions; and

(iii) the building *site* soil classification is A, S or M in accordance with AS 2870; 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) *Performance Requirement* H1P1 is satisfied for *cavity* brick *unreinforced masonry* if it is designed and constructed in accordance with:

(a) AS 3700; or

(b) AS 4773.1 and AS 4773.2; or

(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 comply with H1D4; and

(B) comply with Part 5.6 using components that comply with Part 5.7 of the ABCB Housing Provisions; 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) *Performance Requirement* H1P1 is satisfied for single leaf *unreinforced masonry* if it is designed and constructed in accordance with:

(a) AS 3700; or

(b) AS 4773.1 and AS 4773.2; or

(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 comply with H1D4; and

(B) comply with Part 5.6 using components that comply with Part 5.7 of the ABCB Housing Provisions; 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) *Performance Requirement* H1P1 is satisfied for *reinforced masonry* if it is designed and constructed in accordance with:

(a) AS 3700, except—

(i) '(for piers—isolated or engaged)' 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 as *unreinforced masonry* in accordance with Table 10.3 and 4.1(a)(i)(C) of AS 3700; or

(b) AS 4773.1 and AS 4773.2.

(5) *Performance Requirement* H1P1 is satisfied for an isolated masonry pier system if it is designed and constructed in accordance with one of the following, as appropriate:

(a) AS 3700, except—

(i) '(for piers—isolated or engaged)' 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 as *unreinforced masonry* in accordance with Table 10.3 and 4.1(a)(i)(C) of AS 3700.

(b) AS 4773.1 and AS 4773.2.

(c) Part 5.5 of the ABCB Housing Provisions provided—

(i) the building is located in an area with a wind class of not more than N3; and

(ii) isolated piers are constructed on footings and/or slabs that comply with H1D4; and

(iii) masonry units comply with 5.6.2(4) of the ABCB Housing Provisions 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 Table 10.3 and 4.1(a)(i)(C) of AS 3700; and

(v) the building *site* soil classification is A, S or M in accordance with AS 2870; 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) *Performance Requirement* H1P1 is satisfied for masonry accessories if they are constructed and installed in accordance with:

(a) AS 3700; or

(b) AS 4773.1 and AS 4773.2.

(c) Part 5.6 of the ABCB Housing Provisions provided—

(i) the building is located in an area with a wind class 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.

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

(1) Diagrams depicting framing members and associated terminology used to describe them are set out in Figures H1D6c, H1D6d and H1D6e, 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 and H1D6b, and Figures H1D6a, H1D6b and H1D6f.

(3) *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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(4) *Performance Requirement* H1P1 is satisfied for timber framing 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 or AS 1684.4.

(d) Residential timber-framed construction – cyclonic areas: AS 1684.3.

(e) Installation of particleboard flooring: AS 1860.2.

(5) *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 (6), Part 6.3 of the ABCB Housing Provisions.

(d) For corrosion protection, clause 6.3.9 of Part 6.3 of the ABCB Housing Provisions.

(6) For the purposes of (5)(c), Part 6.3 of the ABCB Housing Provisions may only be used where—

(a) the building is located in an area with a wind class of not more than N3; and

(b) the first dimension of steel sections is installed vertically; and

(c) all loads are 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 members are not subject to snow loads; and

(f) the structural steel members are in buildings within geometric limits set out in clause 1.2 of AS 4055.

(7) 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 geometric 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 load width for structural steel bearers and strutting beams—Single spanning rafter or joist

Design member	Member 1	Member 2
Effective load width	0.5 x Span 1	0.5 x (Span 1 + Span 2)

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

Design Member	Member 1	Member 2	Member 3
Effective load width	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 not be more than 0.5 x Span 2.

Figure H1D6a: Effective load width for structural steel bearers and strutting beams—Single spanning rafter or joist

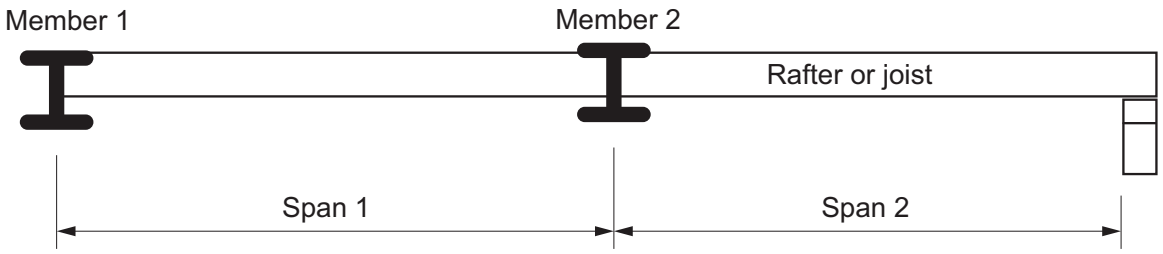


Figure H1D6b: **Effective load width for structural steel bearers and strutting beams—Continuous spanning rafter or joist**

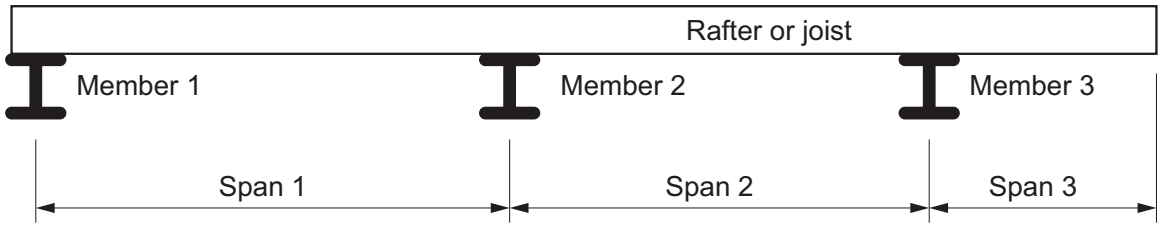
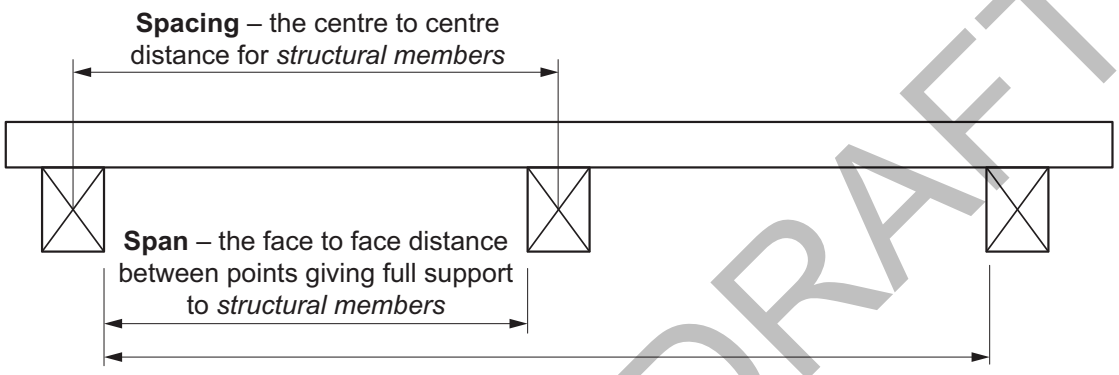
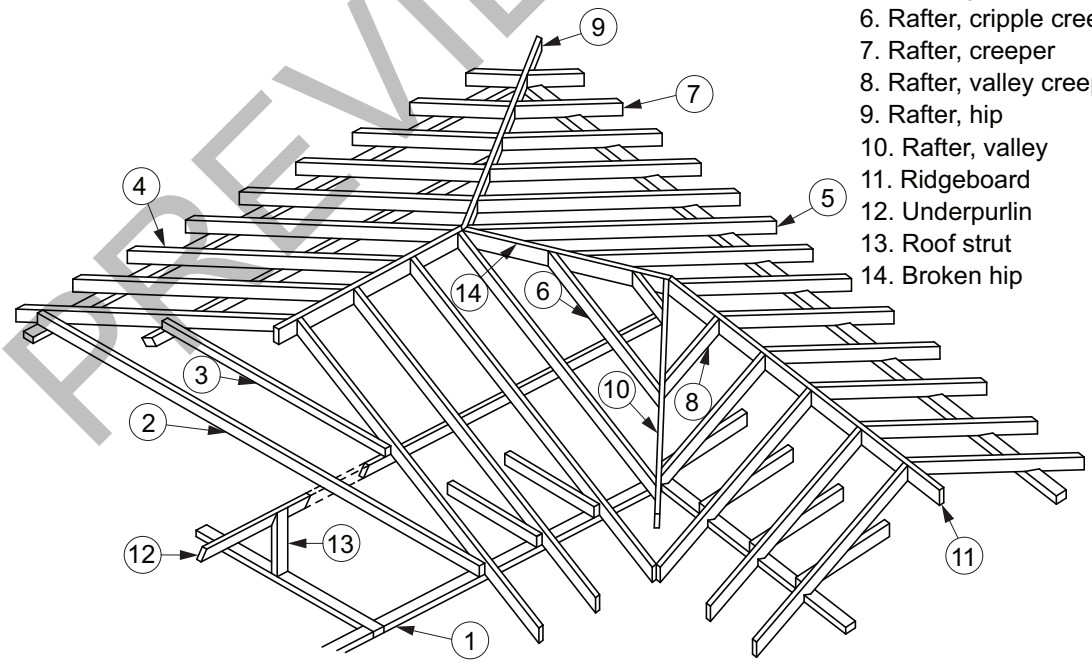


Figure H1D6c: **Span and spacing terms**



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

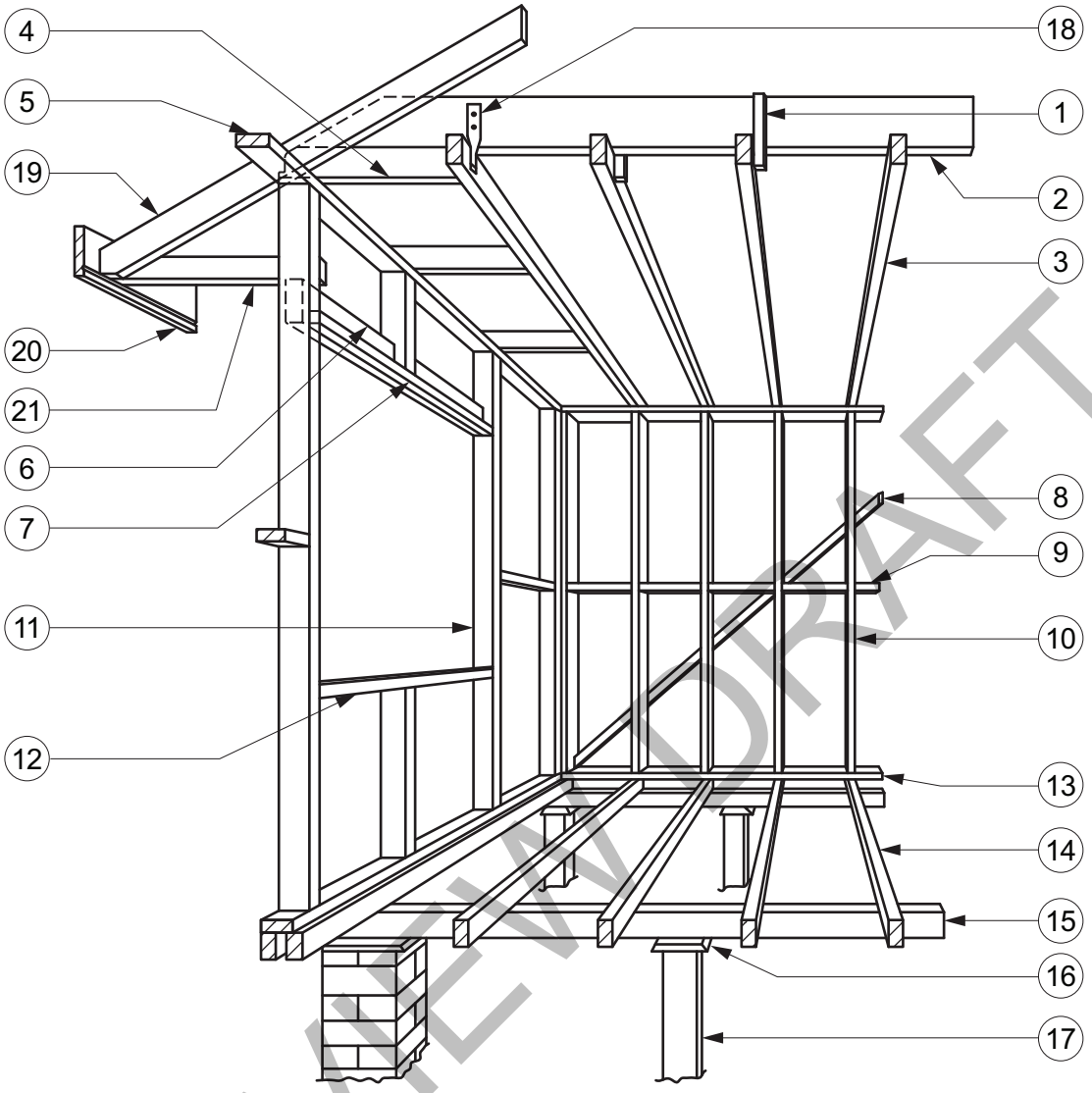
Figure H1D6d: **Typical roof framing members**



Legend

1. Top plate
2. Ceiling joist
3. Collar tie
4. Rafter, common
5. Rafter, jack or crown end
6. Rafter, cripple creeper
7. Rafter, creeper
8. Rafter, valley creeper
9. Rafter, hip
10. Rafter, valley
11. Ridgeboard
12. Underpurlin
13. Roof strut
14. Broken hip

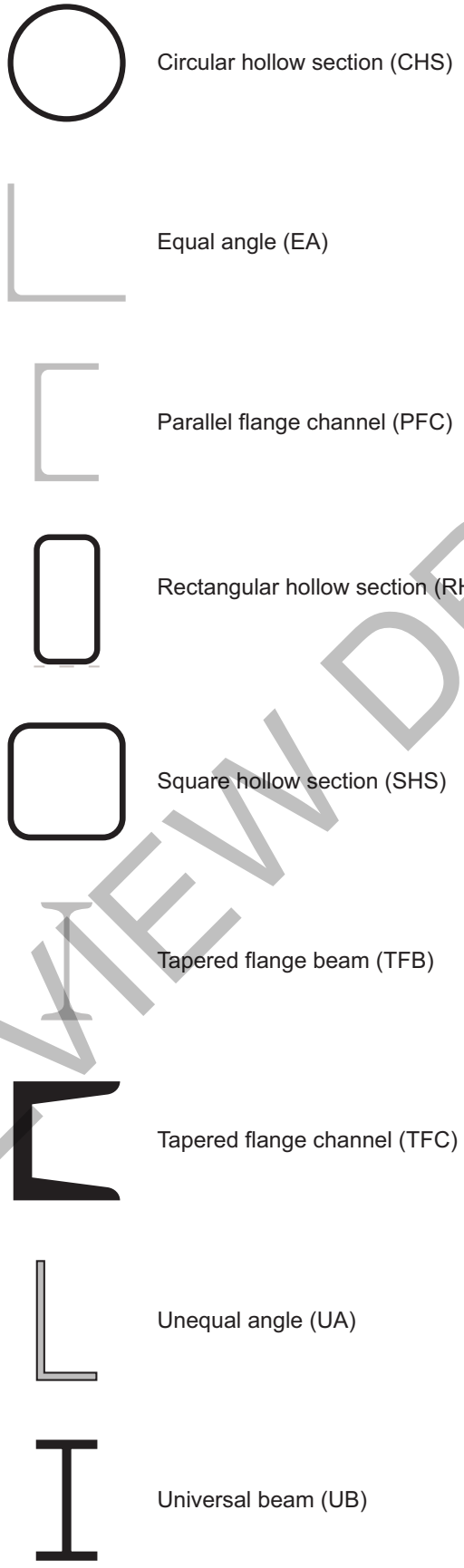
Figure H1D6e: **Floor, wall, ceiling and other framing members**



Legend:

1. Cleat
2. Hanging beam
3. Ceiling joist
4. Jack joist
5. Top wall plate
6. Lintel
7. Ledger
8. Brace
9. Nogging
10. Stud
11. Jamb stud
12. Sill trimmer
13. Bottom wall plate
14. Floor joist
15. Bearer
16. Termite shield
17. Stump
18. Hoop iron strap
19. Rafter
20. Fascia
21. Soffit bearer

Figure H1D6f: Steel member descriptions—abbreviations and profiles



Explanatory Information

For the purposes of H1D6(2), 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.
- Part 6.3 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(3) and (4):

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

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.

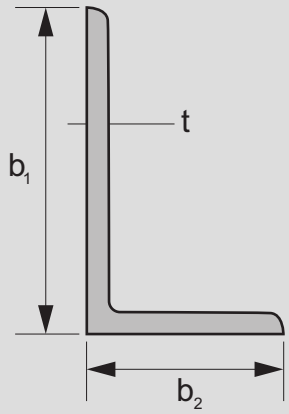
The 90 mm (b_2) designation refers to the horizontal leg that rests under the masonry elements and transfers direct loads to the extremities of the opening while the 8 mm (t) designation refers to the thickness of the steel section.

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

- 150 = leg length (b_1)
- 90 = leg length (b_2)
- 8 = thickness (t)

These designations are depicted in Explanatory Figure H1D6.

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



WA

H1D7 Roof and wall cladding

(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 B2, 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 1562.3.

(c) Metal sheet roofing: Part 7.2 of the ABCB Housing Provisions, provided the building is located in an area with a wind class 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) Terracotta, fibre-cement and timber slates and shingles: AS 4597.

(b) For roof tiles—

(i) AS 2050; or

(ii) Part 7.3 of the ABCB Housing Provisions, provided—

(A) the building is located in an area with a wind class of not more than N3; and

(B) the roof tiles comply with AS 2049; and

(C) the roof has a pitch of not less than 15 degrees and not more than 35 degrees.

(4) *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.

(5) *Performance Requirement* H1P1 is satisfied for a metal wall cladding if it is designed and constructed in accordance with AS 1562.1.

(6) *Performance Requirement* H1P1 is satisfied for external wall insulation and finish cladding systems, other than direct fix systems, if they are designed and constructed in accordance with AS 5346.

