National Construction Code

Volume Three
Plumbing Code of Australia

Australian Building Codes Board

2025

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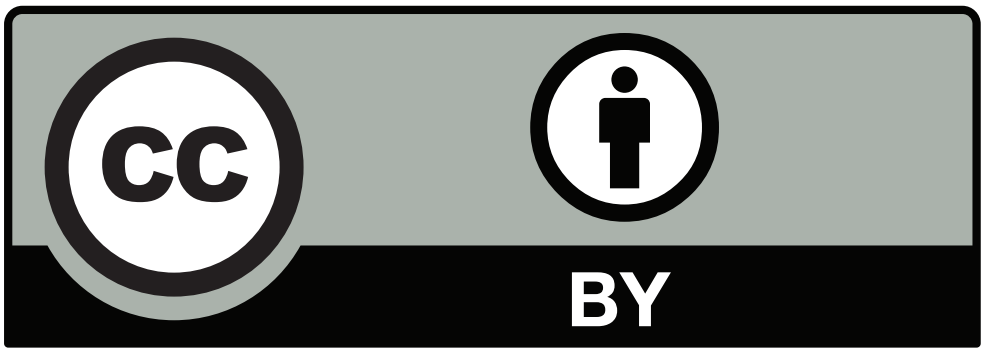

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Acknowledgment of Country

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.

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Introduction to the National Construction Code (NCC)

About the NCC

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

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

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

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

Format of the NCC

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

Components of the NCC

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

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

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

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

Each volume contains—

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

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

Legislative arrangements and the NCC

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

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

How to use the NCC

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

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

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

NCC clause numbering system

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

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

About NCC Volume Three

NCC Volume Three contains technical requirements for the design and construction for plumbing and drainage systems in new and existing buildings. Volume Three applies to these systems in all classes of buildings whenever plumbing work is carried out. Volume Three additionally applies to sites where water services are constructed independent of buildings.

Components of NCC Volume Three

NCC Volume Three contains the following Sections:

- Section A – Governing Requirements, common across the NCC
- Section B – Water services
- Section C – Sanitary plumbing and drainage systems
- Section D – Excessive noise
- Section E – Facilities
- Schedules –
  - Abbreviations and symbols
  - NCC defined terms
  - Referenced documents
  - State and Territory variations and additions

Section A contains the mandatory Governing Requirements for the NCC. Sections B to E contain mandatory Performance Requirements and the compliance options to satisfy compliance with the NCC.

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	Passive 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	F7D3; F7D4	-
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 and soil thermal performance	J4D3	-
40	Lighting and power control devices	J7D3; J7D4; J7D5; J7D6; J7D7	-
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	-

History of adoption of NCC Volume Three

The history of adoption of NCC Volume Three is outlined in Table 1.

Table 1: History of adoption of NCC Volume Three

Edition	Common wealth	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
NCC 2011	1 May 2011	1 May 2011	Not adopted	Not adopted	5 May 2011	11 Jul 2011	1 May 2011	1 May 2011	Not adopted
NCC 2012	1 May 2012	Not adopted	1 Jul 2012	3 Aug 2012	1 May 2012	1 May 2012	1 May 2012	1 May 2012	Not adopted
NCC 2013	1 May 2013	1 Sep 2013	1 May 2013	1 May 2013	1 May 2013	1 May 2013	1 May 2013	1 May 2013	Not adopted
NCC 2014	1 May 2014	1 May 2014	1 May 2014	1 May 2014	1 May 2014	1 May 2014	1 May 2014	1 May 2014	Not adopted1
NCC 2015	1 May 2015	1 May 2015	1 May 2015	1 May 2015	1 May 2015	1 May 2015	1 May 2015	1 May 2015	1 May 2015
NCC 2016	1 May 2016	1 May 2016	1 May 2016	1 May 2016	1 May 2016	1 May 2016	1 May 2016	1 May 2016	1 May 2016
NCC 2019	1 May 2019	1 Jun 2019	1 May 2019	1 May 2019	1 May 2019	1 May 2019	1 May 2019	1 May 2019	1 May 2019
NCC 2019 Amdt 1	1 Jul 2020	1 Jul 2020	1 Jul 2020	1 Jul 2020	1 Jul 2020	1 Jul 2020	1 Jul 2020	1 Jul 2020	1 Jul 2020
NCC 2022	1 May 2023	1 May 2023	1 May 2023	1 May 2023	1 May 2023	1 May 2023	1 May 2023	1 May 2023	1 May 2023
NCC 2022 Amdt 1	1 May 2025	1 May 2025	1 May 2025	1 May 2025	1 May 2025	1 May 2025	1 May 2025	1 May 2025	1 May 2025
NCC Amdt 2	29 Jul 2025	29 Jul 2025	29 Jul 2025	29 Jul 2025	29 Jul 2025	29 Jul 2025	29 Jul 2025	29 Jul 2025	29 Jul 2025
NCC 2025	1 May 2026	1 May 2026	1 May 2027	Not adopted	1 May 2027	1 May 2026	1 May 2026	1 May 2026	1 May 2026

List of amendments - NCC 2025 Volume Three

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 NCC Volume Three.

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

While the Australian Building Codes Board has attempted to include all major changes made from the previous edition of Volume Three, 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 Three

Reference	Changes and commentary
Section A—Governing requirements	
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 B1—Cold water services	
B1P2	Clarification amendments.
B1P3	Clarification amendments, including separation of isolation requirements into a new Performance Requirement, B1P4.
B1P4	Isolation requirements of B1P3 of NCC 2022 have been clarified and relocated to B1P4.
B1P5	Clarification amendments.
B1P7	Clarification amendments.
B1V1	A new Verification Method, Determination of velocity, has been inserted to provide an option for verification of compliance with B1P2.
B1D3(2)	A new sub-clause has been added to require that above-ground pipes and fittings in combined sprinkler and hydrant systems meet certain material requirements.
Part B2—Heated water services	

Reference	Changes and commentary
B2P3	Clarification amendments. Also, updated flow velocity for non-copper circulatory systems.
B2P4	Clarification amendments, including separation of isolation requirements into a new Performance Requirement, B2P5.
B2P5	Isolation requirements of B2P4 of NCC 2022 have been clarified and relocated to B2P5.
B2P9	Clarification amendments.
B2P11	Clarification amendments.
B2D2	Minimum Small-scale Technology Certificates values have been updated. Also, a limitation has been introduced to allow compliance with relevant Volume Two provisions in lieu of B2D2 in certain circumstances.
Part B3—Non-drinking water services	
B3P3	Clarification amendments.
B3P4	Clarification amendments, including separation of isolation requirements into a new Performance Requirement, B3P5.
B3P5	Isolation requirements of B3P4 of NCC 2022 have been clarified and relocated to B3P5.
B3P7	Clarification amendments.
B3P8	Clarification amendments.
Part B4—Fire-fighting water services	
B4P1	Clarification amendments.
B4P2	Clarification amendments, including separation of isolation requirements into a new Performance Requirement, B4P3.
B4P3	Isolation requirements of B4P2 of NCC 2022 have been clarified and relocated to B4P3.
B4P4	Clarification amendments.
B4D3(3)	A new sub-clause has been added to require that above-ground pipes and fittings in combined sprinkler and hydrant systems meet certain material requirements. Part B5—Cross-connection control
B5V1(2)	The circumstances that represent a hazard have been updated.
B5V1(3)	Amended to include general reference to AS/NZS 3500.1.
B5D3	The circumstances that represent a hazard have been updated. Amended to include general reference to AS/NZS 3500.1. A new exemption has been included for independent, non-drinking water services used for agriculture.
B5D4(b)	Amended to include general reference to AS/NZS 3500.1.
B5D7	Cross-connection hazard provisions contained in Specification 41 of NCC 2022 have been relocated to a new clause, B5D7.
Specification 41	The requirements of Specification 41 of NCC 2022 have been relocated to B5D7.
Part B6—Rainwater services	
B6P2	Clarification amendments.

Reference	Changes and commentary
B6P3	Clarification amendments.
B6P4	Clarification amendments, including separation of isolation requirements into a new Performance Requirement, B6P5.
B6P5	Isolation requirements of B6P4 of NCC 2022 have been clarified and relocated to B6P5.
B6P7	Clarification amendments.
B6D3	Clarification amendments.
B6D5	Isolation requirements of B6D5 of NCC 2022 have been relocated to B6D6.
B6D6	New provision for isolation created as a consequence of removing isolation requirements from B6D5 of NCC 2022.
Part B7—Rainwater storage	
B7P1	Clarification amendments. Inclusion of exemption for sites not connected to a Network Utility Operator drinking water supply.
B7P2	Clarification amendments. Inclusion of exemption for sites not connected to a Network Utility Operator drinking water supply.
B7P3	Clarification amendments, including separation of isolation requirements into a new Performance Requirement, B7P4. Inclusion of exemption for sites not connected to a Network Utility Operator drinking water supply.
B7P4	Isolation requirements of B7P3 of NCC 2022 have been clarified and relocated to B7P4. Inclusion of exemption for sites not connected to a Network Utility Operator drinking water supply.
B7P5	Inclusion of exemption for sites not connected to a Network Utility Operator drinking water supply.
B7D2	An application provision is included to provide exemption for sites not connected to a Network Utility Operator drinking water supply.
B7D3	Clarification amendments.
Part C1—Sanitary plumbing systems	
C1P1	Clarification amendments.
C1P2	Clarification amendments.
C1P4	Clarification amendments.
C1P6	Clarification amendments.
C1P7	Clarification amendments.
Table C1V1a and Table C1V1b	Frequency factors and discharge unit values have been updated.
C1V2	Verification Methods C1V2 of C1V5 of NCC 2022 for pipe sizing have been replaced with a new Verification Method, C1V2.
C1V3	C1V3 of NCC 2022 has been deleted.
C1V4	C1V4 of NCC 2022 has been deleted.
C1V5	C1V5 of NCC 2022 has been deleted.
Part C2—Sanitary drainage systems	
C2P1	Clarification amendments.

Reference	Changes and commentary
C2P2	Clarification amendments.
C2P3	Clarification amendments.
C2P5	Clarification amendments and incorporation of quantified requirements for trap seals.
C2P6	Clarification amendments.
C2P7	Clarification amendments.
C2V2	Amended to include general reference to AS/NZS 3500.2.
C2V3	Frequency factors and discharge unit values have been updated.
C2V4	A new Verification Method, Sanitary drainage design, has been included as an option to verify compliance with C2P1.
C2D3	Clarification amendments.
Schedule 1—Definitions	
Abbreviations	Diameter Nominal (DN) has been added to Abbreviations.
Symbols	Carbon dioxide equivalent per square metre hour (CO_2-e/m^2.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’.
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.