Table H1D7: Low-High-Low pressure sequence

Sequence	Number of cycles	Load
A	4500	0 to 0.45 Pt
B	600	0 to 0.6 Pt
C	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

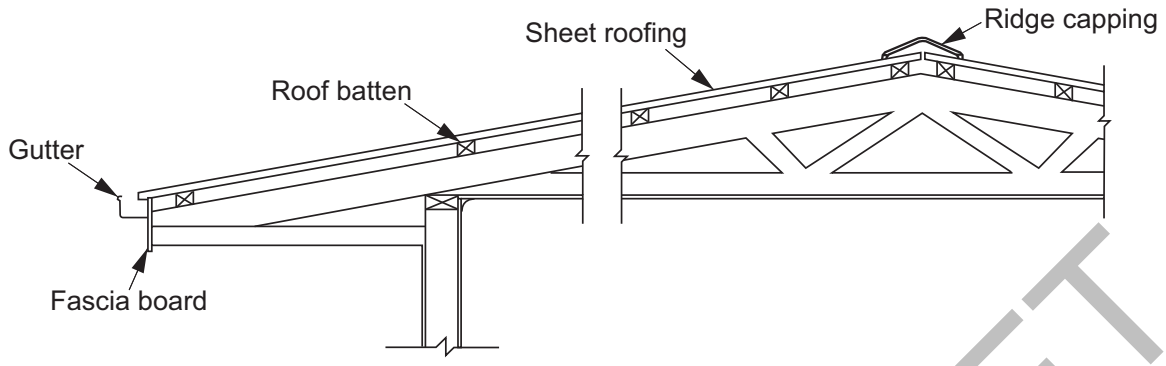
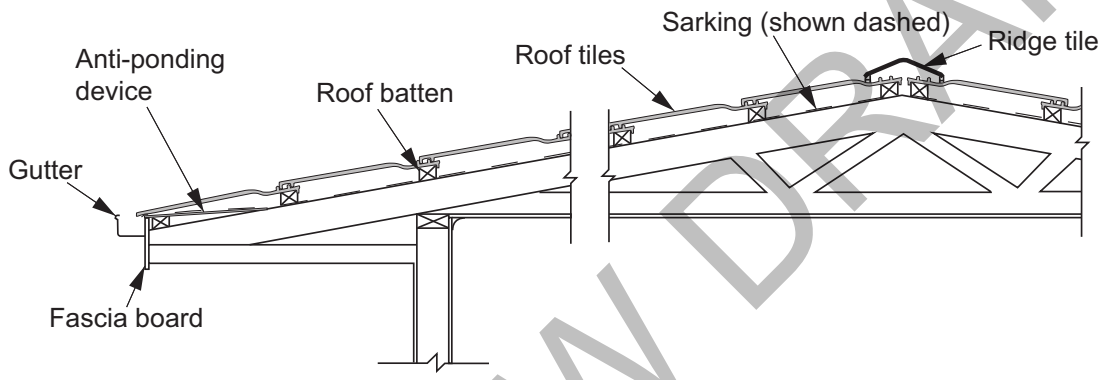


Figure H1D7b: Section of a typical tile roof



Explanatory Information

The requirements of H1D7(2)(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(2)(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

(1) *Performance Requirement* H1P1 is satisfied for glazing and *windows* if they are—

(a) designed and constructed in accordance with AS 2047 for glazed assemblies in an *external wall* including—

(i) *windows*, other than those listed in (2); and

(ii) sliding and swinging glazed doors with a frame, including French and bi-fold doors with a frame; and

(iii) adjustable louvres; and

(iv) *window* walls with one-piece framing; and

(b) installed such that they comply with—

(i) AS 2047; and

(ii) Part 8.2 of the ABCB Housing Provisions, provided that they are—

(A) in buildings that are within the geometric limits set out in clause 1.2 of AS 4055; and

(B) located in an area with a wind class of not more than N3.

(2) *Performance Requirement* H1P1 is satisfied for glazing in glazed assemblies if it—

(a) complies with Part 8.3 of the ABCB Housing Provisions; or

(b) is designed and constructed in accordance with AS 1288 for all glazed assemblies not covered by (1) 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* other than in 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 with AS 2047.

(vii) Second-hand *windows*, re-used *windows* and recycled *windows*.

(viii) Heritage *windows*.

(ix) Glazing used in balustrades and overhead glazing.

(3) *Performance Requirement* H1P1(5) is satisfied 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: AS 2047

- AS 2047 specifies requirements for the design, testing and manufacture of *windows*. The reference to *windows* in AS 2047 includes certain types of louvres and glazed doors that may be sliding, swinging, French or bi-fold doors.
- 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.

Explanatory Information: AS 1288

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:

- The distance from the ground level adjacent to the building to the underside of eaves is not to exceed 6.0 m.
- The distance from the ground level of the building to the highest point of the roof, excluding chimneys is not to exceed 8.5 m.
- The width of the building, including verandas, but excluding eaves, is not to exceed 16.0 m.
- The length of the building is not to exceed five times its width.
- The roof pitch is not to exceed 35°.

H1D9 Earthquake areas

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

- Most domestic structures are not required to be specifically designed for earthquakes.
- 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

Performance Requirement H1P2 for a Class 1 building 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 framed decks and balconies to external walls of buildings using a waling plate

Performance Requirement H1P1 is satisfied for the attachment of a deck or balcony to an *external wall* if it complies with Part 12.3 of the ABCB Housing Provisions, 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) steel framing constructed in accordance with H1D6(3); and

(h) timber framing is constructed in accordance with H1D6(4); and

(i) 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(3); or

  (iii) timber framing complying with H1D6(4); and

(j) the *external wall* referred to in (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

(k) the waling plate is fixed to the *external wall* in accordance with clause 12.3.2 of the ABCB Housing Provisions

and attached by—

(i) fixing the waling plate through wall cladding complying with H1D7(4) or H1D7(5), 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 clause 12.3.3 of the ABCB Housing Provisions; and

(B) the cladding restored to its original strength by installing blocking supports as necessary on completion of installation; and

(l) the deck or balcony is braced to prevent lateral movement in accordance with clause 12.3.4 of the ABCB Housing Provisions.

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(k)(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 masonry 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.

H1D12 Piled footings

Performance Requirement H1P1 is satisfied for piled footings if they are designed and installed in accordance with AS 2159.

Explanatory Information

Slab construction—design requirements for other elements of construction that may be used in combination with the above piled footing systems, including concrete slabs, etc. are described in H1D2 for Structural provisions and H1D4 for Footings and slabs.

Part H2 Damp and weatherproofing

Introduction to this Part

This Part focuses 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*.

Objectives

H2O1 Objective

The Objective is to—

(a) safeguard occupants from illness or injury and protect the building from damage caused by—
  (i) *surface water*; and
  (ii) external water entering a building; and
  (iii) the accumulation of internal moisture in a building; and
  (iv) discharge of *swimming pool* waste water; and
  (v) rising damp; and

(b) protect other property from damage caused by—
  (i) redirected *surface water*; and
  (ii) the discharge of *swimming pool* waste water.

Functional Statements

H2F1 Surface water

A building including any associated *sitework* is to be constructed in a way that protects people and *other property* from the adverse effects of redirected *surface water*.

H2F2 Weatherproofing and dampness

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

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

Performance Requirements

H2P1 Rainwater management

(1) *Surface water*, resulting from a storm having an *annual exceedance probability* of 5% 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 *annual exceedance probability* of 1% must not enter the building.

(3) A drainage system for the disposal of *surface water* resulting from a storm having an *annual exceedance probability* of—

(a) 5% must—

(i) convey *surface water* to an appropriate *outfall*; and

(ii) avoid *surface water* damaging the building; and

(b) 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

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

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*.

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) 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 be a minimum of 2.4m high and 2.4m wide and 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) The test procedure for a *direct fix cladding wall* or *unique wall* must be as follows:

(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) the three stages of Table H2V1b; and

(ii) the water penetration test procedure at clause 8.6.2 of AS/NZS 4284.

(5) The test procedure for a *cavity wall* must be as follows:

(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 ¾ 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 and check for compliance with (6).

(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(0-5) (AS/NZS 1170.2)	Low to medium	0
	Region B1-2 (AS/NZS 1170.2)	Low to medium	0
	Region C (AS/NZS 1170.2)	High	1
	Region D (AS/NZS 1170.2)	Very high	2
Number of storeys	One storey	Low	0

Risk factor	Category	Risk severity	Score
	Two storeys in part	Medium	1
	Two storeys	High	2
	More than two storeys	Very high	4
Roof/wall junctions	Roof-to-wall junctions fully protected	Low	0
	Roof-to-wall junctions partially exposed	Medium	1
	Roof-to-wall junctions fully exposed	High	3
	Roof elements finishing within the boundaries formed by the *external walls*	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	Medium	1
	101-450 mm for single storey	High	2
	451-600 mm for two storey	High	2
	Greater than 600 mm for above two storey	High	2
	0-100 mm for single storey	Very high	5
	0-450 mm for two storey	Very high	5
	Less than 600 mm for above two storey	Very high	5
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 balconies	None	Low	0
	Timber slat deck or porch at ground level	Low	0
	Fully covered in plan view by roof	Medium	2
	Timber slat deck attached at first or second floor level	Medium	2
	Balcony exposed in plan view at first floor level	High	4
	Balcony cantilevered at first floor level	High	4
	Balcony exposed in plan view at second floor level or	Very high	6

Risk factor	Category	Risk severity	Score
	above		
	Balcony cantilevered at second floor level or above	Very high	6

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 F3V1, in NCC Volume One. Consequently 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

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H2P1 to H2P4 are satisfied by complying with H2D2 to H2D8.

(2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3) as applicable.

H2D2 Drainage

(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 *annual exceedance probability* of 5% (as per Table 7.4.3d of the ABCB Housing Provisions) 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.

(2) *Performance Requirement* H2P4 is satisfied for *swimming pool* drainage if the *swimming pool's* pumped discharge is discharged to the sanitary drainage system in accordance with AS/NZS 3500.2.

Explanatory Information

- The NCC does not require the installation of drainage systems. Accordingly these requirements need only be applied when these systems are used.
- Information on the need for drainage systems may be obtained from the *appropriate authority*.
- The legal discharge point from a building *site* is generally determined by local government authorities.
- Consideration should be given to the requirements of the relevant *Network Utility Operator*. Where a *Network Utility Operator* does not permit *swimming pool* discharge to the sanitary drainage system, a *Performance Solution* will be necessary to demonstrate the suitability of the alternative drainage method.

H2D3 Footings and slabs

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.

SA H2D4(2)

(2) *Performance Requirements* H2P2 and H2P3 are satisfied for weatherproofing of masonry if 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(3)

SA H2D4(4)

H2D5 Subfloor ventilation

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

VIC H2D6(1)

(1) *Performance Requirement* H2P1 is satisfied for gutters and downpipes if they are designed and constructed in accordance with one of the following:

(a) Subject to (2), AS/NZS 3500.3.

(b) Subject to (2) and (3), Part 7.4 of the ABCB Housing Provisions.

(2) The requirements of (1) do not apply to 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.

VIC H2D6(3)

(3) Part 7.4 of the ABCB Housing Provisions—

(a) may only be used provided the roof drainage system is connected to a stormwater drainage system that complies with H2D2; and

(b) excludes box gutters.

(4) *Performance Requirement* H2P2 is satisfied for roof and wall cladding if it is in accordance with H1D7(2), (3), (4), (5) or (6) as appropriate.

H2D7 Glazing

Performance Requirement H2P2 is satisfied for weatherproofing for glazing if it is in accordance with H1D8(1).

Explanatory Information

When satisfying *Performance Requirement* H2P2, H1D8(1) 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

(1) *Performance Requirement* H2P2 is satisfied for the design and construction of external waterproofing for roofing systems on flat roofs, roof terraces, balconies and terraces and other similar horizontal surfaces located above internal spaces of a building provided—

(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.

(2) The requirements of (1) apply to—

(a) roofing systems other than those complying with H1D7(2) and (3); and

(b) terraces, balconies and the like other than—

(i) a concrete slab that has a minimum step-down of 50 mm below the internal floor level; or

(ii) a suspended concrete slab—

(A) where the subfloor space is not used for habitable or non-habitable purposes; and

(B) that has a minimum step-down of 50 mm below the internal floor level; or

(iii) spaced decking in conjunction with framing members that are suitable for external use.

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.

A *Performance Solution* in accordance with A2G2 would need to be provided for other types of external waterproofing materials and designs.

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. It includes requirements to avoid the spread of fire between buildings (including garage-top dwellings), smoke alarms and evacuation lighting in Class 1b buildings.

Objectives

H3O1 Objective

The Objective is to—

(a) safeguard the occupants from illness or injury by alerting them of a fire in the building so that they may safely evacuate; and

(b) avoid the spread of fire.

Functional Statements

H3F1 Protection from the spread of fire

A Class 1 building is to be protected from the spread of fire.

H3F2 Fire detection and early warning

A Class 1 building is to be provided with safeguards so that occupants are warned of a fire in the building so that they may safely evacuate.

Performance Requirements

H3P1 Spread of fire

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 H3P1: Typical areas of potential fire spread

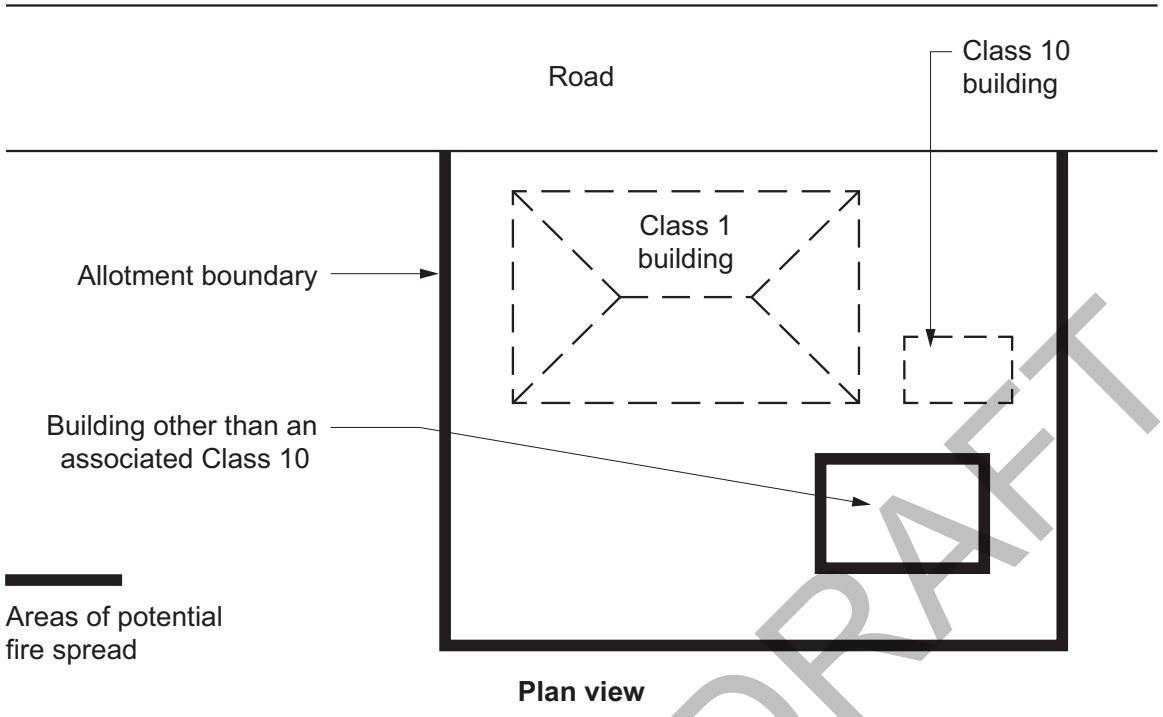


Figure Notes

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

H3P2 Automatic warning for occupants

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

(a) function and use of the building; and

(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 between buildings on one allotment

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/m^2 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 from allotment boundary

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/m^2 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 between buildings on adjoining allotments

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.

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.

Table H3V3: Heat flux (adjoining allotment)

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

H3V4 Avoidance of spread of fire between Class 2-9 buildings

Compliance with H3P1(2) to avoid a Class 10a building increasing the risk of fire spread between Class 2-9 buildings 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.

Explanatory Information

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.

Table H3V4: Heat flux (same allotment)

Column 1 (Location)	Column 2 (Heat flux [kW/m^2])
0 m	80
2 m	40

Column 1 (Location)	Column 2 (Heat flux [kW/m^2])
6 m	20
12 m	10

Deemed-to-Satisfy Provisions

H3D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H3P1 and H3P2 are satisfied by complying with H3D2 to H3D6.

(2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3) as applicable.

H3D2 Fire hazard properties and non-combustible building elements

(1) The following materials, though *combustible* or containing *combustible* fibres, may be used wherever a *non-combustible* material is *required*:

(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*, and determination thereof, 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.

(c) Where discovered by test, *fire hazard properties* must be determined by an *Accredited Testing Laboratory*.

Notes

Until adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

H3D3 Fire separation of external walls

Compliance with Part 9.2 of the ABCB Housing Provisions satisfies *Performance Requirement* H3P1 for fire separation of *external walls*.

H3D4 Fire protection of separating walls and floors

Compliance with Part 9.3 of the ABCB Housing Provisions satisfies *Performance Requirement* H3P1 for fire protection of *separating walls* and floors.

NSW H3D5

H3D5 Fire separation of garage-top-dwellings

Compliance with Part 9.4 of the ABCB Housing Provisions satisfies *Performance Requirement* H3P1 for fire separation of garage-top dwellings.

H3D6 Smoke alarms and evacuation lighting

(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 the NCC 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 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*.

Objectives

H4O1 Wet areas

The Objective is to safeguard the occupants from illness or injury and protect the building from damage caused by the accumulation of internal moisture arising from the use of *wet areas* in a building.

H4O2 Room heights

The Objective is to safeguard the occupants from injury or loss of *amenity* caused by inadequate height of a room or space.

H4O3 Facilities

The Objective 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 hygiene facilities; and

(c) enable occupants to carry out laundering; and

(d) provide for facilities to enable food preparation; and

(e) enable unconscious occupants of *sanitary compartments* to be removed from the compartment.

H4O4 Light

The Objective 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.

H4O5 Ventilation

The Objective is to safeguard occupants from illness or loss of *amenity* due to lack of air freshness.

H4O6 Sound insulation

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

H4O7 Condensation and water vapour management

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

Applications

H4O7 only applies to a Class 1 building.

Functional Statements

H4F1 Wet areas

A building is to be constructed to avoid the likelihood of—

(a) the creation of any unhealthy or dangerous conditions; or

(b) damage to building elements,

caused by dampness or water overflow from bathrooms, laundries and the like.

H4F2 Room heights

A building is to be constructed to provide height in a room or space suitable for the intended use.

H4F3 Facilities

A building is to be provided with suitable—

(a) space and facilities for personal hygiene; and

(b) space or facilities for laundering; and

(c) space and facilities for the preparation and cooking of food; and

(d) space or other means to permit an unconscious occupant to be removed from a *sanitary compartment*; and

(e) means for the sanitary disposal of waste water.

Applications

H4F3 only applies to a Class 1 building.

H4F4 Light

(1) A *habitable room* within a building is to be provided with openings to admit adequate natural light 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

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.

SA H4P1(2)

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

(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—

(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

(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

(1) 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

(1) Walls separating dwellings must, to provide insulation against the transmission of airborne sound, have a weighted standardised level difference with spectrum adaptation term ($D_{nT,w}+C_{tr}$) not less than 45.

(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

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

(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 1 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

Compliance with H4P4(1) is verified for the provision of natural light in all *habitable rooms* when the *average daylight factor* for each *window* is determined in accordance with the following formula: $\text{Average Daylight Factor} = \frac{W}{A}\frac{T\theta}{(1-R^2)}$, where—

(a) W = the net area of the light transmitting area of the *window* (m^2); and

(b) A = the total area of the internal wall, floor and ceiling surfaces (m^2); 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 F6V3 in NCC Volume One. Guidance on the use of F6V3 can be found in the Guide to NCC Volume One, and is applicable to the use of H4V2.

H4V3 Verification of indoor air quality

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
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_2O	30 minutes	0.1 mg/m^3
Nitrogen dioxide, NO_2	1 year	40 $\mu g/m^3$ (0.0197 ppm) Note 2
Nitrogen dioxide, NO_2	1 hour	200 $\mu g/m^3$ (0.0987 ppm) Note 2
Ozone, O_3	8 hour, daily maximum	100 $\mu g/m^3$ (0.0473 ppm)
Particulate matter, $PM_{2.5}$	1 year	10 $\mu g/m^3$
Particulate matter, $PM_{2.5}$	24 hour (99th percentile)	25 $\mu g/m^3$
Particulate matter, PM_{10}	1 year	20 $\mu g/m^3$
Particulate matter, PM_{10}	24 hour (99th percentile)	50 $\mu g/m^3$
Total volatile organic compounds	1 hour	500 $\mu g/m^3$

Table Notes

(1) Based on body odour metric (i.e. 450 ppm above ambient CO_2 level of 400 ppm and demand control ventilation provisions in AS 1668.2).

(2) Based on pressure of 101.325 kPa and temperature of 25 degrees (i.e. the conversion is mg/m^3 = ppm (molecular weight/24.4)).

NT H4V4

H4V4 Sound insulation

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 ISO 717.1.

H4V5 Verification of condensation management

(1) Compliance with *Performance Requirement* H4P7 is verified for a roof or *external wall* assembly when it is determined that a mould index of greater than 3, as defined by Section 6 of AIRAH DA07, does not occur on—

(a) the interior surface of the *water control layer*; or

(b) the surfaces of building *fabric* components interior to the *water control layer*.

(2) The calculation method for (1) must use—

(a) input assumptions in accordance with AIRAH DA07; and

(b) the intermediate method for calculating indoor design humidity in Section 4.3.2 of AIRAH DA07.

Deemed-to-Satisfy Provisions

H4D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H4P1 to H4P7 are satisfied by complying with H4D2 to H4D9.

(2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3) as applicable.

H4D2 Wet areas

Compliance with AS 3740 or Part 10.2 of the ABCB Housing Provisions satisfies *Performance Requirement* H4P1 for *wet areas* provided the *wet areas* are protected in accordance with the appropriate requirements of 10.2.1 to 10.2.6 and 10.2.12 of the ABCB Housing Provisions.

H4D3 Materials and installation of wet area components and systems

Performance Requirement H4P1 is satisfied for materials and the installation of *wet area* components and systems if—

(a) building elements in *wet areas* are *water resistant* or *waterproof* in accordance with clauses 10.2.1 to 10.2.6 of the ABCB Housing Provisions; and

(b) they comply with either—

(i) AS 3740 and clause 10.2.12 of the ABCB Housing Provisions; or

(ii) 10.2.7 to 10.2.32 of the ABCB Housing Provisions.

Notes: Livable housing design

In a Class 1a dwelling, at least one bathroom and at least one toilet must comply with the ABCB Standard for Livable Housing Design, which may override the requirements of 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 any additional bathrooms.

H4D4 Room heights

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

H4D5 Facilities

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 NCC Volume One. 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 www.ag.gov.au.

Explanatory Information: Cross-volume considerations

NCC Volume Three contains a number of *plumbing* and *drainage* provisions which are relevant to facilities. These include, but may not be limited to, the following:

- 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.

H4D6 Light

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

H4D7 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) *Performance Requirement* H4P5 is satisfied for ventilation by compliance with—

(a) Part 10.6 of the ABCB Housing Provisions; or

(b) for natural ventilation, AS 1668.4.

H4D8 Sound insulation

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

TAS H4D9

H4D9 Condensation management

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

Notes

From 1 May 2023 to 30 September 2023 P2.4.7, V2.4.7 and Part 3.8.7 of NCC 2019 Volume Two Amendment 1 may apply instead of H4P7, H4V5 and H4D9 of NCC 2022 Volume Two. From 1 October 2023 H4P7, H4V5 and H4D9 of NCC 2022 Volume Two applies.

Explanatory Information

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

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.

Objectives

H5O1 Objective

The Objective is to provide people with safe access to and within a building.

SA H5O2

Functional Statements

H5F1 Safety from falling

A building is to provide safe access for people to the services and facilities within.

SA H5F2

Performance Requirements

H5P1 Movement to and within a building

So that people can move safely to and within a building—

(a) walking surfaces must have safe gradients; and

(b) Please refer to NCC 2025 Preview Draft Omissions for missing text

H5P2 Fall prevention barriers

(1) A barrier must be provided where people could fall—

(a) 1 m or more—

(i) from a floor or roof or through an opening (other than through an openable window) in the *external wall*; or

(ii) due to a sudden change of level within or associated with a building; 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.

SA H5P3

Verification Methods

H5V1 Wire barriers

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).

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.

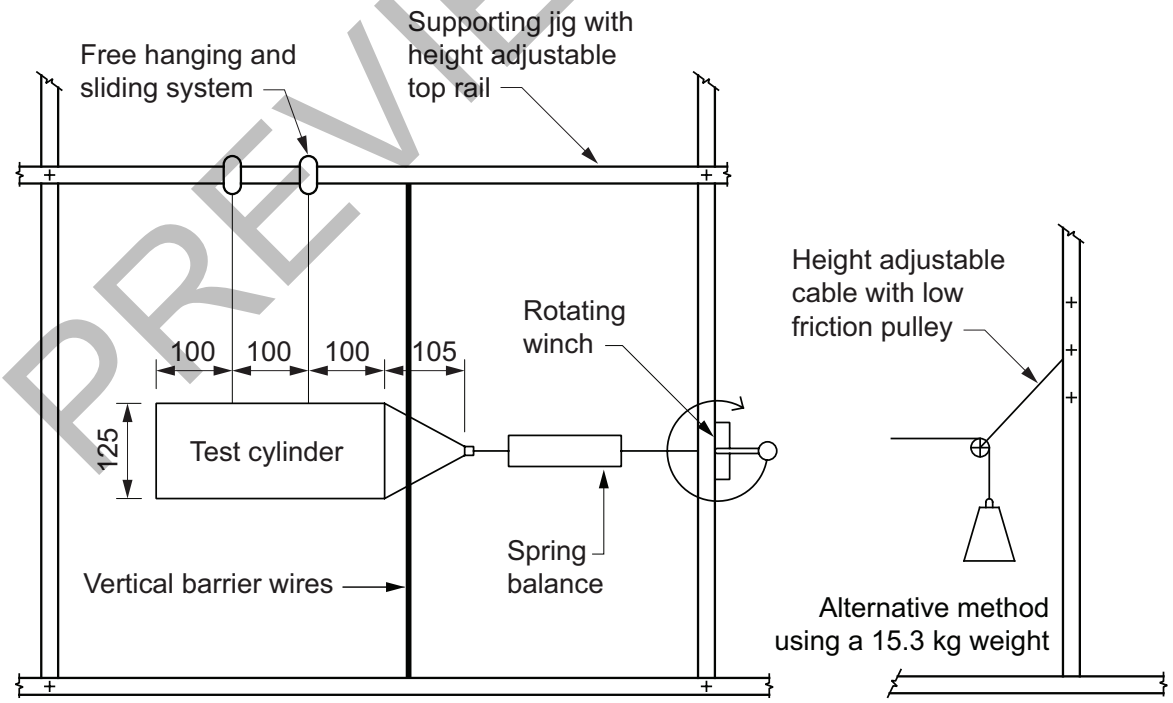
The test procedure is slightly different for barriers with horizontal or near horizontal wires and vertical wires or near vertical wires (see the test procedures set out in H5V1(c)(ii)).

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.

Figure H5V1: Apparatus for testing wire barriers



Deemed-to-Satisfy Provisions

H5D1 Deemed-to-Satisfy Provisions

SA H5D1(1)

(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 A2G4(3) as applicable.

H5D2 Stairway and ramp construction

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

H5D3 Barriers and handrails

Compliance with Part 11.3 of the ABCB Housing Provisions satisfies *Performance Requirement* H5P2 for barriers and H5P1(b)(i) for handrails.

SA H5D4

Part H6 Energy efficiency

NSW Part H6

NT Part H6

TAS Part H6

Introduction to this Part

This Part is intended to improve the efficient use of energy in building design and construction, as well as the energy usage by key equipment installed in a building.

Explanatory Information: Notes: Western Australia Section H Energy efficiency

For *existing buildings* undergoing alterations or additions, including the addition of a *swimming pool* associated with an *existing building*, Part 2.6 and Part 3.12.5 of NCC 2019 Volume Two Amendment 1 may apply instead of Part H6 of NCC 2025 Volume Two.

Explanatory Information: Explanatory information: Western Australia Section H Energy efficiency

An *existing building* is a Class 1 building or an attached Class 10 part that was not required to comply with the energy efficiency requirements of NCC 2022 or any later edition. Examples of when buildings may be required to comply with the NCC include at the time of approval, such as when a building permit is required or, at the commencement of construction where no building permit is required.

How the residential energy efficiency requirements of the NCC apply to *existing buildings* is a jurisdictional matter.

For *existing buildings Performance Solutions* may be more appropriate for demonstrating compliance with energy efficiency requirements of the NCC; the WA Alterations & Additions Protocol for Energy Efficiency in Class 1 of attached Class 10 buildings being an example.

The applicable *Performance Requirements* of Part 2.6 of NCC 2019 Amendment 1, includes the phrase “to the degree necessary”. This enables practitioners undertaking *Performance Solutions* for alterations and additions to *existing buildings* to make reasonable allowance for *existing building* performance.

For swimming pool additions to *existing buildings*, an assessment can be made using the elemental provisions of NCC 2019 Amendment 1.

Objectives

H6O1 Objective

The Objective of this Part is to —

(a) reduce energy consumption and energy peak demand; and

(b) reduce greenhouse gas emissions; and

(c) improve occupant health and *amenity*.

Functional Statements

H6F1 Energy efficiency

A building must—

(a) reduce the energy consumption and energy peak demand of key energy using equipment; and

(b) reduce greenhouse gas emissions that occur as a result of a building's energy consumption and energy source; and

(c) improve occupant health and *amenity* by mitigating the impact of extreme hot and cold weather events, and energy blackouts.

Performance Requirements

H6P1 Thermal performance

(1) The total *heating load* of the *habitable rooms* and *conditioned spaces* in a building must not exceed the *heating load* limit in Specification 44.

(2) The total *cooling load* of the *habitable rooms* and *conditioned spaces* in a building must not exceed the *cooling load* limit in Specification 44.

(3) The total *thermal energy load* of the *habitable rooms* and *conditioned spaces* in a building must not exceed the *thermal energy load* limit in Specification 44.

H6P2 Energy usage

(1) The *energy value* of a building's *domestic services* must not exceed 70% of the *energy value* with—

(a) a 3-star ducted heat pump, rated under the 2019 GEMS determination, heating all spaces that are provided with heating; and

(b) a 3-star ducted heat pump, rated under the 2019 GEMS determination, cooling all spaces that are provided with cooling; and

(c) a 5-star instantaneous gas water heater, rated under the 2017 GEMS determination, providing all domestic hot water; and

(d) a lighting power density of 4 W/m^2 serving all internal spaces that are provided with artificial lighting.

(2) *Domestic services*, including any associated distribution system and components must, to the degree necessary, have features that facilitate the efficient use of energy appropriate to—

(a) the *domestic service* and its usage; and

(b) the geographic location of the building; and

(c) the location of the *domestic service*; and

(d) the energy source.

Verification Methods

VIC H6V1

H6V1 Application of H6V2 and H6V3

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.

Explanatory Information

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.

NSW H6V2

H6V2 Verification using a reference building

(1) Compliance with H6P1 is verified when a proposed building—

(a) compared to a *reference building*, using a calculation method other than *house energy rating software*, has—

(i) in *climate zone* 1, a *cooling load* equal to or less than that of the *reference building*; or

(ii) in *climate zone* 8, a *heating load* equal to or less than that of the *reference building*; or

(iii) in *climate zones* 2, 3, 4, 5, 6 and 7, 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 breaks, clauses 13.2.3(7) and 13.2.5(5) of the ABCB Housing Provisions; and

(iii) for floor edge insulation, clauses 13.2.6(4), 13.2.6(6) and 13.2.6(7) of the ABCB Housing Provisions; and

(iv) for building sealing, Part 13.4 of the ABCB Housing Provisions or H6V3.

(2) The *reference building* must comply with the *Deemed-to-Satisfy Provisions* in Parts 13.2, 13.3 and 13.5 of the ABCB Housing Provisions.

(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 *glazing*; 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

(l) floor coverings; and

(m) ventilation; and

(n) function and use of the building and spaces, including zoning and hours of occupation; and

(o) operating schedules for heating and cooling in Table H6V2a; and

(p) cooling thermostat settings of—

(i) for bedrooms, 24°C; and

(ii) for *habitable rooms* other than bedrooms—

(A) in *climate zones* 1, 2, 3 and 4, 27°C; and

(B) In *climate zones* 5, 6, 7 and 8, 26°C; and

(q) heating thermostat setting of 20°C for all *habitable rooms*; and

(r) occupancy in Table H6V2b, with —

(i) heat gains due to occupants of—

(A) 75 W per person in bedrooms; and

(B) 105 W per person in *habitable rooms* other than bedrooms; and

(ii) occupancy schedules in Table H6V2c; and

(s) internal heat gains—

(i) from appliances, 450 W; and

(ii) from lighting, 4 W/m²; and

(iii) from cooking equipment, in Table H6V2b; and

(iv) using the operating schedules for lighting, cooking equipment and appliances, in Table H6V2d; and

(t) air infiltration rate—

(i) of 0.75 air changes per hour; or

(ii) equal to the intended building air change rate at 50 Pa, divided by 20, where—

(A) an intended building air change rate at 50 Pa is specified; and

(B) additional building sealing provisions to Part 13.4 of the ABCB Housing Provisions are specified; and

(C) building sealing is verified using H6V3.

(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) *glazing* 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 H6V2a: Heating and cooling schedules

Hour ending at	*Habitable rooms* other than bedrooms	Bedrooms
1:00	OFF	ON
2:00	OFF	ON
3:00	OFF	ON
4:00	OFF	ON
5:00	OFF	ON
6:00	OFF	ON
7:00	ON	ON
8:00	ON	ON
9:00	ON	ON
10:00	ON	OFF
11:00	ON	OFF
12:00	ON	OFF
13:00	ON	OFF

Hour ending at	*Habitable rooms* other than bedrooms	Bedrooms
14:00	ON	OFF
15:00	ON	OFF
16:00	ON	OFF
17:00	ON	OFF
18:00	ON	OFF
19:00	ON	ON
20:00	ON	ON
21:00	ON	ON
22:00	ON	ON
23:00	ON	ON
0:00	OFF	ON

Table H6V2b: Occupancy and cooking equipment loads

Floor area of *habitable rooms* (m²)	Occupancy (m²/occupant)	Cooking equipment load (W/m² of kitchen area)
100	41.2	36.2
125	44.3	34.7
150	47.8	28.9
175	51.7	24.8
200	55.8	25.3
225	60.0	22.5
250	64.4	20.2
275	68.9	18.4
300	73.3	16.9
325	77.5	15.6
350	81.6	14.5
375	85.4	13.5
400	89.0	12.7

Table H6V2c: Occupancy schedules

Hour ending at	Weekday occupancy in *habitable rooms* other than bedrooms	Weekend occupancy in *habitable rooms* other than bedrooms	Weekday and weekend bedroom occupancy
1:00	0%	0%	100%
2:00	0%	0%	100%
3:00	0%	0%	100%
4:00	0%	0%	100%
5:00	0%	0%	100%
6:00	0%	0%	100%
7:00	30%	30%	50%
8:00	30%	30%	50%
9:00	100%	30%	50%
10:00	100%	100%	0%
11:00	50%	100%	0%

Hour ending at	Weekday occupancy in *habitable rooms* other than bedrooms	Weekend occupancy in *habitable rooms* other than bedrooms	Weekday and weekend bedroom occupancy
12:00	50%	100%	0%
13:00	50%	100%	0%
14:00	50%	50%	0%
15:00	50%	50%	0%
16:00	50%	50%	0%
17:00	100%	50%	0%
18:00	100%	50%	0%
19:00	100%	100%	50%
20:00	100%	100%	50%
21:00	100%	100%	50%
22:00	30%	100%	100%
23:00	30%	30%	100%
0:00	0%	0%	100%

Table H6V2d: Lighting, cooking and appliance schedules

Hour ending at	Lighting	Cooking	Appliances
1:00	0%	0%	45%
2:00	0%	0%	40%
3:00	0%	0%	40%
4:00	0%	0%	40%
5:00	0%	0%	40%
6:00	0%	0%	40%
7:00	10%	5%	50%
8:00	10%	10%	70%
9:00	5%	10%	55%
10:00	0%	15%	50%
11:00	0%	15%	50%
12:00	0%	15%	50%
13:00	0%	20%	50%
14:00	0%	20%	50%
15:00	0%	20%	50%
16:00	0%	20%	50%
17:00	0%	25%	75%
18:00	20%	40%	95%
19:00	30%	80%	80%
20:00	35%	80%	70%
21:00	30%	40%	70%
22:00	25%	20%	65%
23:00	15%	10%	55%
0:00	0%	5%	55%

H6V3 Verification of building envelope sealing

(1) Compliance with H6P1 is verified for building *envelope* sealing when a building *envelope* is sealed at an air permeability of not more than 10 $m^3/hr.m^2$ at 50 Pa reference pressure when tested in accordance with AS/NZS ISO 9972 Method 1.

(2) Where an air permeability of not more than 5 $m^3/hr.m^2$ at 50 Pa reference pressure is achieved—

(a) a mechanical ventilation system must be provided that—

(i) can be manually overridden; and

(ii) provides outdoor air, either—

(A) continuously; or

(B) intermittently, where the system has controls that enable operation for not less than 25 percent of each 4 hour segment; and

(iii) provides a flow rate not less than that achieved with the following formula: $Q = (0.05 \times A + 3.5 \times (N + 1))/p$, where—

(A) Q = the required air flow rate (L/s); and

(B) A = the total floor area of the building (m^2); and

(C) N = the number of bedrooms in the building; and

(D) p = the fraction of time within each 4 hour segment that the system is operational; and

(b) any space with a solid-fuel burning combustion appliance must be ventilated with permanent openings directly to outside with a free area of not less than half of the cross-sectional area of the appliance's flue; and

(c) any space with a gas-fuelled combustion appliance must be ventilated in accordance with—

(i) clause 6.4 of AS/NZS 5601.1; and

(ii) clause 6.4.5 of AS/NZS 5601.1.

(3) For the purposes of (2)(c), the volume of the space is considered to be 1 m^3 for determining ventilation requirements.

Explanatory Information

The intent is that 10 $m^3/hr.m^2$ at 50 Pa is broadly equivalent to 10 air changes per hour at 50 Pa when applied to homes.

Deemed-to-Satisfy Provisions

H6D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* H6P1 and H6P2 are satisfied by complying with H6D2.

(2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3) as applicable.

VIC H6D2

H6D2 Application of Part H6

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

(a) complying with S42C2, using *house energy rating software* and S42C4(1); or

(b) complying with the following parts of the ABCB Housing Provisions—

(i) Part 13.2, for the building *fabric*; and

(ii) Part 13.3, for the external *glazing* and shading; and

(iii) Part 13.4, for building sealing; and

(iv) Part 13.5, for ceiling fans.

(2) *Performance Requirement* H6P2 for the energy usage of the building is satisfied by—

(a) complying with S42C3 using *house energy rating software* and S42C4(2); or

(b) complying with Parts 13.6 and 13.7 of the ABCB Housing Provisions for a building with a total floor area not greater than 500 m².