Reference	Changes and commentary
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 until the adoption of the next edition of the NCC 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 until the adoption of the next edition of the NCC has been included for this amendment.
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.

Reference	Changes and commentary
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 1170 Part 4	The 2024 edition of AS 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.
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.

Reference	Changes and commentary
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 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 2026 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.
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.
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 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	Amdt 1 of the 2021 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/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.

Reference	Changes and commentary
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

Governing Requirements

A2G1	Compliance
A2G2	Performance Solution
A2G3	Deemed-to-Satisfy Solution
A2G4	A combination of solutions

Part A3 Application of the NCC in States and Territories

Governing Requirements

A3G1	State and Territory compliance

Part A4 Referenced documents

Governing Requirements

A4G1	Referenced documents
A4G2	Differences between referenced documents and the NCC
A4G3	Adoption of referenced documents

Part A5 Documentation of design and construction

Governing Requirements

A5G1	Suitability
A5G2	Evidence of suitability — Volumes One, Two and Three
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

Governing Requirements

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

	A6G9	Class 8 buildings
	A6G10	Class 9 buildings
	A6G11	Class 10 buildings and structures
	A6G12	Multiple classifications
Part A7	**United buildings**	
	Governing Requirements	
	A7G1	United buildings
	A7G2	Alterations in a united building
Specification 1	**Fire-resistance of building elements**	
	S1C1	Scope
	S1C2	Rating
	S1C3	FRLs determined by calculation
	S1C4	Interchangeable materials
	S1C5	Columns covered with lightweight construction
	S1C6	Non-loadbearing elements
Specification 2	**Descriptions of elements referred to in Specification 1**	
	S2C1	Scope
	S2C2	Mortar for masonry
	S2C3	Gypsum blocks
	S2C4	Gypsum-sand mortar and plaster
	S2C5	Gypsum-perlite and gypsum-vermiculite plaster
	S2C6	Plaster of cement and sand or cement, lime and sand
	S2C7	Plaster reinforcement
	S2C8	Ashlar stone masonry
	S2C9	Dimensions of masonry
	S2C10	Solid units
	S2C11	Hollow units
	S2C12	Equivalent thickness
	S2C13	Height-to-thickness ratio of certain walls
	S2C14	Increase in thickness by plastering — walls
	S2C15	Increase in thickness by plastering — columns
	S2C16	Gypsum-perlite or gypsum-vermiculite plaster or metal lath — walls
	S2C17	Gypsum-perlite or gypsum-vermiculite plaster or metal lath — columns
	S2C18	Gypsum-perlite or gypsum-vermiculite plaster or metal lath — beams
	S2C19	Exposure of columns
	S2C20	Exposure of beams
	S2C21	Filling of column spaces
	S2C22	Hollow terracotta blocks
	S2C23	Reinforcing for column and beam protection — masonry
	S2C24	Reinforcing for column and beam protection — gypsum blocks and hollow terracotta blocks
	S2C25	Reinforcing for column and beam protection — structural con

		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*.

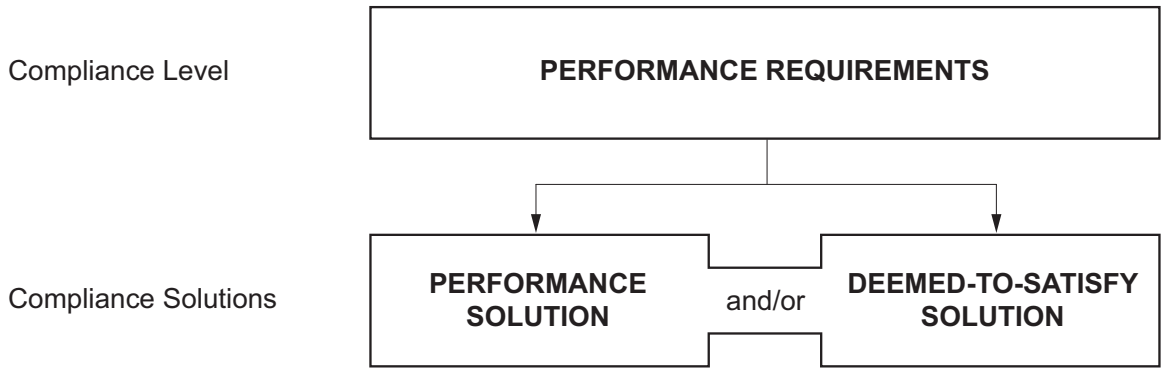
(2) *Performance Requirements* are satisfied by one of the following, as shown in Figure A2G1:

(a) *Performance Solution*.

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

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

Figure A2G1: NCC compliance structure



NSW A2G2

VIC A2G2

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*.

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.

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.

(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.

TAS A4G1(7)

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.

NSW A5G3

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:

- For documenting the result of a test performed under S1C2(b), the report from an *Accredited Testing Laboratory* may be either—
  - the test report referred to in clause 2.16.2 of AS 1530.4 (also referred to as a full test report); or
  - the regulatory information report referred to in clause 2.16.3 of AS 1530.4 (also referred to as a short-form report).
- 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—

- fulfil 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*.

VIC A5G4

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.

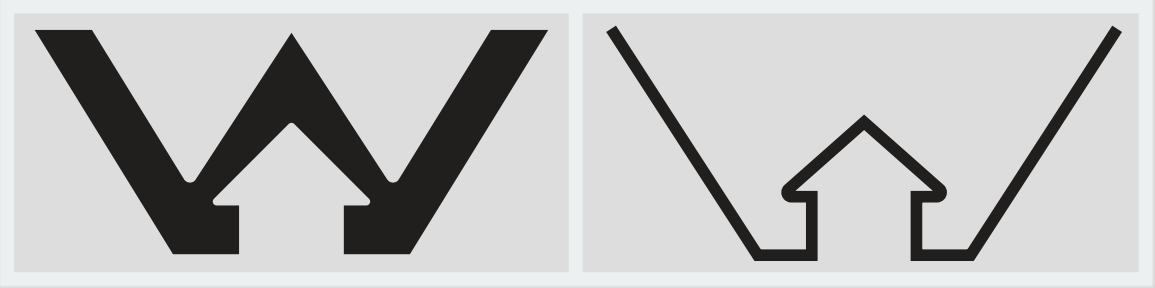
The *WaterMark Certification Scheme* is governed by the WaterMark Scheme Rules, which are available for download from the ABCB website at: www.abcb.gov.au. These rules set out the requirements for risk assessments, evaluation, certification, and the drafting of WaterMark Technical Specifications.

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.

NSW A5G6

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) it is identical with a prototype that has been tested in accordance with (1) and the *fire hazard property* achieved by the prototype is confirmed in a report issued 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) confirms that the application of restraint to the prototype complies with the test standard; or
- (b) it differs in only a minor degree from a prototype tested under (a) and a report from an *Accredited Testing Laboratory*—
  - (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 1530.1 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) it differs in only a minor degree to a material tested under (a) and a report from an *Accredited Testing Laboratory*—
  - (i) confirms that the material can achieve the attribute of being *non-combustible* despite the minor departures from the tested material; and

(ii) describes any limitations which are necessary to achieve the attribute of being *non-combustible*.

(5) A building component or assembly is deemed to be *non-combustible* 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—

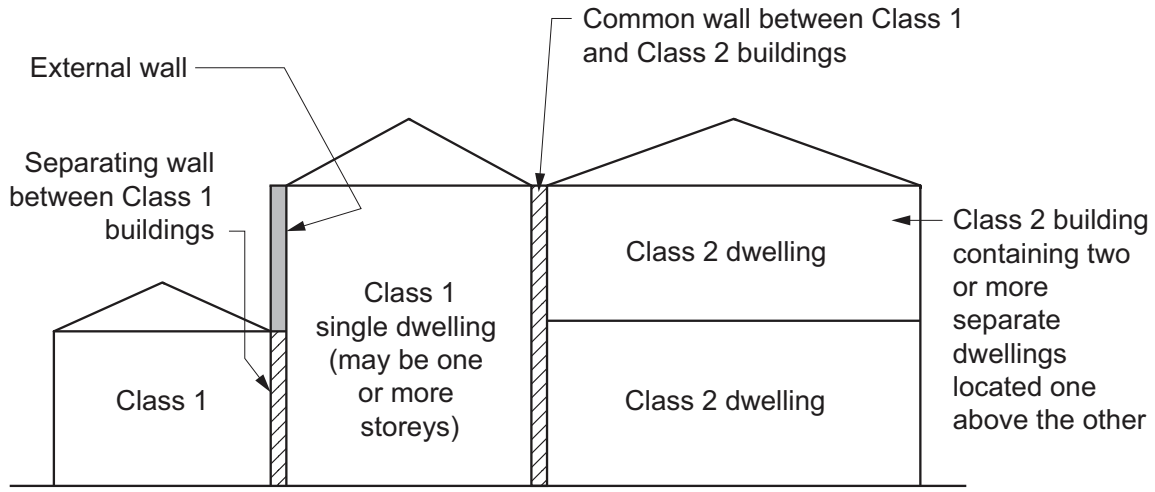
(i) a boarding house, guest house, hostel or the like that—

(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

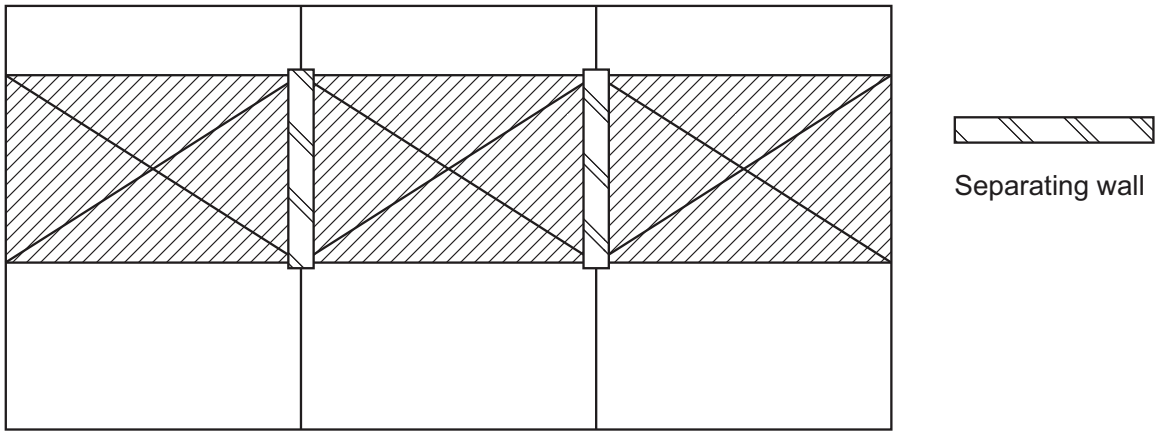
(ii) four or more single dwellings located on one allotment and used for short-term holiday accommodation.