Explanatory Information

There are two Deemed-to-Satisfy pathways for complying with the energy efficiency *Performance Requirements*:

- Option 1 Energy Rating — applying Specification 42 to achieve the heating and cooling loads, net equivalent energy usage, and other energy saving features such as thermal breaks, compensation for a loss of ceiling insulation, floor edge insulation and building sealing.
- Option 2 Elemental Provisions — using Section 13 of the ABCB Housing Provisions to satisfy all the detailed provisions including building *fabric*, external *glazing*, building sealing, ceiling fans, whole-of-home energy usage and *services*.

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 *designated bushfire prone areas*.

Objectives

H7O1 Objective

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

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

A heating appliance using controlled combustion located in a building is 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.

H7F5 Private bushfire shelters

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.

SA H7P1(2)

Applications

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

TAS H7P2

H7P2 Swimming pool reticulation systems

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

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.

Explanatory Information

H7P3 is not intended to apply to inserted fireplaces fuelled by gas. 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/NZS 5601 – Gas installations.

H7P4 Buildings in alpine areas

(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

A Class 1 building, or a Class 10a building or deck associated with a Class 1 building. that is constructed in a *designated bushfire prone area* must be designed and constructed to—

(a) reduce the risk of ignition from a *design bushfire* with an annual exceedance probability not more 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*.

H7P6 Private bushfire shelters

A *private bushfire shelter* must be designed and constructed to provide a tenable environment for occupants during a *design bushfire* with an annual probability of exceedance not more than 1:200 years, 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

(l) 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

H7V1 Combustion appliances

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, it needs to be demonstrated 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

(1) 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 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 is not included under (3).

Deemed-to-Satisfy Provisions

H7D1 Deemed-to-Satisfy provisions

(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 A2G4(3) 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)

WA 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—

(a) AS 1926.1, except 'This clause shall not apply to boundary barriers.' in clause 2.3.1 is replaced with 'This cause shall apply to boundary barriers.'; and

(b) AS 1926.2.

TAS H7D2(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)

SA H7D2(4)

SA H7D2(5)

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 NCC, 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 13.7 of the ABCB Housing Provisions contains requirements for *swimming pool* and spa pool heating and pumping. In specific circumstances, Part 13.7 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: Swimming pool drainage

Part C2 of NCC Volume Three and H2D2(2) set out the requirements for pumped discharge from *swimming pools*.

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

(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)

SA H7D4(3)

H7D5 Heating appliances, fireplaces, chimneys and flues

Performance Requirement H7P3 is satisfied for 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:

- Open fireplaces — where solid fuel such as timber or coals are burnt in an unenclosed compartment. The requirements in 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.
- Insert fireplaces — manufactured and assembled in factories and inserted into the openings of masonry fireplaces in a building. All insert fireplaces must be tested to AS/NZS 2918 and have closed fire compartments for the burning of solid fuels.

- 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.

The requirements of both H7D5(a) and Part 12.4 of the ABCB Housing Provisions 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 fuelled 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/NZS 5601 – Gas installations.

Part H8 Livable housing design

NSW Part H8

Introduction to this Part

This Part sets out 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.

Notes: Tasmania Part H8 Livable housing design

For Tasmania, refer to the Director's Determination regarding the application of Part H8 (Livable housing provisions) of the NCC—current version available at www.cbos.tas.gov.au.

Objectives

H8O1 Objective

The Objective of this Part is to ensure that housing is designed to meet the needs of the community, including older people and those with a mobility-related disability.

Applications

H8O1 only applies to a Class 1a building.

Functional Statements

H8F1 Livable housing design

A dwelling should be designed such that it is—

(a) easy to enter; and

(b) easy to navigate in and around; and

(c) capable of easy and cost effective adaptation; and

(d) responsive to the changing needs of occupants.

Explanatory Information

H8F1 only applies to a Class 1a building.

Performance Requirements

H8P1 Livable housing design

A Class 1a building must be provided with—

(a) a 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 on the ground or entrance level 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) a shower that facilitates independent access and use; and

(f) the walls of the *sanitary compartment* referred to in (d), the shower referred to in (e) and a bath (where installed, other than a freestanding bath) 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) step-free access cannot be provided from an appurtenant Class 10a garage or carport or a car parking space provided for the exclusive use of the occupants of the dwelling; and

(b) due to *site* conditions, there is no other suitable location on which to construct the access path.

Deemed-to-Satisfy Provisions

H8D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement* H8P1 is satisfied by complying with H8D2.

(2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3).

H8D2 Livable housing design

(1) A Class 1a dwelling must comply with the ABCB Standard for Livable Housing Design.

(2) Clause 1.1 of the ABCB Standard for Livable Housing Design need not be complied with if—

(a) step-free access via an appurtenant garage, carport or parking space in accordance with Clause 1.1(1)(b) or (c) is not provided; and

(b) one or more of the following conditions exist:

(i) The average slope of the ground on which the access path would be constructed exceeds a gradient of 1:14.

(ii) 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).

(iii) There is insufficient space available on the *allotment* on which to construct a step-free access path complying with Clause 1.1.

(iv) Subject to (3), the difference in level, measured vertically from the pedestrian entry at the allotment boundary or parking space to the floor level at the entrance door on the nearest floor containing *habitable rooms*, would necessitate construction of ramping that exceeds the length and gradient allowed under Clause

1.1(4).

(3) For the purposes of (2)(b)(iv), the difference in level must be measured from the floor level at the entrance door, or if there is an attached deck, balcony or the like that provides a step-free connection to the entrance door, from the lowest point of that deck, balcony or the like above the surface beneath,

(4) 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 step-free 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 including (but not limited to) the following:

- The slope of the land upon which the ramp would be constructed.
- 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 *allotment* is insufficient to accommodate a step-free access path. This may be due to the physical size of the *allotment*, or regulations outside of the NCC which limit the proportion of a *allotment* 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 or the other.

Specification 42 House energy rating software

S42C1 Scope

This Specification sets out requirements for satisfying H6P1 and H6P2 using *house energy rating software*.

S42C2 Heating and cooling loads

(1) A building must achieve an energy rating, including the separate heating and cooling load limits, using *house energy rating software*, of greater than or equal to—

(a) 7 stars; or

(b) for a building in *climate zones* 1 or 2, 6.5 stars if the building has an outdoor living area as described in (3) which is fully covered with an impervious roof having a *Total R-Value* greater than or equal to 1.5 (for downward heat flow); or

(c) for a building in *climate zones* 1 or 2, 6 stars if the building has an outdoor living area as described in (3) which—

(i) is fully covered with an impervious roof having a *Total R-Value* 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 m^2; 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 (3)(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)(c), the fan must—

(a) be permanently installed; and

(b) have a speed controller; and

(c) serve the whole room, with the floor area that a single fan serves not exceeding—

(i) 15 m^2 if it has a blade rotation diameter of less than 1200 mm; and

(ii) 25 m^2 if it has a blade rotation diameter of greater than or equal to 1200 mm.

Explanatory Information: Complying with S42C2(1)

- To comply with (1), the modelled energy loads of a building must not exceed three separate load limits, i.e.—
  (i) the total load limit corresponding to the applicable star rating; and
  (ii) the heating load limit; and

(iii) the cooling load limit.

- Information about building modelling using *house energy rating software* is available at www.nathers.gov.au.
- The ABCB Standard for NatHERS Heating and Cooling Load Limits can be accessed at www.abcb.gov.au.

Explanatory Information: Outdoor living areas

- 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.
- 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.
- 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.

S42C3 Net equivalent energy usage

A building must achieve a whole-of-home rating of not less than 60 using *house energy rating software*.

S42C4 Additional Deemed-to-Satisfy Provisions when using house energy rating software

(1) To comply with H6P1, in addition to S42C2, a building must comply with Section 13 of the ABCB Housing Provisions clauses—

(a) 13.2.2, for building *fabric* thermal insulation; and

(b) 13.2.3(7) and 13.2.5(5), for thermal breaks; and

(c) 13.2.3(5), for compensating for a loss of ceiling insulation, other than where the *house energy rating software* has compensated for a loss of ceiling insulation; and

(d) 13.2.6(4), 13.2.6(5)(a)(i), 13.2.6(5)(b)(i) and 13.2.6(6) for slab edge insulation; and

(e) Part 13.4, for building sealing.

(2) To comply with H6P2, in addition to S42C3, a building must comply with Part 13.7 of the ABCB Housing Provisions.

Specification 44 Calculation of heating load limit, cooling load limit and thermal energy load limit

S44C1 Scope

This Specification contains the method of calculating the *heating load* limit, *cooling load* limit and *thermal energy load* limit for compliance with J1P2 and H6P1.

S44C2 Heating load limit

The *heating load* limit of a space, measured in MJ/m^2.annum, is equal to the greater of—

(a) 4; and

(b) $((0.0044 \times HDH) - 5.9) \times F_H$, where—

(i) HDH = the total annual *heating degree hours* of the building location; and

(ii) F_H = the area adjustment factor for the *heating load* limit, determined in accordance with Table S44C2.

Table S44C2: Area adjustment factors for the heating load limit

Total area of *habitable rooms* (A_H)	Area adjustment factor (F_H)
≤ 50 m^2	1.37
> 50 m^2 to ≤ 350 m^2	$(5.11 \times 10^{-6}) A_H{}^2 - (3.82 \times 10^{-3}) A_H + 1.55$
> 350 m^2	0.84

Explanatory Information

Annual total *heating degree hours* for various locations may be found in Table S45C3a.

S44C3 Cooling load limit

(1) The *cooling load* limit of a space, measured in MJ/m^2.annum, is calculated in accordance with the following formula:

$$CLL = (5.4 + 0.00617 \times (CDH + 1.85DGH)) \times F_C$$

(2) In the formula at (1)—

(a) CLL = the *cooling load* limit (MJ/m^2.annum); and

(b) CDH = the total annual *cooling degree hours* of the building location; and

(c) DGH = the total annual *dehumidification gram hours* of the building location; and

(d) F_C = the area adjustment factor for the *cooling load* limit, determined in accordance with Table S44C3.

Table S44C3: Area adjustment factors for the cooling load limit

Total area of the *habitable rooms* (A_H)	Area adjustment factor (F_C)
≤ 50 m^2	1.34
> 50 m^2 and ≤ 200 m^2	$(1.29\times10^{-5})A_H{}^2-(5.55\times10^{-3})A_H+1.58$
> 200 m^2 and ≤ 1000 m^2	$(3.76\times10^{-7})A_H{}^2-(7.82\times10^{-4})A_H+1.12$
> 1000 m^2	0.71

Explanatory Information

Annual total *cooling degree hours* and *dehumidification gram hours* for various locations may be found in Table S45C3a.

S44C4 Thermal energy load limit

(1) The *thermal energy load* limit of a space, measured in MJ/m^2.annum, is calculated in accordance with the following formula:

$$TLL = \frac{19.3HLL + 22.6CLL - 8.4}{T_r + 10.74} - 15$$

(2) In the formula at (1)—

(a) TLL = the *thermal energy load* limit; and

(b) HLL = the *heating load* limit; and

(c) CLL = the *cooling load* limit; and

(d) T_r = the annual average *daily outdoor temperature range*.

Schedule 1 Definitions

Abbreviations

Symbols

Glossary

Abbreviations

Abbreviation	Definitions
ABCB	Australian Building Codes Board
AC	Alternating Current
ACC	Acrylic conformal coating
ACL	Acrylic latex
ACP	Aluminium Composite Panel
AIRAH	Australian Institute of Refrigeration, Air conditioning and Heating
ANSI	American National Standards Institute
AS	Australian Standard
ASET	Available Safe Egress Time
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BE	Fire blocks evacuation route
CAN	National Standard of Canada
CCT	Correlated Colour Temperature
CF	Challenging fire
CHF	Critical Heat Flux
CIBSE	Chartered Institution of Building Services Engineers
CRF	Critical Radiant Flux
CRI	Colour Rendering Index
CS	Fire starts in a concealed space
C_{SHGC}	Constant for solar heat gain
CSIRO	Commonwealth Scientific and Industrial Research Organisation
C_U	Constant for conductance
DC	Direct Current
DN	Diameter Nominal
FED	Fractional Effective Dose
FI	Fire brigade intervention
FRL	Fire Resistance Level
FZ	Flame Zone
GEMS	Greenhouse and Energy Minimum Standards
GRP	Glass fibre reinforced polyester
HDG	Hot dip galvanising
HRR	Heat Release Rate
HS	Horizontal fire spread
IS	Rapid fire spread involving internal surface linings
ISO	International Organisation for Standardisation
IZS	Inorganic zinc silicate
LED	Light-Emitting Diode

Abbreviation	Definitions
MEPS	Minimum Energy Performance Standards
NABERS	National Australian Built Environment Rating System
NASH	National Association of Steel-Framed Housing
NATA	National Association of Testing Authorities Australia
NatHERS	Nationwide House Energy Rating Scheme
NCC	National Construction Code
NSF	National Sanitation Foundation
PBDB	Performance-based design brief
PCA	Plumbing Code of Australia
PMV	Predicted Mean Vote
ppm	parts per million
PUR	Polyurethane
PVC	Polyvinyl chloride
RC	Robustness check
RSET	Required Safe Egress Time
R_w	Weighted sound reduction index
SF	Smouldering fire
SHGC	Solar Heat Gain Coefficient
SL	Square mesh
SS	Structural stability and other property
STC	Sound Transmission Class
TM	Trench mesh
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
WC	Water closet

Symbols

Symbols	Definitions
°	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
µg/N.s	Micrograms per newton-second
CO_2-e/m^2.hr	Carbon dioxide equivalent per square metre hour
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	Permanent load
J	Joule(s)
J/kg.K	Joules per kilogram degree Kelvin
J/s.m^2	Joules per second square metre
K	Kelvin(s)
kg	kilogram(s)
kg/m	kilogram(s) per metre
kg/m^2	kilogram(s) per square metre
kg/m^3	kilogram(s) per cubic metre
kJ/m^2.hr	kilojoules per square metre hour
km	kilometre(s)
kPa	kilopascal(s)
kW/m^2	kilowatt(s) per square metre
$kW_{heating}$	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.m^2	litre(s) per second square metre
Lumens/W	Lumens per Watt
lx	lux
m	metre(s)
m/s	metre(s) per second
m^2	square metre(s)
m^2.K/W	square metre Kelvin(s) per Watt
m^3	cubic metre(s)
m^3/hour	cubic metre(s) per hour
m^3/s	cubic metre(s) per second
mcd/m^2	millicandelas per square metre

Symbols	Definitions
min	minute(s)
MJ/hour	Megajoules per hour
MJ/m^2.annum	Megajoules per square metre annum
mm	millimetre(s)
mm^2	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	Imposed load
s	second(s)
ULS	Ultimate limit state
V	Volt(s)
W	Watt(s)
Wp/m^2	Watt peak per metre squared output of a solar photovoltaic panel
$W_{input\ power}$	Watts of input power
Wr/$W_{input\ power}$	Watts of thermal refrigeration per watt of input power
W/kW_{rej}	Watts per kilowatt of heat rejected
$Wm^{-1}K^{-1}$	Watts per metre degree Kelvin
W/m^2	Watts per square metre
°south	degree south
%	percent
>	greater than
<	less than
≤	less than or equal to
≥	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 Australia (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*'.

Activity traits: For the purposes of—

(a) Volume One, the features of the activities that will be undertaken in a *habitable room* or space; or

(b) 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 lying horizontally; and
- resting — a person lying 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 Aisle

SA Agriculture

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.

Allotment: An area of land shown on an approved plan of subdivision for which a separate title is held or issued.

Alpine area: An area given in Figure 1 and in Table 1 for specific locations, and is—

(a) likely to be subject to significant snowfalls; and

(b) in New South Wales, the ACT or Victoria more than 1200 m above the Australian Height Datum; and

(c) in Tasmania more than 900 m above the Australian Height Datum.

Table 1: Alpine areas where snow loads are significant

Location	Map identifier
Kiandra (NSW)	1
Mount Kosciuszko (NSW)	2
Perisher Valley (NSW)	3
Thredbo (NSW)	4
Cabramurra (NSW)	5
Charlotte Pass Village (NSW)	6
Diggers Creek (NSW)	7
Guthega Village (NSW)	8
Mount Blue Cow (NSW)	9
Mount Selwyn (NSW)	10
Perisher Range (NSW)	11
Rules Point (NSW)	12
Sawpit Creek (NSW)	13
Smiggin Holes (NSW)	14
Smiggin Range (NSW)	15
Three Mile Dam (NSW)	16
Wilsons Valley (NSW)	17
Falls Creek (Vic.), including Summit Area, Sun Valley and Village Bowl	18
Mount Baw Baw (Vic.)	19
Mount Buffalo (Vic.), including Chalet, Dingo Dell and Tatra	20
Mount Buller (Vic.), including Baldy and Village	21
Mount Hotham (Vic.), including Davenport and Village Centre	22
Dinner Plain (Vic.)	23
Lake Mountain (Vic.)	24
Mount Stirling (Vic.)	25
Ben Lomond Ski Field (Tas.)	26
Cradle Valley (Tas.)	27
Great Lake Area (Tas.)	28
Mount Field Ski Field (Tas.)	29

Figure 1: **Alpine areas**

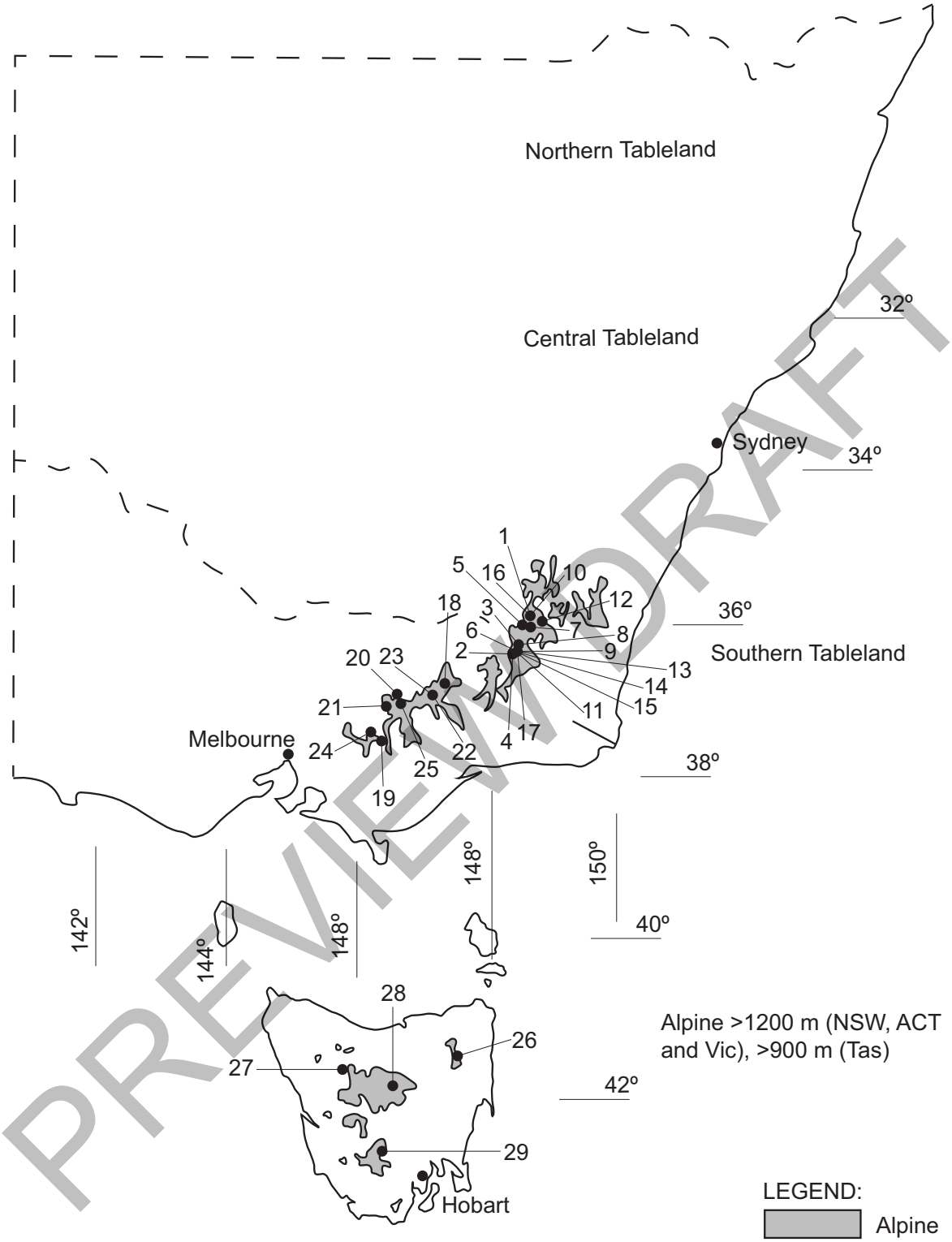


Figure Notes

This map is approximate only and altitude above Australian Height Datum must be used to determine whether the building falls into an *alpine area* region.

Explanatory Information

Alpine areas are located in New South Wales, Victoria and Tasmania.

Alpine areas are areas 1200 m or more above Australian Height Datum (AHD) for New South Wales, Australian Capital Territory and Victoria, and 900 m or more above AHD for Tasmania, as shown in Figure 1.

Alpine areas are considered to receive significant snowfalls (snowfalls that result in an average snow accumulation on

the ground of 175 mm or greater). Regions in New South Wales, the Australian Capital Territory and Victoria between 600 – 1200 m AHD are considered to be sub-alpine areas and may receive significant snowfalls, however unlike alpine areas the snow is unlikely to accumulate.

It is recommended that the *appropriate authority* be consulted to determine whether the building is located in an alpine area. AS/NZS 1170.3 also contains further detail in the identification of alpine areas and the altitude of the alpine regions of Australia.

In the Australian Capital Territory, Canberra is not designated as an alpine area as snow loads are not considered significant.

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 components: A component of the building that is not required to ensure the stability of the building or structure as a whole (that is, not part of the primary structure), but which must still withstand all actions.

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*.

Assumed cooling thermostat set point: The cooling thermostat set point used to calculate *cooling degree hours*, and equal to $17.8 + 0.31T_m$, where T_m is the mean January outdoor air temperature measured in degrees Celsius.

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*.

NSW Auditorium

Automatic: Designed to operate when activated by a heat, smoke or fire sensing device.

Available safe egress time (ASET)

(1) The time between ignition of a fire and the onset of untenable conditions in a specific part of a building.

(2) 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 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.

Building complexity criteria: Are used to determine the building complexity level of all or part of a building in accordance with Table 2, where building complexity criteria are as follows:

(a) Attributes — the building is designed or constructed with any of the following sub-criteria:

(i) An *effective height* of more than 25 m.

(ii) One or more *Performance Solutions* are used to demonstrate compliance with the *Performance*

Requirements relating to material and systems for structural safety.

(iii) One or more *Performance Solutions* are used to demonstrate compliance with the *Performance Requirements* relating to material and systems for fire safety.

(iv) Is located in an area prone to natural disaster or adverse environmental conditions.

(b) Class 2 — all or part of the building is Class 2 of three or more *storeys*.

(c) Occupant numbers — the building is to be occupied by more than 100 people determined in accordance with D2D18.

(d) Occupant characteristics — the building is to be occupied by more than 10 people who will require assistance to evacuate the building in an emergency.

(e) Importance Level — the building is determined to be Importance Level 4 or 5.

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.

Table 2: Building complexity level

Building complexity level	Criteria
Low	The building meets only one of the following *building complexity criteria*: (a) (Attributes), (b) (Class 2), (c) (Occupant numbers) or (d) (Occupant characteristics)
Medium	The building meets two of the following *building complexity criteria*: (a) (Attributes), (b) (Class 2), (c) (Occupant numbers) or (d) (Occupant characteristics)
High	The building meets three of the following *building complexity criteria*: (a) (Attributes), (b) (Class 2), (c) (Occupant numbers) or (d) (Occupant characteristics)
Very high	The building meets all of the following *building complexity criteria*: (a) (Attributes), (b) (Class 2), (c) (Occupant numbers) and (d) (Occupant characteristics); or (e) (Building Importance Level 4 or 5)

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.

SA Brush fence

SA Bulk grain storage facility

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 a void between the cladding and the supporting frame, the *primary insulation layer* or the outermost *control layer*.

Cavity wall: For the purposes of F3V1 and H2V1, a wall that incorporates a drained cavity.

SA Cell type silo

TAS Centre-based care class 4 facility

TAS Centre-based care class 5 facility

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.

VIC Children's service

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 specific part load value: A metric for the efficiency of a connected group of chillers that accounts for the Energy Efficiency Ratio of the chillers operating to meet the design load and specified part-load ratios.

Climate zone: An area defined in Figure 2 and in Table 3 for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

Table 3: Climate zones for thermal design

State	Location	*Climate zone*
ACT	Canberra	7
NSW	Albury	4
NSW	Armidale	7
NSW	Batemans Bay	6
NSW	Bathurst	7
NSW	Bega	6
NSW	Bellingen Shire - Dorrigo Plateau	7
NSW	Bellingen Shire - Valley & seaboard	2
NSW	Bourke	4
NSW	Broken Hill	4
NSW	Byron Bay	2
NSW	Cobar	4
NSW	Coffs Harbour	2
NSW	Dubbo	4
NSW	Goulburn	7
NSW	Grafton	2
NSW	Griffith	4
NSW	Ivanhoe	4
NSW	Lismore	2
NSW	Lord Howe Island	2
NSW	Moree	4
NSW	Newcastle	5
NSW	Nowra	6
NSW	Orange	7
NSW	Perisher - Smiggins	8
NSW	Port Macquarie	5
NSW	Sydney East	5
NSW	Sydney West	6
NSW	Tamworth	4
NSW	Thredbo	8

State	Location	*Climate zone*
NSW	Wagga Wagga	4
NSW	Williamtown	5
NSW	Wollongong	5
NSW	Yass	6
NT	Alice Springs	3
NT	Darwin	1
NT	Elliot	3
NT	Katherine	1
NT	Renner Springs	3
NT	Tennant Creek	3
QLD	Birdsville	3
QLD	Brisbane	2
QLD	Bundaberg	2
QLD	Cairns	1
QLD	Cooktown	1
QLD	Cunnamulla	3
QLD	Gladstone	2
QLD	Hervey Bay	2
QLD	Hughenden	3
QLD	Longreach	3
QLD	Mackay	2
QLD	Mount Isa	3
QLD	Normanton	1
QLD	Rockhampton	2
QLD	Roma	3
QLD	Southport	2
QLD	Toowoomba	5
QLD	Townsville	1
QLD	Warwick	5
QLD	Weipa	1
SA	Adelaide	5
SA	Bordertown	6
SA	Ceduna	5
SA	Cook	4
SA	Elliston	5
SA	Kingscote	6
SA	Leigh Creek	5
SA	Lobethal	6
SA	Loxton	5
SA	Naracoorte	6
SA	Marree	4
SA	Mount Gambier	6
SA	Murray Bridge	6
SA	Oodnadatta	4

State	Location	*Climate zone*
SA	Port Augusta	4
SA	Port Lincoln	5
SA	Renmark	5
SA	Tarcoola	4
SA	Victor Harbour	6
SA	Whyalla	4
TAS	Burnie	7
TAS	Bicheno	7
TAS	Deloraine	7
TAS	Devonport	7
TAS	Flinders Island	7
TAS	Hobart	7
TAS	Huonville	7
TAS	King Island	7
TAS	Launceston	7
TAS	New Norfolk	7
TAS	Oatlands	7
TAS	Orford	7
TAS	Rossarden	7
TAS	Smithton	7
TAS	St Marys	7
TAS	Zeehan	7
VIC	Anglesea	6
VIC	Ararat	7
VIC	Bairnsdale	6
VIC	Ballarat	7
VIC	Benalla	6
VIC	Bendigo	6
VIC	Bright	7
VIC	Colac	6
VIC	Dandenong	6
VIC	Echuca	4
VIC	Geelong	6
VIC	Hamilton	7
VIC	Horsham	6
VIC	Melbourne	6
VIC	Mildura	4
VIC	Portland	6
VIC	Sale	6
VIC	Shepparton	4
VIC	Swan Hill	4
VIC	Traralgon	6
VIC	Wangaratta	7
VIC	Warrnambool	6

State	Location	*Climate zone*
VIC	Wodonga	6
WA	Albany	6
WA	Balladonia	4
WA	Broome	1
WA	Bunbury	5
WA	Carnarvon	3
WA	Christmas Island	1
WA	Cocos Island	1
WA	Derby	1
WA	Esperance	5
WA	Exmouth	1
WA	Geraldton	5
WA	Halls Creek	3
WA	Kalgoorlie-Boulder	4
WA	Karratha	1
WA	Meekatharra	4
WA	Northam	4
WA	Pemberton	6
WA	Perth	5
WA	Port Hedland	1
WA	Wagin	4
WA	Wyndham	1

Figure 2: **Climate zones for thermal design**

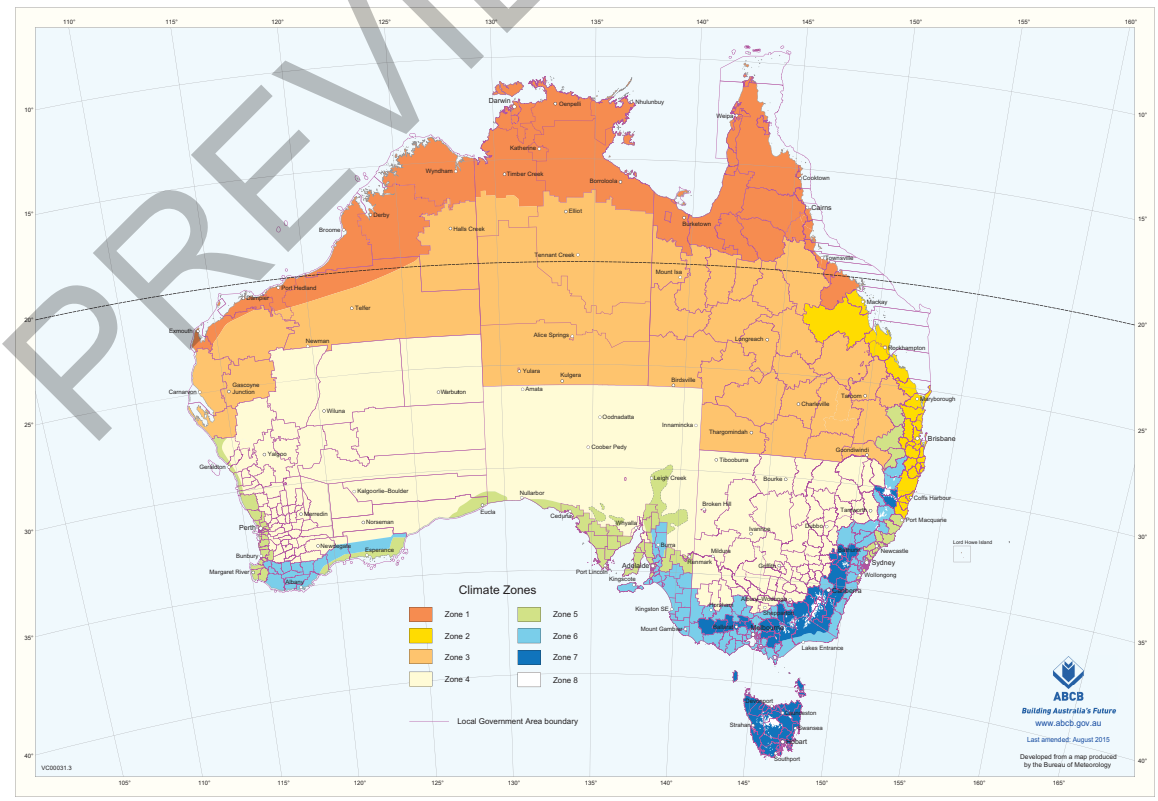


Figure Notes

(1) This map can be viewed in enlargeable form on the ABCB website at abcb.gov.au.

(2) 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.

(3) 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):

(a) Adelaide Hills Climate Zone Map.

(b) Barossa Council Climate Zone Map.

(c) Regional Council of Goyder Climate Zone Map.

(4) Locations in *climate zone* 8 are in *alpine areas*.

Collected: For the purposes of Section F in NCC Volume One, the interception of *water*—

(a) on the surface or sub-surface of a building element; or

(b) on an *allotment*; or

(c) on a *site*; or

(d) resulting from *sitework*.

Combustible: Applied to—

(a) a material — means combustible as determined by an *Accredited Testing Laboratory* in accordance with AS 1530.1; and

(b) construction or part of a building — means constructed wholly or in part of combustible materials.

Notes

Until the adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

VIC Combustible cladding product

Common wall: For the purposes of—

(a) Volume One, a wall that is common to adjoining buildings.

(b) Volume Two and the ABCB Housing Provisions, a wall that is common to adjoining buildings other than Class 1 buildings.

Condensation: The formation of liquid water 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.

Conditioned space: For the purposes of—

(a) 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*; or

(b) Volume Two and the ABCB Housing Provisions, 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.

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.

NSW Continental seating

Control layer: Any continuous layer that is installed for one or more of the purposes of air, water, vapour or thermal

control, including *pliable building membrane* and *sarking-type material* but excluding waterproofing membranes or the like complying with AS/NZS 4858.

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 degree hours: For any one hour when the mean outdoor air temperature is above the *assumed cooling thermostat set point*, the degree Celsius air temperature difference between the mean outdoor air temperature and the *assumed cooling thermostat set point*.

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/m^2) as determined by an *Accredited Testing Laboratory* in accordance with AS ISO 9239.1.

Notes

Until the adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

Cross-connection: Any actual or potential connection between a water supply and any *contaminant*.

NSW Cross-over

Curtain wall: A non-*loadbearing external wall* that is not a *panel wall*.

Daily outdoor temperature range: The difference between the maximum and minimum temperatures that occur in a day.

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.

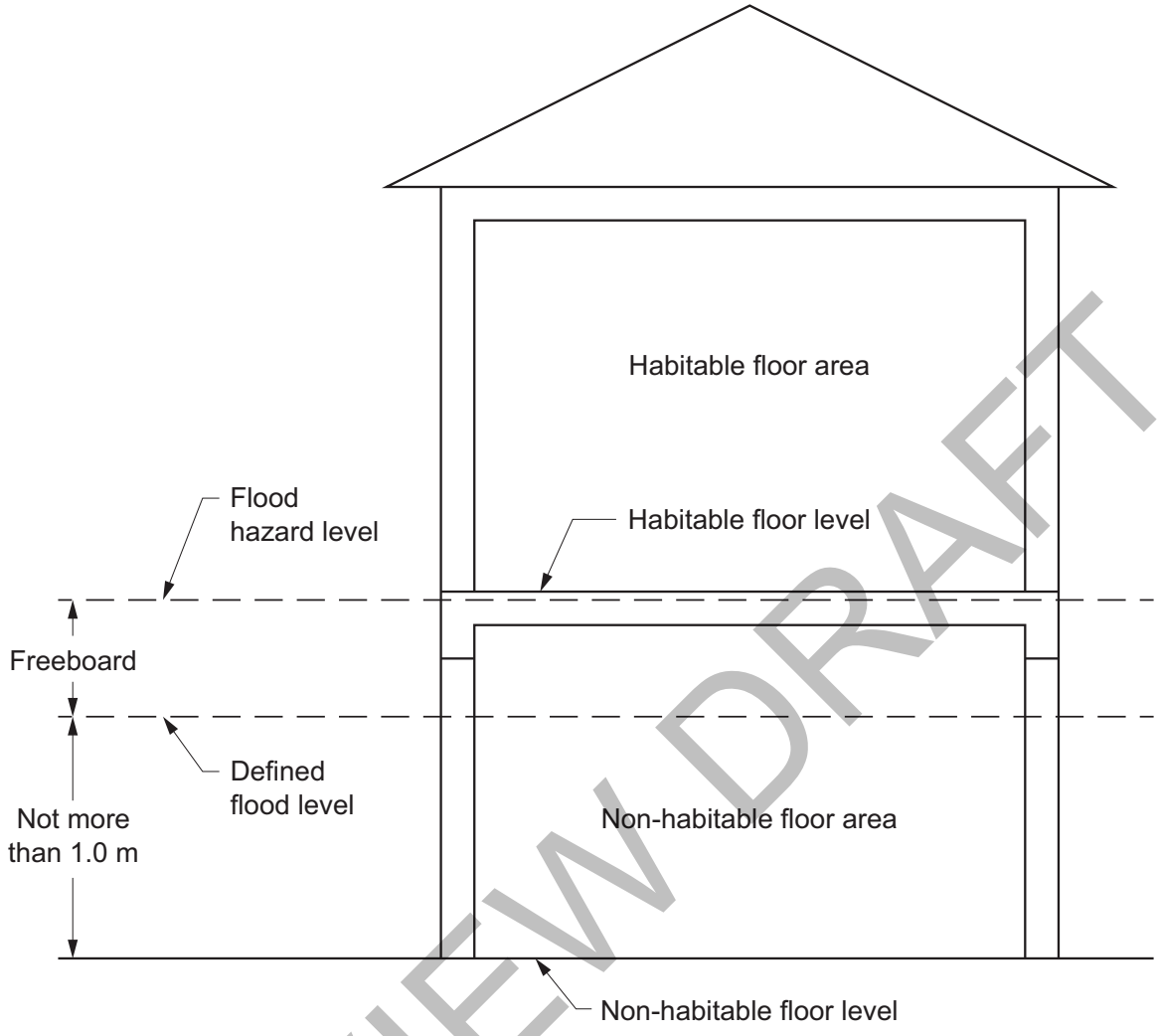
Deemed-to-Satisfy Provisions: Provisions which are deemed to satisfy the *Performance Requirements*.

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).

Figure 3: **Identification of defined flood level, flood hazard level and freeboard**



Dehumidification gram hours: For any one hour when the mean humidity is more than 15.7g/kg, the grams per kilogram of absolute humidity difference between the mean outdoor absolute humidity and 15.7g/kg.

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.

WA Design wind speed

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 4 for wind classes).

Table 4: **Wind classes**

Non-cyclonic Region A and B1	Cyclonic Region B2, C and D
N1, N2, N3	C1
N4, N5, N6 (these wind classes are covered in the ABCB Housing Provisions Part 2.2).	C2, C3, C4 (these wind classes are covered in the ABCB Housing Provisions Part 2.2).