Figure A6G2a: Identification of Class 1 buildings

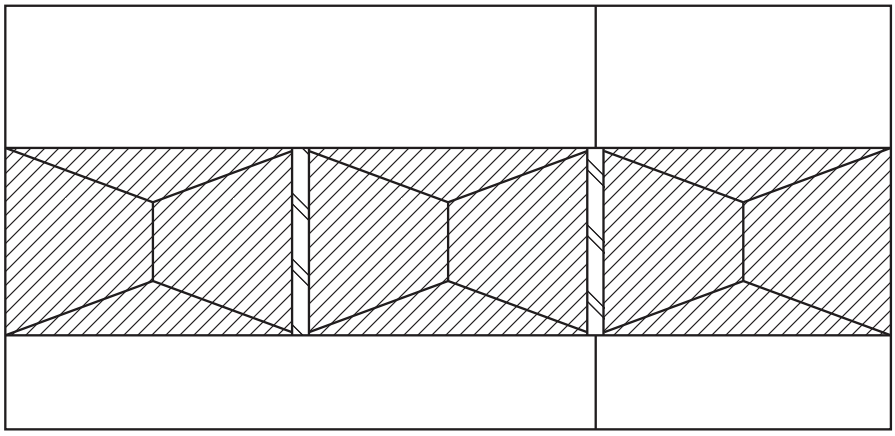


Elevation

Figure A6G2b: Typical Class 1 building configurations



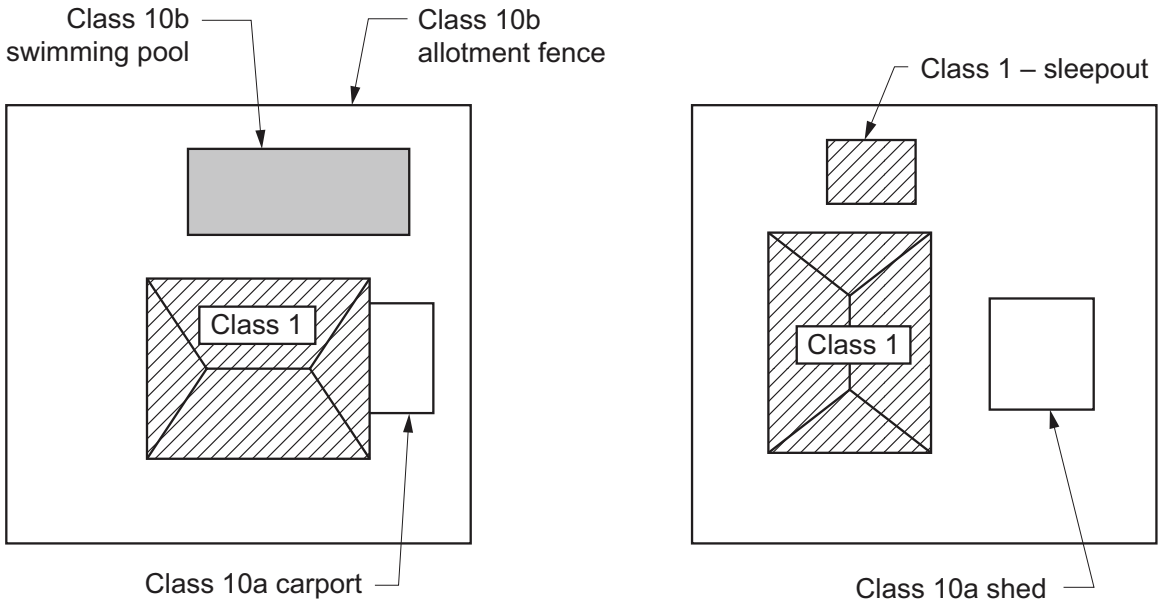
(a) 3 Class 1 buildings on 3 separate allotments



(b) 3 Class 1 buildings on 2 separate allotments

Plan view

Figure A6G2c: Domestic allotment — classification of buildings and structures



Plan view

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.

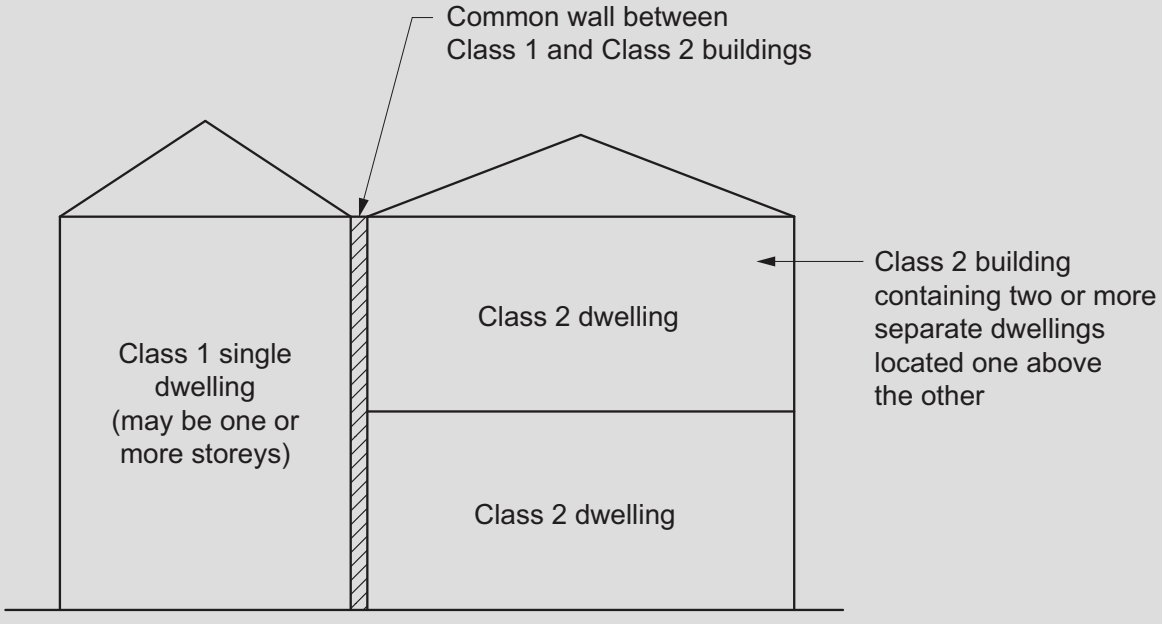
Where a sole-occupancy residential unit is located above another sole-occupancy residential unit, the building containing the units can be either a Class 2 or a Class 3 building, depending on the other circumstances of the building proposal.

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*.

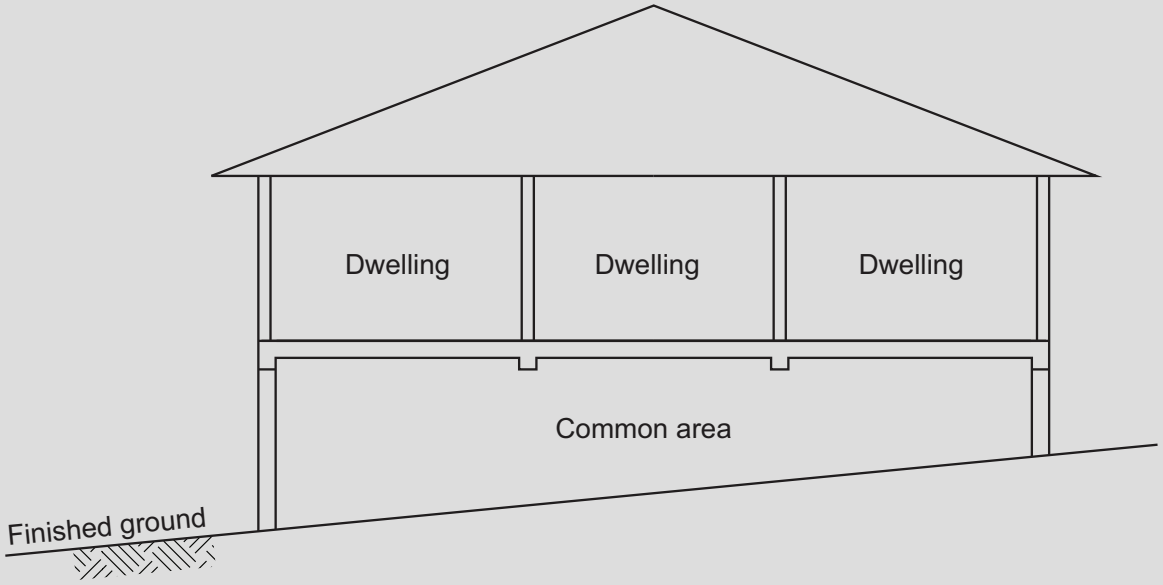
When two or more dwellings are attached to another class, they cannot be Class 4 parts, as any building can only contain one Class 4 dwelling.

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.