Table Notes

(1) Wind classification map identifying wind regions is contained in ABCB Housing Provisions Part 2.2 (see Figure 2.2.3).

(2) Information on wind classes for particular areas may be available from the *appropriate authority*.

(3) "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.

NSW Development consent

Direct fix cladding wall: For the purposes of F3V1 and H2V1, means a wall with cladding attached directly to the wall framing without the use of a drained cavity.

Discontinuous construction: Means—

(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; and

(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; and

(iv) on-site *renewable energy* equipment; but

(b) excludes cooking facilities and portable appliances.

Drainage: Any part of—

(a) a sanitary drainage system, including any liquid trade waste drainage; or

(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.

Drainage system: A system that—

(a) conveys *water* by gravity, mechanical means, or evaporation to a point of discharge or evaporative surface; or

(b) channels *water* by pipes, overflows, and overland flow paths to a point of discharge.

Explanatory Information

The definition for 'drainage system' is used only for the purposes of Volume One Section F.

Drained: For the purposes of Section F in NCC Volume One, the removal to a *drainage system*, *water* that has been *collected* and *redirected*.

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.

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.

Energy value: The net cost to society including, but not limited to, costs to the building user, the environment and energy networks.

Engaged pier: A pier bonded to a masonry wall by course bonding of masonry units or by masonry ties.

NSW Entertainment venue

Envelope: For the purposes of—

(a) Section J and Part F8 in NCC 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) an internal non-*conditioned space* where the temperature is primarily determined by external ambient conditions and thermal loads are not addressed by the *air-conditioning* and ventilation *services*.

(b) Part H6 in NCC Volume Two and Section 10 and Section 13 of the ABCB 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*.

Exit: Means—

(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*; or

(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.

External wall: For the purposes of—

(a) Volume One, an outer wall of a building which is not a *common wall*; or

(b) 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*.

NSW Film

Finished ground level: 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; and

(f) the period of time post fire front subject to collapsing vegetation due to persistent combustion.

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—

(i) 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) *Critical radiant flux* and *smoke development rate*, determined in accordance with AS ISO 9239.1.

(b) *Smoke-Developed Index* and *Spread-of-Flame Index*, determined in accordance with AS/NZS 1530.3.

(c) *Group number*, *average specific extinction area* and *Smoke growth rate index* ($SMOGRA_{RC}$), determined in accordance with AS 5637.1.

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.

Fire load: 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.

Notes

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-protected steel: *Loadbearing wall* construction comprising hot rolled or cold formed steel members protected with a *fire-protective covering* that consists of—

(a) not less than 2 layers of 13 mm fire-protective grade plasterboard applied to each side of the wall; and

(b) additional *fire-protective covering* to that *required* by (a) where necessary to achieve the *FRL required* for the wall.

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.

Fire-resisting: For the purposes of—

(a) Volume One, applied to a building element, having an FRL appropriate for that element; or

(b) 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.

(d) The construction edge or perimeter of another building on the allotment which is not a Class 10 building and which has a use that constitutes a *fire load*.

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 an *Accredited Testing Laboratory* in accordance with AS 1530.2.

Notes

Until the adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

VIC Flashing

Flashing: A strip or sleeve of impervious material dressed, fitted or built-in to provide a barrier to water movement, or to divert the travel of water, or to cover a joint where water would otherwise penetrate to the interior of a building, and includes the following:

(a) Perimeter flashing: a flashing used at the floor-wall junction.

(b) Vertical flashing: a flashing used at wall junctions within *shower areas*.

Flashover: In relation to *fire hazard properties*, means a *heat release rate* of 1 MW.

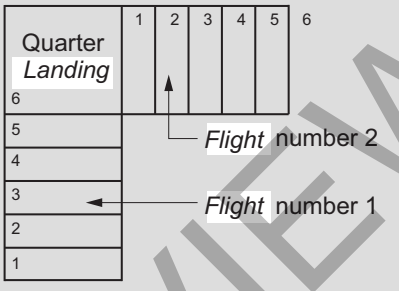
Flight: That part of a stair that has a continuous series of *risers*, including *risers* of *winders*, not interrupted by a *landing* or floor.

Explanatory Information

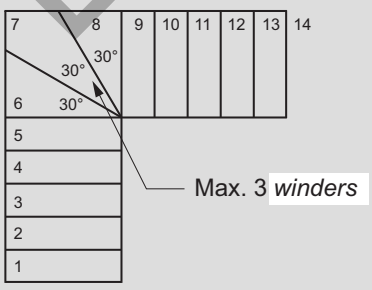
A *flight* is the part of a stair that has a continuous slope created by the nosing line of treads. The length of a *flight* is limited to restrict the distance a person could fall down a stair.

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 NCC Volume Two and the ABCB Housing Provisions not to be part of the *flight*.

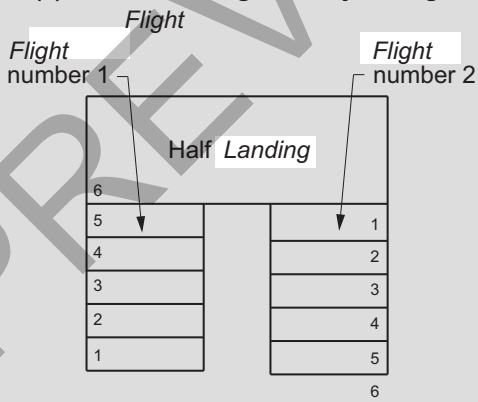
Figure 1 (explanatory): Identification of stair flights — Plan view



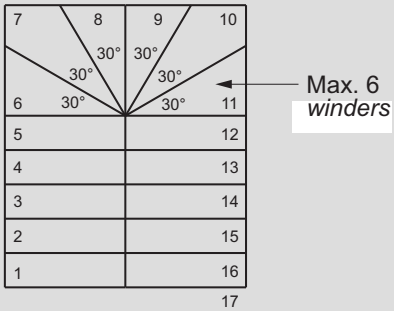
(a) Quarter landing stairway – 2 flights



(b) Continuous stairway – 1 flight (90° change in direction)



(c) Half landing stairway – 2 flights



(d) Continuous stairway – 1 flight (180° change in direction)

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).

Floor area: For the purposes of—

(1) Volume One—

(a) in relation to a building — the total area of all *storeys*; and

(b) in relation to a *storey* — the area of all floors of that *storey* measured over the enclosing walls, and includes—

(i) the area of a *mezzanine* within the *storey*, measured within the finished surfaces of any *external walls*; and

(ii) the area occupied by any *internal wall* or partitions, any cupboard, or other built-in furniture, fixture or fitting; and

(iii) 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

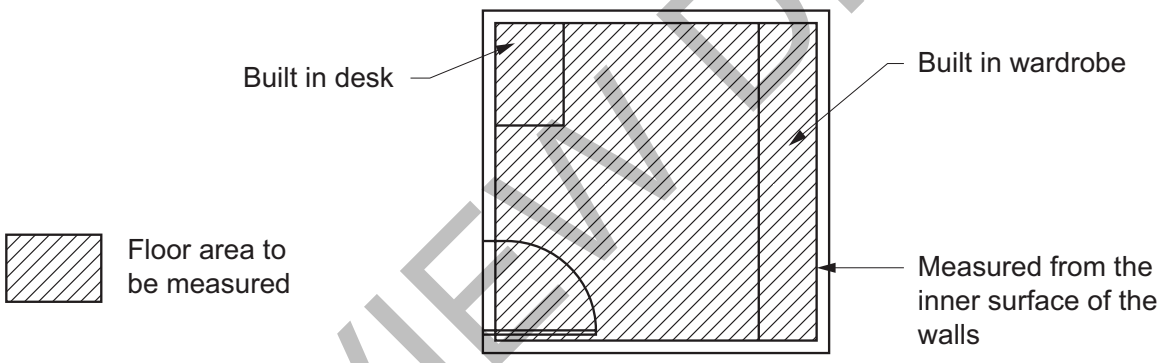
(c) in relation to a room — the area of the room measured within the internal finished surfaces of the walls, and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting; and

(d) in relation to a *fire compartment* — the total area of all floors within the *fire compartment* measured within the finished internal 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

(e) 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*.

(2) 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

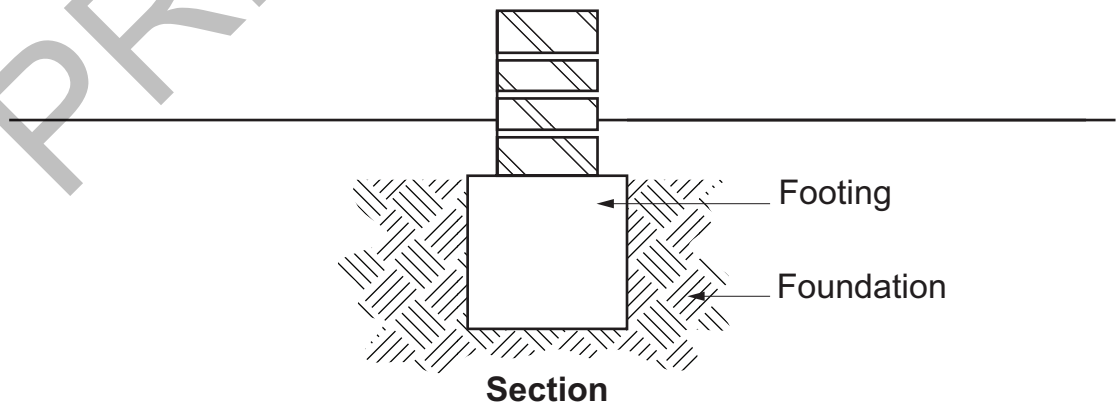


Floor waste: A grated inlet within a graded floor intended to drain the floor surface.

NSW Flying scenery

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.

NSW Garage top dwelling

Glazing: For the purposes of—

(a) Section J of Volume One, except for a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building—

(i) a transparent or translucent element and its supporting frame located in the *envelope*; and

(ii) includes a *window* other than a *roof light*; or

(b) Section J of NCC Volume One, for a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building—

(i) a translucent element and its supporting frame located in the external *fabric* of the building; and

(ii) includes a *window* other than a *roof light*; or

(c) Part H6 of NCC Volume Two and Section 13 of the ABCB 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 ABCB Housing Provisions).

Green Star: The building sustainability rating scheme managed by the Green Building Council of Australia.

NSW Grid

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: A level of potential toxicity that may cause contamination in a *drinking water* system, having a rating of *Low Hazard*, *Medium Hazard* or *High Hazard*, determined in accordance with NCC Volume Three.

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 degree hours: For any one hour when the mean outdoor air temperature is less than 15°C, the degrees Celsius temperature difference between the mean outdoor air temperature and 15°C.

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 4).

Hob: The upstand at the perimeter of a *shower area*.

Horizontal exit: A *required* doorway between 2 parts of a building separated from each other by a *fire wall*.

VIC Hotel offering shared accommodation

Hours of operation: The number of hours when the occupancy of the building is at least 20% of the peak occupancy.

House energy rating software: For the purposes of—

(a) Volume One, applied to J3D3 or J3D15 — software accredited under the Nationwide House Energy Rating Scheme (NatHERS); or—

(b) Volume Two—

(i) applied to H6V2 — software accredited or previously accredited under the Nationwide House Energy Rating Scheme (NatHERS) and the additional functionality provided in non-regulatory mode; and

(ii) applied to Specification 42 — software accredited under the Nationwide House Energy Rating Scheme (NatHERS).

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.

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/m^2.

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.

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.

NSW Information and education facility

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.

Internal wall: For the purposes of—

(a) Volume One, excludes a *common wall* or a party wall; or

(b) 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) Type A— all permanently open outlets and piping more than 150 mm above finished surface level, not subject to ponding or *backpressure* and not involving injection systems.

(b) Type B— irrigation systems in domestic or residential buildings with piping or outlets installed less than 150 mm above finished surface level and not involving injection systems.

(c) Type C— irrigation systems in other than domestic or residential buildings with piping outlets less than 150 mm above finished surface level and not involving injection systems.

(d) Type D— irrigation systems where fertilizers, herbicides, nematicides or the like are injected or siphoned into the system.

JASANZ: The Joint Accreditation System of Australia and New Zealand.

Kerb ramp: A ramp incorporated in a kerb.

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/m^2.

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 a footing, buttress, cross wall, beam, floor or braced roof structure) that effectively restrains a wall or pier at right angles to the face of the wall or pier.

Lead free: Where a plumbing product or material in contact with *drinking water* has a *weighted average* lead content of not more than 0.25%.

NSW Licensed premises

WA Licensed premises

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 and H2D3 of NCC Volume Two and Section 4 of the ABCB 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 rainfall intensity area: An area with a 5 minute rainfall intensity for an *annual exceedance probability* of 5% of not more than 125 mm/hour.

Explanatory Information

Rainfall intensity figures can be obtained from Table 7.4.3d in the ABCB 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.

Main water heater: The domestic hot water unit in a dwelling that is connected to at least one shower and the largest number of hot water outlets.

Main space conditioning: Either—

(a) the heating or cooling equipment that serves at least 70% of the *conditioned space* of a dwelling; or

(b) if no one heating or cooling equipment serves at least 70% of the *conditioned space* of the dwelling, the equipment that results in the highest net equivalent energy usage when calculated in accordance with J3D14(1)(a) of NCC Volume One or 13.6.2(1)(a) of the ABCB Housing Provisions.

Notes

(1) If a multi-split *air-conditioning* unit is installed, it is considered to be a single heating or cooling *service*.

(2) A series of separate heaters or coolers of the one type can be considered a single heater or cooler type with a performance level of that of the unit with the lowest efficiency.

Explanatory Information

The purpose of defining for main space conditioning is to provide criteria upon which the heating or cooling equipment should be selected when showing compliance with J3D14(1)(a) of NCC Volume One and 13.6.2(1)(a) of the ABCB Housing Provisions when more than one type and efficiency of equipment is present. In J3D14(1)(a) the formula that determines E_R allows the selection of only one heating or cooling system. This definition requires that if any one system serves at least 70% of the *floor area* that is heated or cooled it should be used as the basis of determining E_R. If, however, no one system serves at least 70% of the *floor area*, then the appliance that results in the highest net equivalent energy usage, when calculated in accordance with J3D14(1)(a)/13.6.2(1)(a), should be selected.

Massive timber: An element not less than 75 mm thick as measured in each direction formed from solid and laminated timber.

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.

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, that is not separated from that room by walls.

Explanatory Information

For the purposes of this provision, a solid balustrade does not constitute a wall.

Minimum Energy Performance Standards (MEPS): The Minimum Energy Performance Standards for equipment and appliances established through the Greenhouse and Energy Minimum Standards Act 2012.

NSW Minimum lateral clearance

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.

NABERS Energy: The National Australian Built Environment Rating Systems for energy efficiency, which is managed by the New South Wales Government.

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.

Non-combustible: Applied to—

(a) a material — means not deemed *combustible* as determined by an *Accredited Testing Laboratory* in accordance with AS 1530.1 — Combustibility Tests for Materials; or

(b) construction or part of a building — means constructed wholly of materials that are not deemed *combustible*.

Notes

Until the adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

Non-drinking water: Water which is not intended primarily for human consumption.

Occupant traits: For the purposes of—

(a) Volume One, the features, needs and profile of the occupants in a *habitable room* or space; or

(b) 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*.

Explanatory Information

For the purposes of this definition, a minor roof covering that is open sided, such as an awning provided at a doorway, does not prevent an area from being considered ‘open to the sky’.

VIC On-site wastewater management system

On-site wastewater management system: A system that receives and/or treats wastewater generated and discharges the resulting effluent to an *approved disposal system* or re-use 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 $^{1}/_{6}$ of the area of any other side; and

(b) the openings are not less than ½ 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 device: A device that provides relief to a water service, sanitary *plumbing* and *drainage* system, *rainwater service* 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 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.

TAS Permit Authority

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.

NSW Planning for Bush Fire Protection

Pliable building membrane: A water barrier as classified by AS 4200.1.

VIC Plumbing

Plumbing: Any water service plumbing or sanitary plumbing system.

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) For a cold water service, means the point where the cold water service connects to—

(i) the *Network Utility Operator's* water supply system; or

(ii) the point of isolation to an alternative water source where there is no *Network Utility Operator's* water supply available or is not utilised.

(b) For a *heated water* service, means the point where the water heater connects to the cold water service downstream of the isolation valve.

(c) For sanitary *drainage*, means the point where the on-site sanitary *drainage* system connects to—

(i) the *Network Utility Operator's* sewerage system; or

(ii) an *on-site wastewater management system*.

(d) For sanitary *plumbing*, means the point where the sanitary *plumbing* system connects to the sanitary *drainage* system.

(e) For a *rainwater service*, means the point where the *rainwater service*—

(i) connects to the point of isolation for the *rainwater storage*; or

(ii) draws water from the *rainwater storage*.

(f) For *stormwater* disposal, means the point where the on-site *stormwater drainage* system connects to—

(i) the *Network Utility Operator's stormwater* system; or

(ii) an approved on-site disposal system.

(a) 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.

(b) For *rainwater storage*, means the point of *rainwater* entry 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.

WA

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

Preformed 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

Primary building element: For the purposes of—

(a) 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; or

(b) Part 3.4 of the ABCB Housing Provisions, 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.

Primary insulation layer: The most interior insulation layer of a wall or roof construction.

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.

Private garage: For the purposes of—

(a) 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; or

(b) 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).

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.

NSW Projection suite

TAS Public

WA WA Public building

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: Naturally occurring *water* generated by a rain or storm event.

Rainwater service: A water service which distributes water from the isolation valve of the rainwater storage to the rainwater points of discharge for purposes such as for clothes washing, urinal and water closet flushing and external hose cocks.

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.

Explanatory Information

Generally this applies to alternative water sources not supplied by a *Network Utility Operator*. This does not include *rainwater storage* for non-drinking purposes.

SA Rainwater tank

Rapid roller door: A door that opens and closes at a speed of not less than 0.5 m/s.

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*.

Redirected: For the purposes of Section F in NCC Volume One, the changing of direction of *collected water* to a *drainage system*.

Reference building: For the purposes of—

(a) Volume One, a hypothetical building that is used to calculate the maximum allowable—

(i) *annual greenhouse gas emissions* for the common area of a Class 2 building or a Class 3 to 9 building; or

(ii) *heating load*, *cooling load* and *energy value* for a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building; or

(b) Volume Two, 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:

- Typical *R-Values* achieved by adding *reflective insulation* are given in the explanatory information accompanying Section 13 of the ABCB Housing Provisions. Information on specific products may be obtained from *reflective insulation* manufacturers.
- 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*: emittance + reflectance = 1.
- 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.

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.

VIC Residential care building (Vic)

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.

Rising damp: *Water* absorbed from the ground into a building element.

VIC Restricted children’s service

Rolled fill: Material placed in layers and compacted by repeated rolling by an excavator.

SA Roof catchment area

Roof light: For the purposes of Section J and Part F6 in NCC Volume One, Part H6 in NCC Volume Two, and Part 10.5 and Section 13 of the ABCB 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.

NSW Row

R-Value: The thermal resistance of a component calculated by dividing its thickness by its thermal conductivity, expressed in m^2.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).