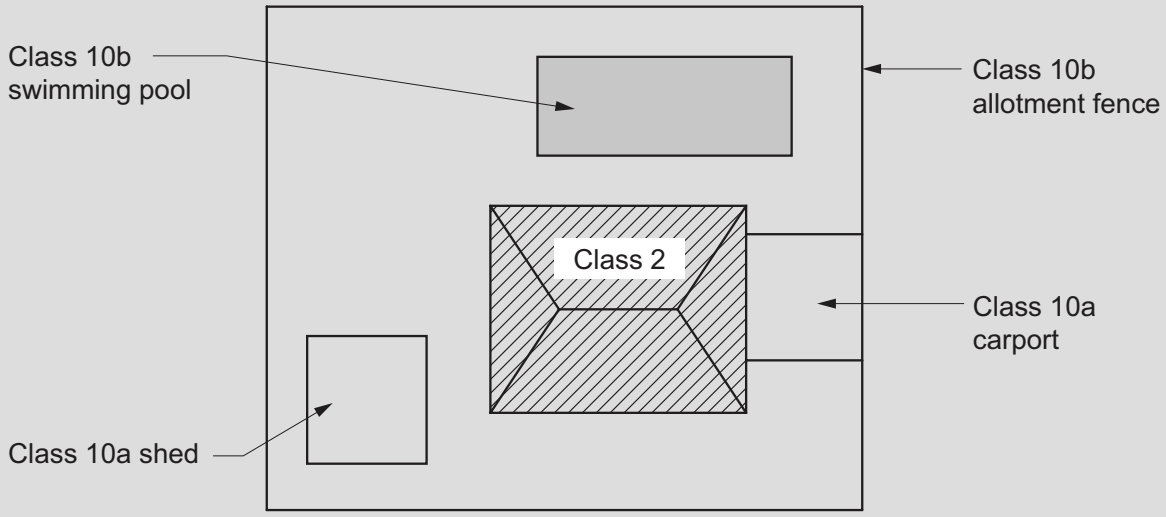
Typical outbuilding classifications include the following:

- 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	25	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.

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Part B1 Cold water services

Introduction to this Part

This Part sets out the requirements for any part of a cold water service of a property that is connected to a *drinking water* supply. It covers from the *point of connection* to the points of discharge.

This part also applies to a cold water service connected to an alternative water source and residential fire sprinklers installed in accordance with FPAA101D Automatic Fire Sprinkler System Design and Installation - Drinking Water Supply.

Objectives

B1O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a cold water installation; and

(b) ensure that a cold water installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a cold water installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

B1F1 Cold water supply

Sanitary fixtures, sanitary appliances and supply outlets providing *drinking water* must have a safe and adequate piped cold water supply.

B1F2 Cold water service

The cold water service must be conveyed through *plumbing* installations in a way that minimises any adverse impact on building occupants, the *Network Utility Operator's* infrastructure, property and the environment.

B1F3 Fire sprinkler systems

Residential fire sprinkler equipment must be provided with adequate water supply and pressure for its intended purpose.

Performance Requirements

B1P1 Cold water supply

A cold water service must be connected to a *drinking water* supply.

Applications

(1) B1P1 applies to cold water supplied for human consumption, food preparation, food utensil washing or personal hygiene.

(2) B1P1 applies to automatic fire sprinkler systems when installed in accordance with FPAA101D Automatic Fire Sprinkler System Design and Installation - Drinking Water Supply.

Explanatory Information: Unintentional heating of cold water services

- Where installed in a location subjected to extreme summer temperatures (such as the roof space of a building), cold water services have the potential to become unintentionally heated. This can pose a hazard as the cold water supply may reach temperatures in excess of 45° Celsius, increasing the potential for scalding.
- To reduce the likelihood of unintentional heating of cold water services, consideration should be given to—
  - (i) avoiding long runs of pipework in locations exposed to solar heat gain; or
  - (ii) applying insulation, either directly to the pipework, or by using additional ceiling insulation material between the pipework and the solar heat source.
- Avoidance of unintentional heating of cold water services in known areas of extreme summer temperatures may also assist in reducing water usage through drawing off of water which has become excessively heated.

B1P2 Velocity

(1) Water velocity within cold water service pipework must not exceed 3 metres per second for no less than 99% of the time that water is required during the peak hour.

(2) Water velocity within cold water valves and devices must ensure the correct functioning of fixtures and appliances.

Explanatory Information

The velocity limit contained in B1P2 is an upper limit value and does not necessarily represent a suitable velocity for water service components, equipment and pipework materials. Confirmation should be sought on suitable velocities for products and any specific design and installation criteria.

It is recognised that not all water service components are selected based on the 99th percentile flowrate.

B1P3 Access

Access must be provided to components of a cold water service that require maintenance or replacement including mechanical devices and controls.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door or similar obstruction.

B1P4 Isolation

A means of isolation must be provided to a cold water service and components that require testing, maintenance or

replacement including mechanical devices, appliances and controls.

Explanatory Information

Access to mechanical components may require the removal of an access panel, cover, door or similar obstruction.

NSW B1P5

B1P5 Water efficiency

Where a cold water service is used, efficient use of *drinking water* must be achieved by—

(a) incorporation of—

(i) a tap or outlet for a shower, basin, kitchen sink or laundry trough, to a flow rate of not more than 9 l/m; and

(ii) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600 mm length of a continuous urinal wall; and

(iii) a dual flush cistern or flushing valve that is connected to a water closet pan to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) water saving measures *equivalent* to or greater than those described in (a).

Applications

The flush volumes of B1P5 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

The requirements of B1P5 do not apply to a vacuum *drainage* system.

TAS B1P6

B1P6 Pressure

The points of discharge for a cold water service must—

(a) have—

(i) a working pressure of not less than 50 kPa; and

(ii) a static pressure within the building of not more than 500 kPa; or

(b) have water pressures suitable for the correct functioning of the fixture or appliance where water pressures outside of (a)(i) and (a)(ii) are required.

B1P7 Uncontrolled discharge

Any failure or *uncontrolled discharge* from a cold water service must be avoided.

Verification Methods

B1V1 Determination of velocity

(1) Compliance with *Performance Requirement* B1P2 is verified for a cold-water service in a Class 2 or Class 3 building when the pipework diameter of that service is greater than or equal to the minimum diameter (D_{min}) determined in accordance with the following equation:

$$D_{min} = \sqrt{\frac{4Q_{99} \times 10^3}{\pi v}} \text{ when: } v = 3m/s, D_{min} \approx \sqrt{425Q_{99}}$$

where—

(a) D_{min} represents the minimum pipe diameter (mm); and

(b) Q_{99} represents the 99th percentile flow rate (L/s); and

(c) v represents the maximum velocity (m/s).

(2) The flow rate must be calculated by determining the greater of—

(a) probable simultaneous flow rate in accordance with (3); or

(b) flow rate of a single fixture with the largest flow rate downstream of the pipework section.

(3) For a specific pipe section, the probable simultaneous flow rate must be calculated in accordance with the following equation:

$$Q_{99} = \frac{1}{1-P_0}\left[\sum_{k=1}^{K} n_k p_k q_k + (1+P_0) z_{0.99} \sqrt{(1-P_0)\sum_{k=1}^{K} n_k p_k (1-p_k) q_k{}^2 - P_0 \left(\sum_{k=1}^{K} n_k p_k q_k\right)^2}\right]$$

where—

(a) Q_{99} represents the 99th percentile flow rate (i.e. the designed probable simultaneous flow rate); and

(b) P_0 represents the probability of stagnation during peak usage (zero demand) determined in accordance with (4); and

(c) K represents the total number of fixture groups; and

(d) k represents the index of individual fixture groups; and

(e) n_k is the number of fixtures for a specific fixture group downstream of a pipework section; and

(f) q_k is the specific fixture flow rate; and

(g) p_k is the probability of fixture use (probability that a fixture group is running water during the peak period of water consumption) determined in accordance with (5); and

(h) z_{99} represents the 99th percentile of the standard normal distribution and is equal to 2.362.

(4) The probability of stagnation during peak usage must be determined in accordance with the following equation:

$$P_0 = \prod_{k=1}^{K} (1-p_k)^{n_k}$$

where—

(a) P_0 represents the probability of stagnation during peak usage (zero demand); and

(b) K represents the total number of fixture groups; and

(c) k represents the index of individual fixture groups; and

(d) n_k is the number of fixtures for a specific fixture group downstream of the pipework section; and

(e) p_k is the probability of fixture use (probability that a fixture group is running water during the peak period of water consumption) determined in accordance with (5).

(5) The probability of fixture use must be calculated in accordance with the following equation:

$$p_k = p_{k,B} + F_{o,B}$$

where—

(a) p_k represents the probability of fixture use; and

(b) $p_{k,B}$ is the baseline probability of fixture use determined in accordance with (6); and

(c) $F_{o,B}$ represents the probability adjustment factor according to occupancy calculated in accordance with (7).

(6) The baseline probability of fixture use must be determined in accordance with the following:

$p_{k,B} = p_{k,1}$ when: $B = 1$

$p_{k,B} = c_1 p_{k1} B^{-c_2}$ when: $2 \leq B \leq 20$

$p_{k,B} = c_1 p_{k1} 20^{-c_2}$ when: $B > 20$

where—

(a) $p_{k,B}$ is the baseline probability of fixture use; and

(b) B represents the number of apartments drawing water downstream of the pipe section; and

(c) $p_{k,1}, c_1, c_2$ are coefficients from Table B1V1.

(7) The probability adjustment factor must be determined in accordance with the following:

$$F_{o,B} = m_{k,B}(o - B)$$

where—

(a) $F_{o,B}$ represents the probability adjustment factor according to occupancy; and

(b) B represents the number of apartments drawing water downstream of the pipe section; and

(c) o represents the estimated total number of building occupants drawing water downstream of the pipe section; and

(d) $m_{k,B}$ represents the increased probability of fixture use per additional building occupant over B calculated in accordance with (8).

(8) The increased probability of fixture use per additional building occupant over B must be determined in accordance with the following:

$m_{k,B} = c_3 B^{-c_4}$ when $B > 1$

where—

(a) $m_{k,B}$ represents the increased probability of fixture use per additional building occupant over B; and

(b) B represents the number of apartments drawing water downstream of the pipe section; and

(c) c_3, c_4 are coefficients from Table B1V1.

Table B1V1: Fixture probability coefficients

Fixture	$P_{k,1}$	C_1			
Shower	0.061	0.908	-0.475	0.020	-1.343
Tap	0.009	1	0	0.004	-0.880
Toilet	0.002	1	0	0.002	-0.880
Washing machine	0.031	0.976	-0.515	0.005	-1.349
Dishwasher	0.001	1	0	0.0005	-0.880
Bath	0.006	1.460	-0.411	0.008	-1.768

Table Notes

The probability coefficient (P_k) for taps is for all locations (e.g. kitchen, laundry and bathroom).

Explanatory Information: Fixture flow rates

The velocity limit defined by B1P2 is an upper limit value and does not necessarily represent a suitable velocity for water service components, equipment, and pipework materials. Confirmation should be sought on suitable velocities for the products and any specific design and installation criteria.

It is recognised that not all water service components are selected based on the 99th percentile flowrate. The practitioner must ensure appropriate use of B1V1(3) when selecting components using the 99th percentile flowrate.

Fixture flowrates can be determined based on the type selected for a particular project.

Recommended fixture flowrates (q_k) for water efficiency fixtures and appliances are as follows:

- Shower: 0.15 L/s.
- Tap (basin): 0.08 L/s.
- Tap (kitchen): 0.12 L/s.
- Tap (laundry): 0.12 L/s.
- Toilet (3/4.5 L): 0.19 L/s.
- Washing machine: 0.22 L/s.
- Dishwasher: 0.08 L/s.
- Bath: 0.3 L/s.

Explanatory Information: Building size and occupancy

Research has shown the probability of fixture use is dependent on building size and occupancy. The following parameters are built into probability of fixture use equations:

- Building size (number of apartments).
- Building occupancy (estimated number of occupants) drawing water downstream from the subject pipe section.

Consideration should be given to the anticipated occupancy for each apartment building. Where the building occupancy is not known, the number of bedrooms for each dwelling can be used as an indicator of the anticipated building occupancy. Statistics on average building occupancy may be utilised to make informed assumptions.

Values in Table B1V1 are derived from fixture use characteristics considering the results presented in several relevant Australian residential end-use studies that have monitored fixture usage in detached residential dwellings.

Deemed-to-Satisfy Provisions

B1D1 Deemed-to-Satisfy Provisions

(1) *Performance Requirement* B1P1 is satisfied if the cold water service is connected to—

(a) the *Network Utility Operator's drinking water* supply; or

(b) an alternative *drinking water* supply.

(2) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B1P2 to B1P7 are satisfied by complying with B1D2 to B1D6.

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

NSW B1D2

B1D2 Water efficiency

(1) A tap or outlet used for a shower, basin, kitchen sink or laundry trough must be a minimum of 3 Star WELS rated and discharge not more than 9 litres per minute.

QLD B1D2(2)

(2) Cisterns or flushing devices for water closets must—

(a) have a dual flushing mechanism; and

(b) be a minimum 3 Star WELS rating discharging not more than 6 litres or 4.5 litres for a full flush.

(3) Cisterns or flushing devices for urinals must—

(a) be a minimum 2 Star WELS rating discharging a volume of not more than 2.5 litres for each—

(i) single urinal stall; or

(ii) 600 mm length of continuous urinal wall; and

(b) not be set-cycled or activated by any method other than manual or use activation.

Applications

(1) B1D2(1) applies to outlets that provide cold water only. The *Deemed-to-Satisfy Provision* for outlets that deliver a combination of cold water and *heated water* is B2D4.

(2) The flush volumes of B1D2(2) and B1D2(3) may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

(1) The requirements of B1D2(1) do not apply to a shower intended to provide rapid drenching of a person for emergency purposes, such as chemical removal.

(2) The requirements of B1D2(2) and B1D2(3) do not apply to a vacuum *drainage* system.

(3) The requirements of B1D2(3)(b) do not apply to a programmed solenoid operated flushing system if programmed to shut down during extended periods of non-occupancy of a building.

Explanatory Information

Prior to installing a programmed solenoid operated flushing system, further advice should be sought from the authority having jurisdiction.

Where sensor control is used for urinal flushing, sensors should be located to avoid unnecessary 'nuisance' flushing

triggered by pedestrian traffic.

AS/NZS 6400 Water Efficient Products - Rating and labelling, provides the basis for the rating and labelling of a range of products under the mandatory Water Efficiency Labelling and Standards (WELS) Scheme.

B1D2 outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of *products* and technologies of greater efficiency should be considered.

NSW B1D3

TAS B1D3

VIC B1D3

B1D3 General requirements

(1) A cold water service must be in accordance with AS/NZS 3500.1.

(2) Notwithstanding (1), plastic pipes and fittings must not be used above-ground in combined sprinkler and hydrant systems.

QLD B1D3(3)

QLD B1D3(4)

B1D4 Bushfire prone areas

A cold water service in a *designated bushfire prone area* must be in accordance with AS 3959.

B1D5 Cold water fire sprinkler systems

A cold water service used for fire-fighting must be in accordance with—

(a) the requirements of E1 of Volume One, where applicable; and

(b) FPAA 101D when installed in a Class 2 or Class 3 building with an *effective height* of not more than 25 m and a *rise in storeys* of 4 or more; and

(c) AS/NZS 3500.1.

Exemptions

B1D5(b) does not apply to a *residential care building*.

Explanatory Information

For all other fire-fighting water services, see Part B4.

B1D6 Top-up lines

A cold water service used to top up a rainwater tank must be in accordance with AS/NZS 3500.1.

TAS B1D7

Explanatory Information: Cross-volume considerations

NCC Volumes One and Two deal with a number of areas of on-site construction which are relevant to cold water

services. These include, but may not be limited to, those listed in Table B1.

Table B1: Cross-volume considerations

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Excavations for pipework adjacent to a building and footings	B1 Structural provisions	H1 Structure
Termite management for attachments to buildings and penetrations through a slab	B1 Structural provisions	H1 Structure
Penetrations for pipework through a vapour barrier	B1 Structural provisions	H1 Structure
Pipework in timber bearers and joists of solid timber or engineered wood products	B1 Structural provisions	H1 Structure
Fittings, fixtures and pipework installations in steel framed construction	B1 Structural provisions	H1 Structure
Penetrations through a fire-resisting wall or floor	C1 Fire resistance Performance Requirements and C4 Protection of openings	H3 Fire safety
Fixtures and fittings in a wet area	F2 Wet areas and overflow protection	H4 Health and amenity
Service pipework external to the building and penetrations through roof cladding in a bushfire prone area	G5 Construction in bushfire prone areas	H7 Ancillary provisions and additional construction requirements
Pipework sound insulation	F7 Sound transmission and insulation	H4 Health and amenity
Flues, chimneys, pipes, gas storage, domestic fuel tanks, cooling or heating appliances or other services	C4 Protection of openings	H3 Fire safety
Power supply to boiling and/or chilled water storage units	J7 Artificial lighting and power	Not applicable

Part B2 Heated water services

Introduction to this Part

This Part sets out the requirements for any part of a *heated water* service of a property that is connected to the *drinking water* supply. It covers from the *point of connection* to the points of discharge.

Objectives

B2O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a *heated water* installation; and

(b) ensure that a *heated water* installation is suitable; and

(c) conserve water; and

(d) safeguard the environment; and

(e) reduce greenhouse gas emissions; and

(f) safeguard public and private infrastructure; and

(g) ensure that a *heated water* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (f).

Functional Statements

B2F1 Heated water supply

Sanitary fixtures, sanitary appliances and supply outlets provided with *heated water* must have a safe and adequate piped *heated water* supply.

B2F2 Heated water installations

The *heated water* supply must be conveyed through *plumbing* installations in a way that—

(a) minimises any adverse impact on building occupants, the *Network Utility Operator's* infrastructure, property and the environment; and

(b) facilitates the conservation of water.

B2F3 Greenhouse gas emissions

To reduce greenhouse gas emissions, to the degree necessary, a *heated water* service is to—

(a) be capable of efficiently using energy; and

(b) obtain its heating energy from—

(i) a low greenhouse gas intensity energy source; or

(ii) an on-site *renewable energy* source; or

(iii) another process as reclaimed energy.

Explanatory Information

The greenhouse gas intensity of energy sources vary. For example, natural gas has a low greenhouse gas intensity compared with electricity generated from coal.

For the purposes of B2F3(b), the *renewable energy* source must be on-site (not GreenPower) and includes, but is not limited to solar, wind, hydroelectric, wave action and geothermal.

Performance Requirements

B2P1 Heated water supply

A *heated water* service must be connected to a *drinking water* supply.

Applications

B2P1 applies to a *heated water* service used for human consumption, food preparation, food utensil washing or personal hygiene.

B2P2 Scald prevention

Heated water supplied by a *heated water* service must be delivered from the point of discharge of fixtures and appliances at a temperature which is unlikely to scald.

Applications

B2P2 applies to fixtures and appliances used primarily for personal hygiene.

B2P3 Velocity

The water velocity in *heated water* service pipework up to 65 °C must not exceed—

(a) 3.0 m/s for no less than 99% of the time that water is required during the peak hour in non-circulatory *heated water* systems; and

(b) 1.2 m/s for the flow and 1.0 m/s for the return of a copper circulatory *heated water* service for no less than 99% of the time that water is required during the peak hour; and

(c) 2.0 m/s for the flow and 1.0m/s for the return of a circulatory *heated water* service using other materials for no less than 99% of the time that the water is required during the peak hour.

Explanatory Information

High velocities in *heated water* services can be a contributing factor to the erosion/corrosion of pipework. Consideration should be given to the appropriate velocities for the building based on water temperature, water chemistry and materials used.

B2P4 Access

Access must be provided to components of a *heated water* service that require maintenance or replacement, including mechanical devices and controls.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door, or similar obstruction.

B2P5 Isolation

Means of isolation must be provided to a *heated water* service and components that require testing, maintenance and replacement including mechanical devices, appliances and controls.

Explanatory Information

Isolation valves are a means of providing isolation.

B2P6 Pressure relief and temperature limitation

Containers used for producing and/or storing *heated water* are to relieve excessive pressure and avoid flash steam production by—

(a) relieving pressure so that the maximum rated working pressure, or 1400 kPa, whichever is the lesser, is not exceeded; and

(b) limiting water temperatures to a maximum of 99°C; or

(c) other suitable means providing an *equivalent* level of safety to (a) and (b).

Applications

B2P6(a) has a tolerance of +5% or 14 kPa whichever is the greater.

B2P7 Legionella control

Heated water must be stored and delivered under conditions which avoid the likelihood of the growth of a Legionella bacteria count greater than or equal to 10 Legionella colony forming units (cfu) per millilitre.

Explanatory Information

A risk assessment should be undertaken for the control and management of Legionella in *heated water* systems in *aged care*, *health-care* and other similar facilities which likely contain immunocompromised occupants.

NSW B2P8

QLD B2P8

B2P8 Energy use and source

(1) A *heated water* service, including any associated distribution system and components, must ensure the efficient use

of energy and water.

(2) Features in B2P8(1) must be appropriate to the following:

(a) The *heated water* service and its usage.

(b) The geographic location of the building.

(c) The location of the *heated water* service.

(d) The energy or water source.