Figure 6a: Identification of a sanitary compartment (diagram a)

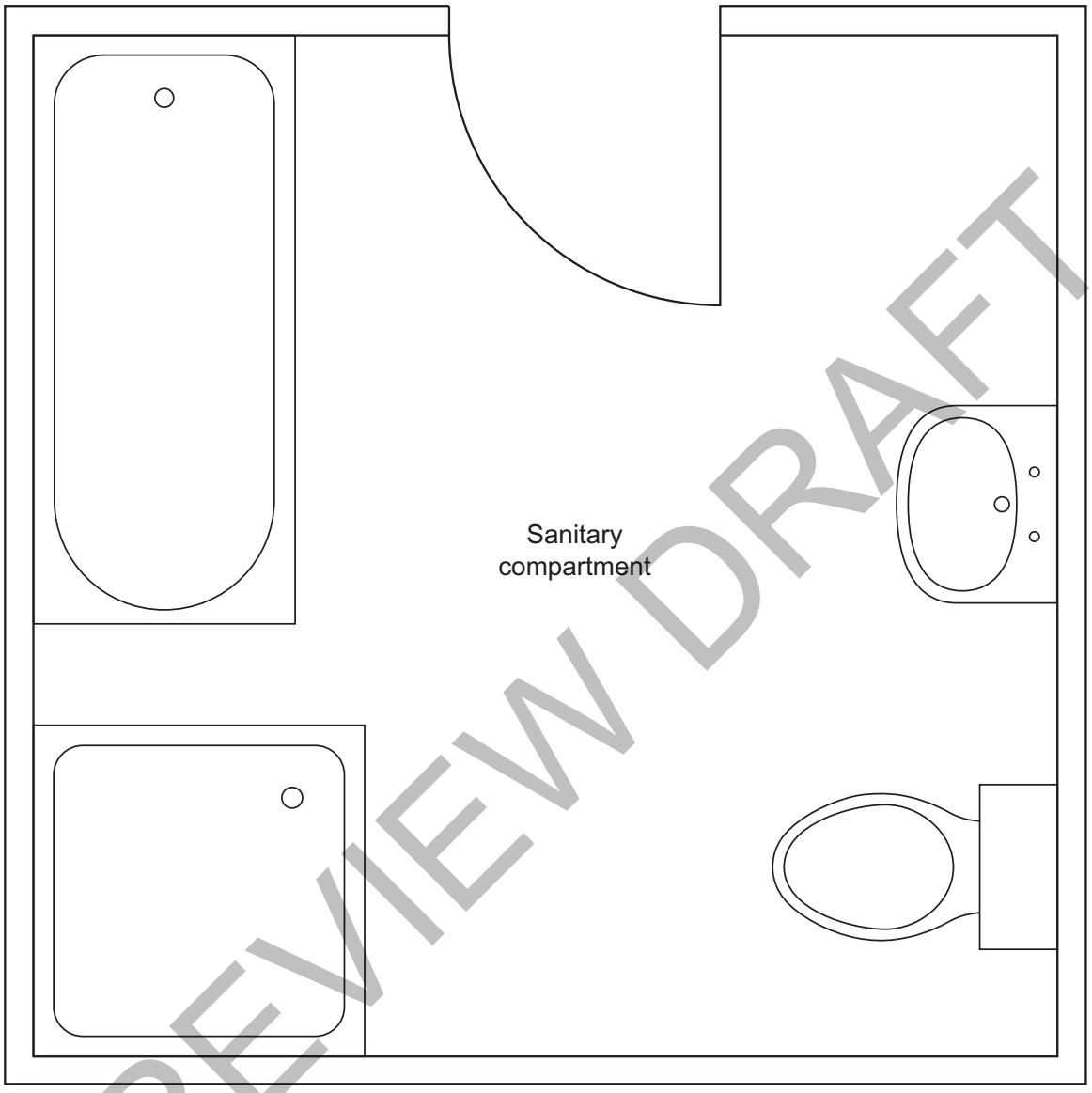
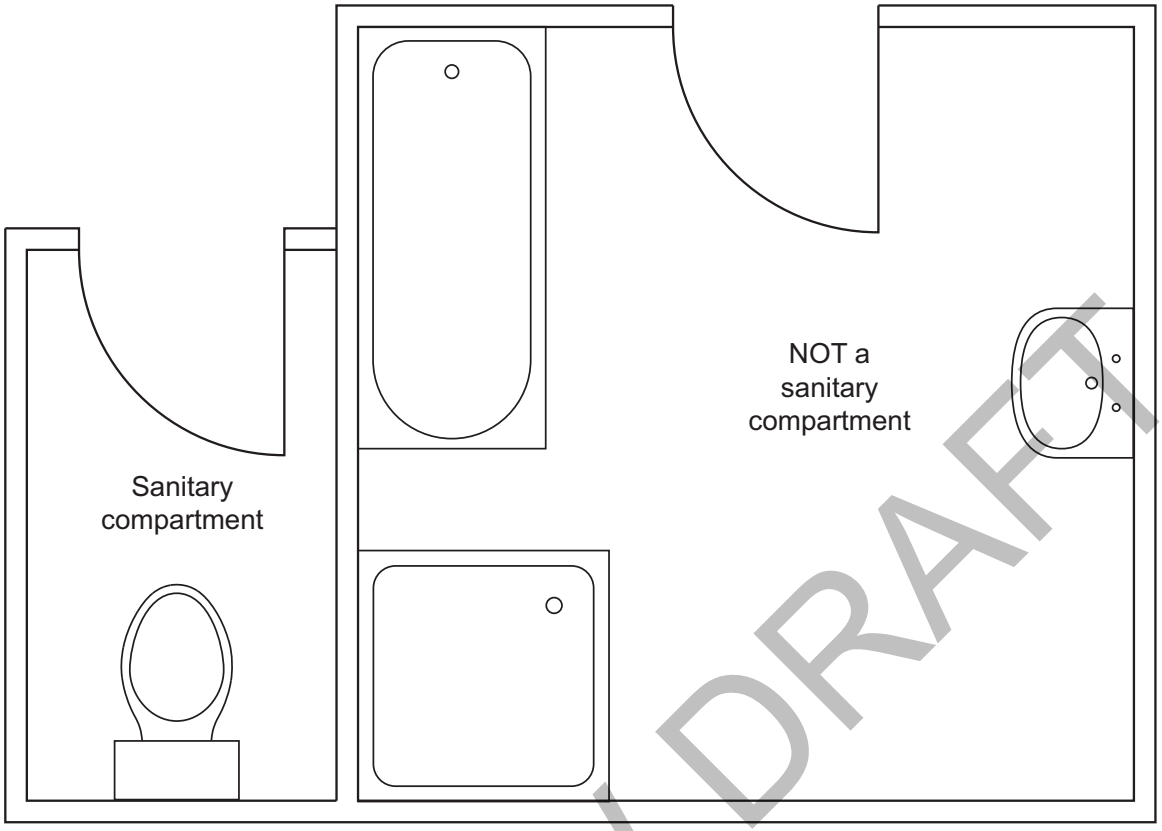


Figure 6b: Identification of a sanitary compartment (diagram b)



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.

TAS School age care facility

Screed: A layer of material (usually cement based) which sets in situ between a structural base and the finished floor material.

Self-closing: For the purposes of—

(a) Volume One, applied to a door, means equipped with a device which returns the door to the fully closed position immediately after each opening; or

(b) 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.

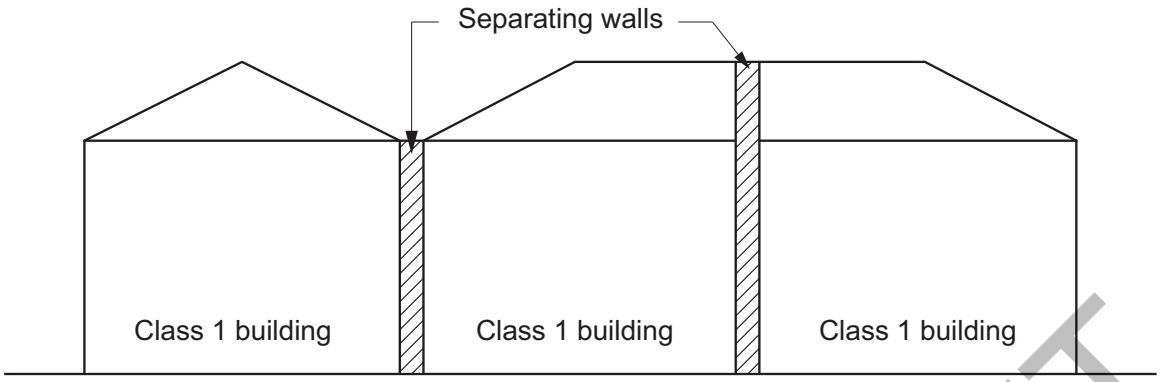
Self-draining: A *surface finish* allowing *water* to be conveyed by gravity from the finished surface level to the membrane on the top surface of the *structural substrate*.

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).

Figure 7: Separating wall



Elevation

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 ABCB Housing Provisions Parts 9.2 and 9.3).

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.

VIC Shared accommodation building

Shower area: The area affected by water from a shower, including a shower over a bath and for a shower area that is—

(a) Enclosed – the area enclosed by walls or screens including hinged or sliding doors that contain the spread of water to within that space; or

(b) Unenclosed – the area where, under normal use, water from the shower rose is not contained within the shower area.

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.

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.

NSW Small live music or arts venue

SA Small arts venue

Small-scale Technology Certificate: A certificate issued under the Commonwealth Government's Small-scale Renewable Energy Scheme.

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 an *Accredited Testing Laboratory* in accordance with AS/NZS 1530.3.

Notes

Until the adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

Smoke development rate: The development rate for smoke as determined by an *Accredited Testing Laboratory* testing flooring materials in accordance with AS ISO 9239.1.

Notes

Until the adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

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.

Solar admittance: The fraction of incident irradiance on a *wall-glazing construction* that adds heat to a building's space.

Solar Reflectance Index: The solar reflectance index calculated in accordance with ASTM E1980-11(2019).

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.

NSW Spa pool

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*.

NSW Special fire protection purpose

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 ABCB Housing Provisions).

Spread-of-Flame Index: The index number for spread of flame as determined by an *Accredited Testing Laboratory* in accordance with AS/NZS 1530.3.

Notes

Until the adoption of the next edition of the NCC determination need not be undertaken by an *Accredited Testing Laboratory*.

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).

Stack bonded pier: A pier where the overlap of a masonry unit is not more than 25% of the length of the masonry unit below.

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.

Step ramp: A ramp, other than a *kerb ramp*, not exceeding 190 mm in height.

Stormwater: *Water* accumulated or discharged as a result of a rain event.

Explanatory Information

The definition for 'stormwater' is used only for the purposes of Volume One Section F.

SA Storage shed

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.

Structural substrate: The surface of a *structural member* to be waterproofed as *required* by Part F1 or F2D2(2)(a).

Sub-surface water: Includes—

(a) all naturally occurring *water*, other than *surface water*, which is either groundwater or *water* which results from rainfall infiltration on the *site* or other infiltration from another *water* source; and

(b) *water* beneath the surface of a building element, other structure, or the ground.

Surface finish: For the purposes of Section F of Volume One, is a material or flooring system directly fixed to or supported above a *structural substrate*.

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*, including *water* that results from rainfall on the external *fabric* of the building and any other water that falls or flows onto the *fabric* from other sources.

Surface water seepage: *Water* escaping through the surface of the ground or a building element.

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.

NSW Temporary structure

TAS Temporary structure

Thermal comfort level: The level of thermal comfort in a building expressed as a *PMV* sensation scale.

Thermal energy load: The sum of the *heating load* and the *cooling load*.

Threshold ramp: A ramp located within or at a threshold.

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 m^2.K/W.

Total Solar Reflectance (TSR): The complement of the solar absorptance.

Total System Solar Heat Gain Coefficient (SHGC): For the purposes of—

(a) Volume One, the fraction of incident irradiance on a *wall-glazing construction* or a *roof light* that adds heat to a building's space; or

(b) Volume Two, the fraction of incident irradiance on *glazing* or a *roof light* that adds heat to a building's space.

Total System U-Value: The thermal transmittance of the composite element allowing for the effect of any airspaces, thermal bridging and associated surface resistances, expressed in $Wm^{-2}K^{-1}$.

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 F3V1 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 ABCB Housing Provisions, a glazed area that a person

could mistake for an open doorway or clearway and walk into the glazed panel.

Unprotected water service: Unprotected water service means that the water service may be contaminated from a surrounding hazard.

Unreinforced masonry: Masonry that is not reinforced.

Vapour permeance: The degree that water vapour is able to diffuse through a material, measured in µg/N.s and tested in accordance with the ASTM-E96 Procedure B – Water Method at 23°C 50% relative humidity.

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 ABCB 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*.

Volume: In relation to—

(a) 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; or

(b) a *fire compartment* — 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) if there is no *fire-resisting* floor at the base of the *fire compartment*, measured above the finished surface 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) 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*; or

(c) an *atrium* — the volume of the total space of the *atrium* measured within the finished surfaces of the bounding construction and if there is no bounding construction, within the *external walls*.

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: For the purposes of Section F of Volume One, includes—

(a) *surface water*; and

(b) *sub-surface water*; and

(c) *rainwater*; and

(d) *stormwater*; and

(e) *rising damp*; and

(f) *water services overflow*; and

(g) *surface water seepage*.

Water control layer: A *pliable building membrane* or the exterior cladding when no *pliable building membrane* is present.

Water services overflow: Water discharged from water service referred to in the Plumbing Code of Australia not primarily

drained by a sanitary drainage system or sanitary plumbing system.

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 water 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 water movement and will not degrade under conditions of water.

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 water in a floor or other horizontal surfaces.

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.

WA WELS

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 Explanatory Figure 1).

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.

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.

Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS ISO 717 Part 1	2024	Acoustics — Rating of sound insulation in buildings and of building elements — Airborne sound insulation. (See Note 1)	F7V1, F7V2, F7V3, F7V4, F7D3	H4V4	10.7.2	N/A
AS ISO 717 Part 2	2024	Acoustics — Rating of sound insulation in buildings and of building elements — Impact sound insulation	F7V1, F7V3, F7D4	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, H1D7	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, 11.3.4	N/A
AS/NZS 1170 Part 2	2021	Structural design actions — Wind actions (incorporating amendments 1 and 2)	B1D3, B1D4, Spec 4, F1V1, Schedule 1	H1D7, H2V1, Schedule 1	2.2.3, Schedule 1	Schedule 1
AS/NZS 1170 Part 3	2003	Structural design actions — Snow and ice actions (incorporating amendments 1 and 2)	B1D3	N/A	2.2.3	
AS 1170 Part 4	2024	Structural design actions — Earthquake actions in Australia	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	2021	Glass in buildings — Selection and installation	B1D4, Spec 11, Spec 12	H1D8	8.3.1	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 sand penetrometer test (incorporating amendment 1)	N/A	N/A	4.2.4	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS 1397	2021	Continuous hot-dip metallic coated steel sheet and strip — Coatings of zinc and zinc alloyed with aluminium and magnesium	N/A	N/A	7.2.2	N/A
AS 1428 Part 1	2021	Design for access and mobility — General requirements for access — New building work	D3D11, D3D16, D3D22, D4D2, D4D3, D4D4, D4D7, D4D10, D4D11, D4D13, Spec 16, E3D10, F4D5, G4D5, Schedule 1	Schedule 1	Schedule 1	Schedule 1, E1D2
AS 1428 Part 1	2001	Design for access and mobility — General requirements for access — New building work	I2D7, 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	I2D2	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	2024	Methods for fire tests on building materials, components and structures — Combustibility test for materials (ISO 1182:2020, NEQ) (See Note 2)	A5G6, Schedule 1	A5G6, Schedule 1	Schedule 1	A5G6, Schedule 1
AS 1530 Part 2	1993	Methods for fire tests on building materials, components and structures — Test for flammability of materials (incorporating amendment 1)	A5G6, Schedule 1	A5G6, Schedule 1	Schedule 1	A5G6, Schedule 1

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 1530 Part 3	1999	Methods for fire tests on building materials, components and structures — Simultaneous determination of ignitability, flame propagation, heat release and smoke release	A5G6, Schedule 1, Spec 3	A5G6, Schedule 1, Spec 3	Schedule 1	A5G6, Schedule 1, Spec 3
AS 1530 Part 4	2014	Methods for fire tests on building materials, components and structures — Fire resistance tests for elements of construction	C4D15, C4D16, Spec 9, Spec 10, Spec 13, Spec 14, Schedule 1, Spec 3	9.3.2, Schedule 1, Spec 3	Schedule 1	Schedule 1, Spec 3
AS 1530 Part 8.1	2018	Methods for fire tests on building materials, components and structures — Tests on elements of construction for buildings exposed to simulated bushfire attack — Radiant heat and small flaming sources (incorporating amendment 1) (See Note 3)	Spec 43	N/A	N/A	N/A
AS/NZS 1546 Part 1	2008	On-site domestic wastewater treatment units - Septic tanks	N/A	N/A	N/A	C3D2
AS/NZS 1546 Part 2	2008	On-site domestic wastewater treatment units - Waterless composting toilets	N/A	N/A	N/A	C3D3
AS 1546 Part 3	2017	On-site domestic wastewater treatment units - Secondary treatment systems (incorporating amendment 1)	N/A	N/A	N/A	C3D4
AS 1546 Part 4	2016	On-site domestic wastewater treatment units - Domestic greywater treatment systems	N/A	N/A	N/A	C3D5
AS/NZS 1547	2012	On-site domestic wastewater management	N/A	N/A	N/A	C3D6
AS 1562 Part 1	2018	Design and installation of sheet roof and wall cladding — Metal (See Note 4)	B1D4, F1D12, F1D15	H1D7	N/A	N/A
AS1562 Part 3	2006	Design and installation of sheet roof and wall cladding — Plastic	B1D4, F1D12	H1D7	N/A	N/A
AS 1657	2018	Fixed platforms, walkways, stairways and ladders — Design, construction and installation	D2D21, D2D22, D3D23, I1D6, I3D5	N/A	11.2.7, 11.3.3, 11.3.5	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