Explanatory Information

Excessive 'dead water' draw-off, i.e. where cooled water from the supply pipe is drained off prior to delivery of *heated water*, can result in water and energy wastage.

To improve the efficiency of *heated water* systems, the design should consider factors such as the number of outlets, their purpose and expected typical usage, and the distance between the water heater and each of the outlets. The water heater should be positioned nearest to the most used outlets, or installed to provide consistent coverage of the building. Where this is not viable, the use of multiple water heaters or a flow and return pipe loop may need to be considered.

B2P8(2) permits the energy source of the *heated water* service to be considered. This means that the net energy obtained from *renewable energy* sources such as solar, geothermal, wind, and biofuels may be considered as 'free' energy in calculating the energy consumption. Similarly, heat reclaimed from another 'free' source such as a by-product from co-generation type processes as well as other industrial processes, which could otherwise be rejected from the building, could be considered as 'free' energy in calculating the energy consumption.

B2P9 Temperature

Heated water from a heated water service must be provided at appropriate temperatures for the correct functioning of fixtures or appliances.

TAS B2P10

B2P10 Pressure

The points of discharge for a *heated water* service must—

(a) have—

(i) a working pressure of not less than 50 kPa; and

(ii) a static pressure within the building of not more than 500 kPa; or

(b) have water pressures suitable for the correct functioning of the fixture or appliance where water pressures are outside of (a)(i) and (a)(ii) are required.

B2P11 Uncontrolled discharge

Any failure or *uncontrolled discharge* from a *heated water* service must be avoided.

NSW B2P12

B2P12 Water efficiency

A *heated water* service must ensure the efficient use of *drinking water* by limiting water use from a tap or outlet for a

shower, basin, kitchen sink or laundry trough to a flow rate of not more than 9 l/m.

Verification Methods

B2V1 Heated water storage temperature

Compliance with B2P6 is verified for each *heated water* storage system when the water heater is designed such that all water is subjected to a temperature-dependent minimum exposure period as specified in Table B2V1 within 7 days before passing through the water-heating appliance's *heated water* outlet.

Table B2V1: Heated water storage minimum exposure period

Temperature	Minimum exposure period
70 °C or greater	1 second
66 °C	2 minutes
60 °C	32 minutes

Deemed-to-Satisfy Provisions

B2D1 Deemed-to-Satisfy Provisions

(1) *Performance Requirement* B2P1 is satisfied if *heated water* is supplied by—

(a) the *Network Utility Operator's drinking water* supply; or

(b) an alternative *drinking water* supply.

(2) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B2P2 to B2P12 are satisfied by complying with B2D2 to B2D11.

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

(4) Where it is proposed to use a warm water system, *Performance Requirement* B2P6 must be complied with.

Notes

There are no *Deemed-to-Satisfy Provisions* for warm water systems.

NSW B2D2

QLD B2D2

SA B2D2

TAS B2D2

B2D2 Water heater in a heated water supply system

(1) In a new Class 1 or Class 10 building, a water heater in a *heated water* supply system must be—

(a) a solar water heater complying with (2); or

(b) a heat pump water heater complying with (2); or

(c) a gas water heater complying with (3); or

(d) an electric resistance water heater only in the circumstances described in (4); or

(e) a wood fired thermosiphon water heater or direct fired water heater each complying with AS/NZS 3500.4.

(2) In a new Class 1 or Class 10 building a solar water heater and a heat pump water heater must comply with either—

(a) Table B2D2a, for the minimum *Small-scale Technology Certificates* for the installation zone; or

(b) Table B2D2b, for the minimum energy savings calculated in accordance with AS/NZS 4234.

(3) In a new Class 1 or Class 10 building, a gas water heater must be rated not less than 5 Stars in accordance with AS 4552.

(4) In a new Class 1 or Class 10 building, an electric resistance water heater with no storage or a *heated water* delivery of not more than 50 litres in accordance with AS 1056.1 may be installed when—

(a) the building has—

(i) not more than 1 bedroom; and

(ii) not more than 1 electric resistance water heater installed; or

(b) the building has—

(i) a water heater that complies with (2) or (3); and

(ii) not more than 1 electric resistance water heater installed; or

(c) the greenhouse gas emission intensity of the public electricity supply is low.

Table B2D2a: Minimum Small Scale Technology Certificates

Number of bedrooms in the building	2025	2026	2027	2028
1 or 2	8	7	5	4
3 or 4	13	11	8	6
4 or more	16	14	11	8

Table B2D2b: Minimum energy savings

Number of bedrooms	Minimum energy saving
1 or 2	40% for a ‘small load’ system
2 or 3	60% for a ‘medium load’ system
4 or more	60% for a ‘large load’ system

Limitations

B2D2 does not apply where compliance with H6P2 of Volume Two is achieved by complying with S42C3 using house energy rating software and S42C4(2).

B2D3 Layout of taps

Where both a *heated water* tap and a cold water tap are installed, the *heated water* tap must be installed to the left of, or above, the cold water tap if—

(a) each tap controls a separate outlet; or

(b) both taps control a combined flow of water delivered through a single outlet.

Explanatory Information

To reduce the likelihood of scalding in a bath, consideration should be given to installing taps out of reach of the bath occupants. This would reduce the likelihood of children accidentally turning the *heated water* on or adjusting the water

temperature.

To reduce the likelihood of scalding, consideration should be given to the following when installing *heated water* taps in a shower:

- *Heated water* taps such as a quarter turn tap should be located in a manner, that to be turned on, requires the tap lever to be turned upwards, reducing the likelihood of accidentally turning the *heated water* on in the event of a slip or fall. Likewise, cold water taps should be located in a manner, so that the lever operator is turned down to turn on the cold water.
- Mixing taps, where the lever is lifted to start the flow of water, should be considered because if a slip or fall occurred, there is greater likelihood that the temperature would either be reduced or the tap turned off.
- The location of shower taps should be positioned at a height so that they cannot be operated by young children.
- Positioning the taps in a specific recess may reduce the likelihood of accidentally altering the water temperature in the event of a slip or fall and is considered a suitable recommendation for bathrooms provided for the elderly or infirm.

NSW B2D4

B2D4 Water efficiency

A tap or outlet used for a shower, basin, kitchen sink, or laundry trough must be a minimum of 3 Star WELS rated and discharge not more than 9 litres per minute.

Exemptions

The requirements of B2D4 do not apply to a shower intended to provide rapid drenching of a person for emergency purposes, such as chemical removal.

Applications

A *heated water* outlet includes an outlet which delivers any combination of *heated water* and cold water.

Explanatory Information

AS/NZS 6400 Water Efficient Products - Rating and labelling, provides the basis for the rating and labelling of a range of products under the mandatory Water Efficiency Labelling and Standards (WELS) Scheme.

B2D4 outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of *products* and technologies of greater efficiency should be considered.

NSW B2D5

SA B2D5

WA B2D5

B2D5 Maximum delivery temperature

The delivery temperature of *heated water* at the outlet of each sanitary fixture must be—

(a) not more than 45 °C in any—

(i) residential part of an *aged care building*; or

(ii) *patient care area* in a *health-care building*; or

(iii) part of an *early childhood centre*, or primary or secondary *school*, that is used by children; or

(iv) designated *accessible* facility in a common area of a Class 2 building, or in any part of a Class 3 or Class 5 to Class 10 building; or

(b) not more than 50 °C in all other cases.

Applications

B2D5 applies to all *heated water* installations intended for personal hygiene.

Explanatory Information

Scenarios covered in B2D5 may include where—

- a *heated water* service is installed on the premises for the first time; or
- the water heater forming part of an existing heated water service is—
  - replaced with a like-for-like water heater; or
  - replaced with a different type of water heater; or
  - relocated, and is reconnected to, some or all of the sanitary fixtures to which it was previously connected; or
- more than one existing sanitary fixture is replaced with new similar fixtures; or
- an existing heated water service on the premises is altered or extended to serve additional sanitary fixtures.

Consideration should be given to the intended occupants of a building when commissioning the *heated water* delivery temperature. For example, if the occupants of a Class 1 building are older adults or young children, a lower temperature than specified in B2D5(b) should be considered.

NSW B2D6

TAS B2D6

WA B2D6

B2D6 Temperature control devices

(1) A temperature control device used to deliver *heated water* in accordance with B2D5(a) must be a—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap.

(2) A temperature control device used to deliver *heated water* in accordance with B2D5(b) must be a—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap; or

(c) tempering valve; or

(d) temperature limited water heater.

(3) The *required* maximum delivery temperature must be achieved in accordance with AS/NZS 3500.4.

Applications

B2D6 applies to all *heated water* installations intended for personal hygiene.

Explanatory Information

Scenarios covered by B2D6 may include where—

- a *heated water* service is installed on the premises for the first time; or
- the water heater forming part of an existing *heated water* service is—
  - replaced with a like-for-like water heater; or
  - replaced with a different type of water heater; or
  - relocated, and is reconnected to, some or all of the sanitary fixtures to which it was previously connected; or

- more than one existing sanitary fixture is replaced with new similar fixtures; or
- an existing *heated water* service on the premises is altered or extended to serve additional sanitary fixtures.

B2D7 Heated water storage

Containers used for producing and/or storing *heated water* must be provided with a temperature and pressure relief device in accordance with AS/NZS 3500.4.

B2D8 Legionella control

Legionella control for water heaters must be carried out in accordance with AS/NZS 3500.4.

NSW B2D9
SA B2D9
WA B2D9

B2D9 General requirements

A *heated water* service must be in accordance with AS/NZS 3500.4.

B2D10 Bushfire prone areas

A *heated water* service in a *designated bushfire prone area* must be in accordance with AS 3959.

B2D11 Solar heated water

A solar *heated water* supply system for food preparation and sanitary purposes, where installed in a new building in *climate zones* 1, 2 or 3, is not *required* to comply with Section 8 of AS/NZS 3500.4.

Explanatory Information: Cross-volume considerations

NCC Volumes One and Two deal with a number of areas of on-site construction which are relevant to a *heated water* service. They include, but may not be limited to, those listed in Table B2.