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
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, E2D6, E2D7, E2D8, E2D9, E2D11, E2D12, E2D13, E2D16, E2D17, E2D19, F6D12, Spec 21, Spec 31	N/A	N/A	N/A
AS 1668 Part 2	2024	The use of ventilation and air conditioning in buildings — Mechanical ventilation in buildings	E2D12, F6V1, F6D6, F6D11, F6D12, F8D4, J6D4	H4V3, H4D7	10.8.2	N/A
AS 1668 Part 4	2024	The use of ventilation and air conditioning in buildings — Natural ventilation of buildings	F6D6, F6D11	H4D7	N/A	N/A
AS 1670 Part 1	2024	Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire (See Note 5)	C4D6, C4D7, C4D8, C4D9, C4D12, D3D26, E2D3, E2D10, G4D7, Spec 12, Spec 20, Spec 23, Spec 31	N/A	9.5.1	N/A
AS 1670 Part 3	2024	Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire alarm monitoring (See Note 5)	Spec 20, Spec 23	N/A	N/A	N/A
AS 1670 Part 4	2024	Fire detection, warning, control and intercom systems — System design, installation and commissioning — Emergency warning and intercom systems (See Note 5)	E3V2, E4D9, Spec 31	N/A	N/A	N/A
AS/NZS 1680 Part 0	2009	Interior lighting — Safe movement	F6D5	N/A	10.5.2	N/A
AS 1684 Part 2	2021	Residential timber-framed construction — Non-cyclonic areas (incorporating amendment 1)	B1D4, B1D5, F1D11	H1D6	2.2.5, 4.2.13, 5.6.6, 6.2.1, 6.3.6, 7.5.2, 7.5.3, 7.5.4, 10.2.19, 10.2.20	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS 1684 Part 3	2021	Residential timber-framed construction — Cyclonic areas (incorporating amendment 1)	B1D4, B1D5, F1D11	H1D6	2.2.5, 4.2.13, 5.6.6, 6.2.1, 6.3.6, 7.5.2, 7.5.3, 7.5.4, 10.2.19, 10.2.20	N/A
AS 1684 Part 4	2024	Residential timber-framed construction — Simplified — Non-cyclonic areas	B1D4, B1D5, F6D6, F1D11	H1D6	2.2.5, 4.2.13, 5.6.6, 6.2.1, 7.5.2, 7.5.3, 7.5.4, 10.2.19, 10.2.20	N/A
AS 1720 Part 1	2010	Timber structures — Design methods (incorporating amendments 1, 2 and 3)	B1V1, B1D4	H1D6	4.2.13, 5.3.3	N/A
AS/NZS 1720 Part 4	2019	Timber structures — Fire resistance of timber elements	Spec 1	Spec 1	N/A	Spec 1
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)	E3D8, I2D6	N/A	N/A	N/A
AS/NZS 1859 Part 4	2018	Reconstituted wood based panels — Specifications — Wet process fibreboard	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 doorsets (incorporating amendment 1)	C4D7, Spec 12	N/A	N/A	N/A
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	2024	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

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS 2047	2014	Windows and external glazed doors in buildings (incorporating amendments 1 and 2) (See Note 6)	B1D4, F1V1, F1D14, J5D5	H1D8, H2V1	13.4.4	N/A
AS 2049	2002	Roof tiles (incorporating amendment 1)	F1D12	H1D7	N/A	N/A
AS 2050	2018	Installation of roof tiles	B1D4, F1D12	H1D7	7.3.2	N/A
AS 2118 Part 1	2017	Automatic fire sprinkler systems — General systems (incorporating amendments 1 and 2)	C1V3, 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	Spec 17, Spec 18	N/A	N/A	B4D3
AS 2118 Part 5	2008 (R 2020)	Automatic fire sprinkler systems - Home fire sprinkler systems	N/A	N/A	N/A	B4D3
AS 2118 Part 6	2024	Automatic fire sprinkler systems — Combined sprinkler and hydrant systems in multistorey buildings	E1D2, Spec 17	N/A	N/A	B4D3
AS 2159	2009	Piling — Design and installation (incorporating amendment 1)	B1D4	H1D12	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 2200	2006	Design charts for water supply and sewerage (incorporating amendment 1)	N/A	N/A	N/A	C2V4
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 (incorporating amendment 1)	E4D4, E4D8, Spec 25, I3D15	N/A	N/A	N/A
AS 2312 Part 1	2014	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Paint coatings	N/A	N/A	6.3.9	N/A
AS/NZS 2312 Part 2	2014	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Hot dip galvanizing	N/A	N/A	6.3.9	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 2327	2017	Composite structures — Composite steel-concrete construction in buildings (incorporating amendment 1)	B1D4, Spec 1	Spec 1	2.2.4	Spec 1
AS 2419 Part 1	2021	Fire hydrant installations — System design, installation and commissioning	C3D13, E1D2, Spec 18, I3D9	N/A	N/A	B4D4
AS 2441	2005	Installation of fire hose reels (incorporating amendment 1)	E1D3	N/A	N/A	B4D5
AS 2444	2001	Portable fire extinguishers and fire blankets — Selection and location	E1D3, 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 2699 Part 1	2020	Built-in components for masonry construction — Wall ties	C2D10	N/A	5.6.5	N/A
AS 2699 Part 3	2020	Built-in components for masonry construction — Lintels and shelf angles (durability requirements)	C2D10	N/A	5.6.7	N/A
AS 2870	2011	Residential slabs and footings	F1D7	H1D4, H1D5	3.4.2, 4.2.2, 4.2.6, 4.2.8, 4.2.11, 4.2.14, 4.2.15, 10.2.9	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)	F1D6	N/A	5.7.3, 7.5.6, 12.3.3	N/A
AS/NZS 2908 Part 1	2000	Cellulose-cement products — Corrugated sheets	B1D4	N/A	N/A	N/A
AS/NZS 2908 Part 2	2000	Cellulose-cement products — Flat sheets	F1D5, Schedule 1	Schedule 1	7.5.3, 7.5.4, 7.5.5, 10.2.9,10.2.10, Schedule 1	Schedule 1
AS/NZS 2918	2018	Domestic solid fuel burning appliances — Installation (See Note 9)	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	2021	Plumbing and drainage — Glossary of terms	A1G4	A1G4	N/A	A1G4

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 3500 Part 1	2018	Plumbing and drainage — Water services	N/A	N/A	N/A	B5D6
AS/NZS 3500 Part 1	2025	Plumbing and drainage — Water services	N/A	N/A	N/A	B1D3, B1D5, B1D6, B3D3, B5V1, B5D2, B5D3, B5D4, , B6D2, B6D3, B6D5, B6D6, B7D3, B7D6, B7D7
AS/NZS 3500 Part 2	2025	Plumbing and drainage — Sanitary plumbing and drainage	G1D5	H2D2	N/A	C1D3, C1V1, C1V2, C2V2, C2V4, C2D3, C2D4, C3D7
AS/NZS 3500 Part 3	2025	Plumbing and drainage — Stormwater drainage	F1D3	H2D2, H2D6	7.4.3	B7D4, B7D5
AS/NZS 3500 Part 4	2025	Plumbing and drainage — Heated water services	N/A	N/A	N/A	B2D2, B2D6, B2D7, B2D8, B2D9, B2D11
AS 3600	2018	Concrete structures (incorporating amendments 1 and 2)	B1V1, B1D4, Spec 1, F1D5	H1D4, Spec 1	3.4.2, 4.2.6, 4.2.10, 4.2.13, 5.3.3, 10.2.9	Spec 1
AS 3660 Part 1	2014	Termite management — New building work (incorporating amendment 1)	B1D4, F1D6	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	F4D10, F6D6	N/A	N/A	N/A
AS 3700	2018	Masonry structures	B1D4, F1D15, Spec 1, Spec 2	H1D5, H2D4, Spec 1, Spec 2	5.3.3, 5.4.2, 5.6.3, 6.3.6, 10.2.9, 10.2.19, 10.2.20, 12.4.3	Spec 1, Spec 2
AS 3740	2021	Waterproofing of domestic wet areas	F2D2	H4D2, H4D3	10.2.20	N/A
AS 3786	2023	Smoke alarms using scattered light, transmitted light or ionization (See Note 7)	Spec 20	N/A	9.5.1	N/A
AS/NZS 3823 Part 1.2	2012	Performance of electrical appliances — Air conditioners and heat pumps — Ducted air conditioners and air-to-air heat pumps — Testing and rating for performance	Spec 33, J6D12, Spec 48	N/A	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 3823 Part 1.4	2012	Performance of electrical appliances — Airconditioners and heat pumps	Spec 48	N/A	N/A	N/A
AS 3959	2018	Construction of buildings in bushfire-prone areas (incorporating amendments 1 and 2)	C2D14, F8D5, F8D6, G5D2, G5D3, Spec 43	H7D4	10.8.3, 10.8.4	B1D4, B2D10, B3D4, B6D7, C1D4, C2D5
AS/NZS 4020	2018	Testing of products for use in contact with drinking water (incorporating amendment 1)	A5G4	A5G4	N/A	A5G4
AS 4055	2024	Wind loads for housing	Schedule 1	H1D6, H1D8, Schedule 1	2.2.3, Schedule 1	Schedule 1
AS 4072 Part 1	2005	Components for the protection of openings in fire-resistant separating elements — Service penetrations and control joints (incorporating amendment 1)	C4D15, C4D16	N/A	9.3.2	N/A
AS 4100	2020	Steel structures	B1D4, Spec 1	H1D6, Spec 1	4.2.13, 5.6.7	Spec 1
AS 4200 Part 1	2017	Pliable building membranes and underlays — Materials (incorporating amendment 1)	F1D13, F8D3, Spec 36, Schedule 1	Schedule 1	7.3.4, 7.5.2, 7.5.8, 10.8.1, Schedule 1	Schedule 1
AS 4200 Part 2	2017	Pliable building membranes and underlays — Installation requirements (incorporating amendments 1 and 2)	F1D13, F8D3	N/A	10.8.1	N/A
AS/NZS 4234	2021	Heated water systems — Calculation of energy consumption	Spec 45	N/A	N/A	B2D2
AS 4254 Part 1	2021	Ductwork for air-handling systems in buildings — Flexible duct	Spec 7, J6D7	H3D2	13.7.4	N/A
AS 4254 Part 2	2012	Ductwork for air-handling systems in buildings — Rigid duct	Spec 7, J6D5, J6D7	N/A	13.7.4	N/A
AS/NZS 4284	2008	Testing of building facades	F1V1	H2V1	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 8)	D3D11, D3D14, D3D15. Spec 27	N/A	11.2.4	N/A
AS 4597	1999	Installation of roof slates and shingles (Non-interlocking type)	B1D4, F1D12	H1D7	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 4600	2018	Cold-formed steel structures	B1D4, Spec 1	H1D6, Spec 1	5.3.3, 6.3.6	Spec 1
AS 4654 Part 1	2012	Waterproofing membranes for external above-ground use — Materials	F1D7	H2D8	N/A	N/A
AS/NZS 4858	2004	Wet area membranes	N/A	N/A	10.2.8	N/A
AS 4654 Part 2	2012	Waterproofing membranes for external above-ground use — Design and installation	C2D14, F1D6, F1D5	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	5.6.3, 12.4.3	N/A
AS 4773 Part 2	2015	Masonry in small buildings — Construction (incorporating amendment 1)	N/A	H1D5, H2D4	5.6.3, 12.4.3	N/A
AS/NZS 4858	2004	Wet area membranes	N/A	N/A	10.2.8	N/A
AS/NZS 4859 Part 1	2018	Thermal insulation materials for buildings — General criteria and technical provisions (incorporating amendment 1)	J4D3, J6D6, J6D9	N/A	13.2.2, 13.7.2, 13.7.4	N/A
AS/NZS 4859 Part 2	2018	Thermal insulation materials for buildings — Design	J3D8, J4D3, Spec 36, Spec 37	N/A	13.2.5, 13.2.6	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	H1D7	N/A	N/A
AS 5146 Part 3	2018	Reinforced autoclaved aerated concrete — Construction	B1D4, F1D15	N/A	N/A	N/A
AS 5216	2021	Design of post-installed and cast-in fastenings in concrete	B1D4	N/A	2.2.4	N/A
AS 5346	2023	Exterior finish and insulation systems	N/A	H1D7	N/A	N/A
AS/NZS 5601 Part 1	2022	Gas installations — General installations (incorporating amendments 1 and 2)	J1V4	H6V3	N/A	N/A
AS 5637 Part 1	2015	Determination of fire hazard properties — Wall and ceiling linings	A5G6, Spec 7, Schedule 1	A5G6, Schedule 1	Schedule 1	A5G6, Schedule 1
AS/NZS ISO 5151	2023	Non-ducted air conditioners and heat pumps — Testing and rating for performance	Spec 48	N/A	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS ISO 9239 Part 1	2003	Reaction to fire tests for floorings — Determination of the burning behaviour using a radiant heat source	A5G6, Schedule 1	A5G6, Schedule 1	Schedule 1	A5G6, Schedule 1
AS/NZS ISO 9972	2015	Thermal performance of buildings — Determination of air permeability of buildings — Fan pressurization method	J1V4	H6V3	N/A	N/A
AS/NZS ISO 13256.1	2023	Water source heat pumps — Testing and rating for performance — Water-to-air and brine-to-air heat pumps	J6D12	N/A	N/A	N/A
AIRAH-DA07	2021	Criteria for moisture control design analysis in buildings	F8V1	H4V5	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 1	Schedule 1	Schedule 1	Schedule 1
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 Construction	Spec 6	N/A	N/A	N/A
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 E96	2016	Standard Test Methods for Water Vapor Transmission of Materials	Schedule 1	Schedule 1	10.8.1, Schedule 1	Schedule 1
ASTM-E1980-11	2019	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low Sloped Opaque Surfaces	Schedule 1	N/A	N/A	N/A
AHRI 460	2005	Performance rating of remote mechanical-draft air-cooled refrigerant condensers	J6D13	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, J6D10, J6D11, Spec 47	N/A	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
EN14511-2	2022	Air-conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electricity driven compressors — Test conditions	J6D10	N/A	N/A	N/A
EN14825	2022	Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling, commercial and process cooling — Testing and rating at part load conditions and calculation of seasonal performance	J6D10	N/A	N/A	N/A
ABCB	2022	Fire Safety Verification Method	C1V4	N/A	N/A	N/A
ABCB	2022	Housing Provisions Standard	N/A	Throughout	Throughout	N/A
ABCB	2025	Livable Housing Design Standard	G7D2	H4D3, H8D2	3.3.3, 11.2.3	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	Standard for NatHERS Heating and Cooling Load Limits, Version 2022.1	J3D3	Spec 42	N/A	N/A
ABCB	2022	Standard for Whole-of-Home Efficiency Factors	J3D14	N/A	13.6.2	N/A
CIBSE Guide A	2015	Environmental design	Spec 34, Spec 35, J4D3, J4D7	N/A	N/A	N/A
N/A	2002	Disability Standards for Accessible Public Transport	F4D12, I2D1	N/A	N/A	N/A
N/A	2010	Education and Care Services National Law Act (Vic)	Schedule 1	Schedule 1	Schedule 1	Schedule 1
European Union Commission Regulation 547/2012	2012	Eco-design requirements for water pumps	J6D8	N/A	N/A	N/A
European Union Commission Regulation 622/Annexx II, point 2	2012	Eco-design requirements for glandless standalone circulators and glandless circulators integrated in products	J6D8	N/A	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
FPAA101D	2021	Automatic Fire Sprinkler System Design and Installation — Drinking Water Supply	C1V3, C2D6, C2D13, C3D2, C3D7, C3D8, C4D6, C4D7, C4D8, C4D9, C4D12, Spec 5, Spec 7, D2D4, D2D17, D3D26, D3D30, E2D8, E2D9, E2D13, E2D14, E2D15, E2D16, E2D17, E2D19, E2D20, Spec 17, Spec 18, Spec 20, G3D1, G3D6, Spec 31, I1D2, Schedule 1	Schedule 1	Schedule 1	B4D3, Schedule 1, B1D5
FPAA101H	2018	Automatic Fire Sprinkler System Design and Installation — Hydrant Water Supply (incorporating amendment 1)	C1V3, C2D6, C2D13, C3D2, C3D7, C3D8, Spec 5, Spec 7, Spec 17, Spec 18, E2D8, E2D9, E2D13, E2D14, E2D15, E2D16, E2D17, E2D19, E2D20, Spec 20, G3D1, G3D6, Spec 31, I1D2	N/A	N/A	B4D3
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 1	Schedule 1	7.5.3, 7.5.4, 7.5.5, Schedule 1	Schedule 1

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
ISO 25745 Part 2	2015	Energy performance of lifts, escalators and moving walks: Energy calculation and classification for lifts (elevators)	J7D8	N/A	N/A	N/A
NASH Standard	2021	Steel Framed Construction in Bushfire Areas	N/A	H7D4	N/A	N/A
NASH Standard Part 1	2005	Residential and Low Rise Steel Framing — Design Criteria (incorporating amendments A, B and C)	B1D4	H1D6	N/A	N/A
NASH Standard Part 2	2014	Residential and Low Rise Steel Framing — Design Solutions (incorporating amendment A)	B1D4, B1D5, F1D11	H1D6	2.2.5, 6.2.1, 6.3.6, 7.5.2, 7.5.3, 7.5.4, 10.2.19, 10.2.20	N/A
NSF/ ANSI/ CAN 372	2024	Drinking Water System Components - Lead Content (See Note 10)	A5G4	A5G4	N/A	A5G4
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	N/A	A5G8
SA TS 5367	2021	Photoluminescent exit signage — Hybrid photoluminescent signage — Product specification, installation and operation	E4D8	N/A	N/A	N/A
TN 61	N/A	Cement Concrete and Aggregates Australia — Technical note — Articulated walling	N/A	H1D4	N/A	N/A
WMK NOD 2021/4	2021	WaterMark Notice of Direction 2021/4 Certification transition arrangements for Lead Free plumbing products	A5G4	A5G4	N/A	A5G4

Table Notes

(1) For AS ISO 717.1:

(a) Test reports based on AS 1276—1979 and issued prior to AS/NZS 1276.1—1999 being referenced in the NCC remain valid.

(b) The STC values in reports based on AS 1276—1979 must be considered to be equivalent to Rw values.

(c) 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.

(d) 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.

(e) Test reports based on ISO 717.1—2004 and issued prior to AS ISO 717.1:2024 being referenced in the NCC remain valid.

(f) Reports based on AS ISO 717.1 relating to tests carried out after the NCC reference date for AS ISO 717.1—2024 must relate to the amended Standard.

(2) For AS 1530.1, tests carried out based on AS 1530.1:1994 and issued prior to AS 1530.1:2024 being referenced in the NCC remain valid. Reports relating to tests carried out after the NCC reference date for AS 1530.1:2024 must relate to the revised Standard.

(3) For AS 1530.8.1, tests carried out based on AS 1530.8.1:2018 and issued prior to AS 1530.8.1:2018 Amendment 1 being referenced in the NCC remain valid. Reports relating to tests carried out after the NCC reference date for AS 1530.8.1:2018 Amendment 1 must relate to the revised Standard.

(4) 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.

(5) For AS 1670.1, AS 1670.3 and AS1670.4, notwithstanding A4G1(6), the 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.

(6) For AS 2047:

(a) Tests carried out under earlier editions of AS 2047 remain valid.

(b) 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.

(7) For AS 3786:

(a) Tests carried out under AS 3786—2014 Amendment 1 and Amendment 2 remain valid.

(b) Reports based on AS 3786—2014 Amendment 1 and issued prior to AS 3786—2014 Amendment 2 being referenced in the NCC remain valid.

(c) Reports based on AS 3786—2014 Amendment 2 and issued prior to AS 3786:2023 being referenced in the NCC remain valid.

(d) Reports based on AS 3786 relating to tests carried out after the NCC reference date for AS 3786:2023 must relate to the amended Standard.

(8) For AS 4586:

(a) 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.

(b) Test reports prepared after the NCC reference date of the 2013 edition of AS 4586 must be based on that version.

(c) 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 AS 4586.

(d) 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.

(e) 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.

(9) Tests carried out based on AS/NZS 2918—2001 and issued prior to AS/NZS 2918—2018 being referenced in the NCC remain valid. Reports relating to tests carried out after the NCC reference date for AS/NZS 2918 must relate to the revised Standard.

(10) For NSF/ANSI/CAN 372, tests carried out under the 2020 and 2022 editions of NSF/ANSI/CAN 372 remain valid.

NSW Table 1

NT Table 1

QLD Table 1

SA Table 1

TAS Table 1

VIC Table 1

WA Table 1

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