Table B2: Cross-volume considerations

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Excavations for pipework adjacent to a building and footings	B1 Structural provisions	H1 Structure
Termite management for attachments to buildings and penetrations through a slab	B1 Structural provisions	H1 Structure
Penetrations for pipework through a vapour barrier	B1 Structural provisions	H1 Structure

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Pipework in timber bearers and joists of solid timber or engineered wood products	B1 Structural provisions	H1 Structure
Fittings, fixtures and pipework installations in steel framed construction	B1 Structural provisions	H1 Structure
Penetrations through a fire-resisting wall or floor	C1 Fire resistance Performance Requirements and C4 Protection of openings	H3 Fire safety
Fixtures and fittings in a wet area	F2 Wet areas and overflow protection	H4 Health and amenity
Service pipework external to the building and penetrations through roof cladding in a bushfire prone area	G5 Construction in bushfire prone areas	H7 Ancillary provisions and additional construction requirements
Pipework sound insulation	F7 Sound transmission and insulation	H4 Health and amenity
Flues, chimneys, pipes, gas storage, domestic fuel tanks, cooling or heating appliances or other services	C4 Protection of openings	H3 Fire safety
Central heating pipework	J6 Air-conditioning and ventilation systems	H6 Energy efficiency
Heated water supply and pool and spa heating and pumping - energy efficiency	J8 Heated water supply and swimming pool and spa pool plant	H6 Energy efficiency
Energy consumption monitoring for water heaters	J9 Facilities for energy monitoring	Not applicable
Whole of home energy efficiency, including heated water supply	J3D14, J3D15	H6 Energy efficiency

Part B3 Non-drinking water services

Introduction to this Part

This Part sets out the requirements for any part of a *non-drinking water* service of a property. It covers from the *point of connection* to the points of discharge.

Rainwater is not classified as a *non-drinking water* service.

Objectives

B3O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a *non-drinking water* installation; and

(b) ensure that a *non-drinking water* installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a *non-drinking water* installation throughout its serviceable life will continue to satisfy the requirements of Objectives (a) to (e).

Functional Statements

B3F1 Non-drinking water supply

Sanitary fixtures, sanitary appliances and supply outlets provided with *non-drinking water* must be adequate.

B3F2 Non-drinking water installations

Non-drinking water must be supplied through *plumbing* installations in a way that avoids the likelihood of inadvertent contamination of any *drinking water* service, minimise any adverse impact on building occupants, the *Network Utility Operator's* infrastructure, property and the environment.

Performance Requirements

B3P1 Non-drinking water supply

A *non-drinking water* service must not have a *cross-connection* with a *drinking water* service.

B3P2 Identification

(1) Pipes, outlets, fittings, storage and holding tanks that are part of a *non-drinking water* service must be clearly identified.

(2) A *non-drinking water* service must only be connected to outlets clearly identified for non-drinking use.

B3P3 Velocity

Water velocity within *non-drinking water* service pipework must not exceed 3 m/s for no less than 99% of the time that water is required during the peak hour.

Explanatory Information

During the hour of heaviest usage in reticulated non-drinking services, a water velocity of 3 m/s must not be exceeded for 99% of the time that any downstream fixtures are in use.

B3P4 Access

Access must be provided to components of a *non-drinking water* service that require maintenance or replacement, including mechanical devices and controls.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door, or similar obstruction.

B3P5 Isolation

Means of isolation must be provided to a *non-drinking water* service and components that require testing, maintenance and replacement including mechanical devices, appliances and controls.

Explanatory Information

Isolation valves are a means of providing isolation.

B3P6 Pressure

The points of discharge for a *non-drinking water* service must—

(a) have—

(i) a working pressure of not less than 50 kPa; and

(ii) a static pressure within the building of not more than 500 kPa: or

(b) have water pressures suitable for the correct functioning of the fixture or appliance where water pressures outside of (a)(i) and (a)(ii) are required.

B3P7 Uncontrolled discharge

Any failure or *uncontrolled discharge* from a *non-drinking water* service must be avoided.

NSW B3P8

B3P8 Water efficiency

Where a *non-drinking water* service is used for flushing of toilets or urinals, efficient use of *non-drinking water* must be achieved by—

(a) incorporation of—

(i) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600mm length of a continuous urinal wall; and

(ii) a dual flush cistern or flushing valve that is connected to a water closet pan, to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) water saving measures equivalent to or greater than those described in (a).

Applications

The flush volumes of B3P8 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) ±0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

The requirements of B3P8 do not apply to a vacuum *drainage* system.

Deemed-to-Satisfy Provisions

B3D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B3P1 to B3P8 are satisfied by complying with B3D2 and B3D5.

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

B3D2 Distribution of non-drinking water

A *non-drinking water* service must not be connected to any outlet that supplies water for—

(a) human consumption; or

(b) food preparation; or

(c) food utensil washing; or

(d) personal hygiene.

NSW B3D3

VIC B3D3

B3D3 General requirements

A *non-drinking water* service must be in accordance with AS/NZS 3500.1.

Explanatory Information

Requirements for a *non-drinking water* service used for fire-fighting purposes are contained in Part B4.

B3D4 Bushfire prone areas

A *non-drinking water* service in *designated bushfire prone areas* must be in accordance with AS 3959.

NSW B3D5

B3D5 Water efficiency

(1) Cisterns or flushing devices for water closets must—

(a) have a dual flushing mechanism; and

(b) be a minimum 3 Star WELS rating, discharging not more than 6 litres or 4.5 litres for a full flush.

(2) Cisterns or flushing devices for urinals must—

(a) be a minimum 2 Star WELS rating, discharging a volume of not more than 2.5 litres for each—

(i) single urinal stall; or

(ii) 600mm length of continuous urinal wall; and

(b) not be set-cycled or activated by any method other than manual or use activation.

Applications

The flush volumes of B3D5(2) and B3D5(3) may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

(1) The requirements of B3D5(2) and B3D5(3) do not apply to a vacuum *drainage* system.

(2) The requirements of B3D5(3)(b) do not apply to a programmed solenoid operated flushing system if programmed to shut down during extended periods of non-occupancy of a building.

Explanatory Information

- Prior to installing a programmed solenoid operated flushing system, further advice should be sought from the Authority having jurisdiction.
- Where sensor control is used for urinal flushing, sensors should be located to avoid unnecessary ‘nuisance’ flushing triggered by pedestrian traffic.
- AS/NZS 6400 Water Efficient Products - Rating and labelling, provides the basis for the rating and labelling of a range of *products* under the mandatory Water Efficiency Labelling and Standards (WELS) Scheme.

- B3D5 Water efficiency outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of *products* and technologies of greater efficiency should be considered.

Explanatory Information: Cross-volume considerations

NCC Volumes One and Two deal with a number of areas of on-site construction which are relevant to *non-drinking water* services. These include, but may not be limited to, those listed in Table B3.

Table B3: Cross-volume considerations

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Excavations for pipework adjacent to a building and footings	B1 Structural provisions	H1 Structure
Termite management for attachments to buildings and penetrations through a slab	B1 Structural provisions	H1 Structure
Penetrations for pipework through a vapour barrier	B1 Structural provisions	H1 Structure
Pipework in timber bearers and joists of solid timber or engineered wood products	B1 Structural provisions	H1 Structure
Fittings, fixtures and pipework installations in steel framed construction	B1 Structural provisions	H1 Structure
Penetrations through a fire-resisting wall or floor	C1 Fire resistance Performance Requirements and C4 Protection of openings	H3 Fire safety
Fixtures and fittings in a wet area	F2 Wet areas and overflow protection	H4 Health and amenity
Flues, chimneys, pipes, gas storage, domestic fuel tanks, cooling or heating appliances or other services	C4 Protection of openings	H3 Fire safety
Service pipework external to the building and penetrations through roof cladding in a bushfire prone area	G5 Construction in bushfire prone areas	H7 Ancillary provisions and additional construction requirements
Pipework sound insulation	F7 Sound transmission and insulation	H4 Health and amenity

Part B4 Fire-fighting water services

NSW Part B4

QLD Part B4

Introduction to this Part

This Part sets out requirements for any part of a fire-fighting water service from the *point of connection* or other acceptable source(s) of supply to the fire-fighting equipment, including hydrants, hose reels, sprinkler services, *automatic* fire suppression systems and wall drencher systems.

Objectives

B4O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a fire-fighting water installation; and

(b) ensure that a fire-fighting water installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a fire-fighting water installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

B4F1 Fire-fighting water supply

Fire-fighting equipment must be provided with adequate water for its intended purpose.

Performance Requirements

B4P1 Flow rate and pressure

Water flow rate and pressure to fire-fighting equipment and services must be adequate for the correct functioning of fire-fighting equipment or service and must be assessed based on a minimum 95th percentile flow rate and pressure of the water supply.

B4P2 Access

Access must be provided to components of a fire-fighting water service that require testing, maintenance or replacement, including mechanical devices and controls.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door, or similar obstruction.

B4P3 Isolation

(1) A means of isolation must be provided to a fire-fighting water service and components that require testing, maintenance or replacement, including mechanical devices and controls.

(2) Adequate drainage must be provided for flow testing of fire-fighting water services.

Explanatory Information

Isolation valves are a means of providing isolation.

B4P4 Fire-fighting water storage

Water storage supplying fire-fighting systems must be sized suitably for the level of risk and supply arrangements.

B4P5 Uncontrolled discharge

Any failure or *uncontrolled discharge* from a fire-fighting water service must be avoided.

Deemed-to-Satisfy Provisions

B4D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B4P1 to B4P4 are satisfied by complying with B4D2 to B4D6.

(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 B4D2

B4D2 General requirements

Fire-fighting water services for Class 2 to Class 9 buildings and structures must comply with the requirements of Part E1 of Volume One of the NCC.

Explanatory Information

NCC Volume One requires the installation of fire-fighting equipment including fire hose reels, fire hydrants and *automatic* fire suppression systems in certain types of buildings.

The installation of fire-fighting water services in Class 1 buildings is not required by NCC Volume Two, however, where these services are installed voluntarily, they must be in accordance with Part B4.

B4D3 Fire sprinkler systems

(1) *Automatic* fire sprinkler systems must be in accordance with—

(a) AS 2118.1 for general systems; or

(b) AS 2118.4 for accommodation buildings not exceeding four *storeys*; or

(c) AS 2118.5 for home fire sprinkler systems.

(2) *Automatic* fire sprinkler systems for combined sprinkler and hydrant systems in multi-storey buildings must be in accordance with—

(a) AS 2118.1 for general systems; or

(b) AS 2118.6 for multi-storey buildings; or

(c) FPAA101H for buildings which are less than 25m in *effective height* and contain Class 2 and Class 3 parts.

(3) Notwithstanding (2)(b), plastic pipes and fittings must not be used above-ground in combined sprinkler and hydrant systems.

Explanatory Information

For residential fire sprinklers to FPAA101D Automatic Fire Sprinkler System Design - Drinking water supply, see Part B1 Cold water services.

B4D4 Fire hydrants

Fire hydrants must be in accordance with AS 2419.1.

B4D5 Fire hose reels

Fire hose reels must be in accordance with AS 2441.

B4D6 Bushfire prone areas

Fire-fighting water services in *designated bushfire prone areas* must be in accordance with AS 3959.

Explanatory Information: Cross-volume considerations

NCC Volumes One and Two deal with a number of areas of on-site construction which are relevant to fire-fighting water services. These include, but may not be limited to, those listed in Table B4.

Table B4: Cross-volume considerations

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Excavations for pipework adjacent to a building and footings	B1 Structural provisions	H1 Structure
Termite management for attachments to buildings and penetrations through a slab	B1 Structural provisions	H1 Structure
Penetrations for pipework through a vapour barrier	B1 Structural provisions	H1 Structure

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Pipework in timber bearers and joists of solid timber or engineered wood products	B1 Structural provisions	H1 Structure
Fittings, fixtures and pipework installations in steel framed construction	B1 Structural provisions	H1 Structure
Penetrations through a fire-resisting wall or floor	C1 Fire resistance Performance Requirements and C4 Protection of openings	H3 Fire safety
Fixtures and fittings in a wet area	F2 Wet areas and overflow protection	H4 Health and amenity
Service pipework external to the building and penetrations through roof cladding in a bushfire prone area	G5 Construction in bushfire prone areas	H7 Ancillary provisions and additional construction requirements
Flues, chimneys, pipes, gas storage, domestic fuel tanks, cooling or heating appliances or other services	C4 Protection of openings	H3 Fire safety
Pipework sound insulation	F7 Sound transmission and insulation	H4 Health and amenity

Part B5 Cross-connection control

Introduction to this Part

This Part sets out *cross-connection* hazards and corresponding *Hazard Ratings*.

Objectives

B5O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to contamination of a *drinking water* supply; and

(b) ensure that a water service installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a water service installation throughout its serviceable life will continue to satisfy the requirements of Objectives (a) to (e).

Functional Statements

B5F1 Design and installation

Water services must be designed and installed so as to operate in a way that avoids the likelihood of contamination of any part of the *drinking water* supply, and minimises any adverse impact on building occupants, the *Network Utility Operator's* infrastructure, property and the environment.

Performance Requirements

B5P1 Contamination control

Water services must be designed, constructed and installed to avoid contamination.

Applications

B5P1 applies to cold water, *heated water*, *non-drinking water* and fire-fighting water services.

Verification Methods

B5V1 Determination of individual and zone hazard ratings

(1) Compliance with *Performance Requirement* B5P1 for *individual protection* and *zone protection* is verified by compliance with B5V1.

(2) A hazard exists wherever it is possible for water or *contaminants* to enter service or supply via any potential or actual *cross-connection* between itself and any other separate water service on the same *site*.

(3) Each hazard must be—

(a) assigned a *Hazard Rating* in accordance with (4); and

(b) isolated from the *drinking water* service by an appropriate *backflow prevention device* which is selected and installed for the appropriate *Hazard Rating* in accordance with AS/NZS 3500.1.

(4) To determine the *Hazard Rating*—

(a) an assessment of the property or proposed installation must be undertaken using Tables B5V1a, B5V1b, B5V1c, B5V1d and B5V1e; and

(b) the scores allocated from each table are calculated; and

(c) the *Hazard Rating* is determined by the sum of the scores in accordance with B5V1(5).

(5) A total score of—

(a) 0 to 3 presents no Hazard; and

(b) 4 to 7 presents a *Low Hazard*; and

(c) 8 to 10 presents a *Medium Hazard*; and

(d) 11 or greater presents a *High Hazard*.

(6) Notwithstanding the *Hazard Rating* determined in (4), where access to the *site* is restricted in a way that could limit or prevent future testing or maintenance of a *backflow prevention device*, the *site* must be protected with a *containment* device suitable for a *High Hazard*.

Explanatory Information

- The intent of this *Verification Method* is to provide a consistent means of determining individual and zone *Hazard Ratings*
- This *Verification Method* is not intended to enable the lowering of any *Hazard Ratings* already prescribed in B5D7.

Table B5V1a: Building class

Site condition	Common examples	Notes	Score
The property to which the water service is installed contains a Class 1, 2, 7a, or 10 building where not more than 12 people reside.	Domestic residences and *carparks* with no associated activities.	Building may use small amounts of cleaning products, etc.	1
The property to which the water service is installed contains a Class 3, 4, 5, 6 or 7b building where chemical products are not stored.	Hostel, hotel and multi-level office.	Building is likely to have greater than 12 residents and/or occupants, and may contain moderate amounts of cleaning or commercial chemicals.	2
The property to which the water service is installed contains a Class 7b, 8 or 9 building where chemical products are stored.	Mechanical workshop, metal finisher, cleaning product wholesaler.	May contain large amounts of hazardous or toxic commercial chemicals.	3

Table B5V1b: On-site water services

Site condition	Common examples	Notes	Score
There is only a *drinking water* supply and no other water sources to the property.	The *drinking water* source may be a rainwater tank connected to a detached dwelling.	Residential rainwater tanks are considered *drinking water*.	0
There is one *drinking water* supply and potentially other *non-drinking water* supplies or a separate fire-fighting water service available to the property (not applicable if the *non-drinking water* supply is *Network Utility Operator* provided recycled water with a sewerage source).	*Network Utility Operator drinking water* supply and a separate fire water service.	*Network Utility Operator* supplied recycled water with a sewerage source is assessed separately due to greater health risks.	3
Commercial agriculture, *farming*, turf *irrigation*, industrial, processing or chemical industries. The property is supplied with *drinking water* and *non-drinking water* from multiple sources with potential for health related contamination.	Property has a *Network Utility Operator drinking water* source and an *on-site wastewater* effluent *irrigation system*, process water or bore water source.	Increased potential for *cross-connection* between *drinking water* and *non-drinking water* with high consequences such as chemicals, recycled sewerage, medical or biological *contaminants*.	5

Table B5V1c: Drinking water use

Site condition	Common examples	Notes	Score
Drinking water use will not involve commercial use of hazardous or toxic substances and the *site* is unsuitable for their use and unlikely to change.	Domestic residences, offices and restaurants.	Minor use of cleaning and other chemicals is permitted. Professional or commercial hazardous chemical use is not permitted.	1
Drinking water will be used with commercial use hazardous substances, but not Schedule 1 to 4 or Schedule 6 to 8 poisons. *Drinking water* may be used with commercial use hazardous substances without major modification.	Butchers, hairdressers.	Hazardous substances and scheduled poisons have applicable warning labels. Cleaning of floors and benches with chlorine solution puts butchers into this category.	2
Drinking water use may involve large scale food or beverage processing, human or animal biological or faecal matter, Schedule 1 to 4 and Schedule 6 to 8 poisons and have potential for contamination. The installation is suitable for these uses without major modification. Also included are areas likely to undergo frequent changes of use or where the future use in unknown.	Chemical packaging facilities, hospital facilities, pan washing apparatus, fertiliser injection systems, chemical dispensers (high toxicity), food preparation fixtures with clean in place systems, industrial shed complexes and light commercial properties.	Wash down of spills puts chemicals packaging / storage into this category even if liquid batching and storage is not practised. Also applies where there is no certainty about the type of activities to be practiced and the materials used.	3

Table B5V1d: Cross-connection type

Site condition	Common examples	Notes	Score
The *product* or installation presents no possibility of *cross-connection* to food, drink or water or other liquid vessels other than those used for domestic purposes.	Residential units and offices.	There are no water storage tanks, *swimming pools*, spas or commercial kitchens on *site* or able to be installed.	0

Site condition	Common examples	Notes	Score
The *product* or installation presents a potential for a *cross-connection* between a *drinking water* service and a commercial food, drink or water or other liquid vessel, or any vessel intended for low hazard chemicals.	Small scale food processing facilities.	Potential backflow from low volume of non-hazardous substances. Non-hazardous chemicals are any substances not required to display a hazardous substance label.	1
The *product* or installation presents a potential for a *cross-connection* between a *drinking water* service and a *non-drinking water* service.	*Drinking water* outlets within close proximity to an alternative water source such as a *Network Utility Operator drinking water* supply, bore or *irrigation system*.	Potential connection of a *drinking water* system and a system identified with a *Low Hazard*.	2
The *product* or installation presents a potential for *cross-connection* between the *drinking water* service and a *swimming pool*, water storage tank used for commercial purposes, large scale food and drink processing operations, a vessel, pipe or body of liquid containing a hazardous substance or Schedule 5 poison, recycled water service with biological matter or faecal contamination.	Building header tanks, commercial *swimming pool* make up water connections, soft drink manufacturers.	Potential connection of a *drinking water* system and a system containing an hazardous substance or low toxicity poison or large quantities of food or drink product. Hazardous chemicals are any substances required to display a hazardous substance label.	3
The *product* or installation presents the potential for *cross-connection* between the *drinking water* service and a bulk water service vessel containing a hazardous substance or Schedule 5 poison.	Chemical make-up water connected to a chemical batching process.	Any potential connection to a system containing large volumes of hazardous material or moderately poisonous material.	4
The *product* or installation has potential for a *cross-connection* to a sewerage source, a trade waste source, a vessel with human or animal biological or faecal matter, a vessel pipe or body of liquid containing any quantity of a Schedule 1 to 4 or Schedule 6 to 8 poison.	Recycled water *irrigation system* with *drinking water* back up supply.	Applies to potential connections with a high health risk.	5

Table B5V1e: Extent of contamination

Site condition	Common examples	Notes	Score
The *product* or installation presents a *cross-connection* that will only affect 1 small property (fewer than 10 people).	Domestic residences	Small *site* where a *cross-connection* will affect the *drinking water* to fewer than 10 people.	1
The *product* or installation presents a *cross-connection* that will affect a moderate size property or multiple small *sites* within the same property (fewer than 100 people).	Cafes or small restaurants on a single title property.	*Cross-connection* will potentially affect *drinking water* to fewer than 100 people.	2

Site condition	Common examples	Notes	Score
The *product* or installation presents a *cross-connection* that will affect a large property or could allow *contaminants* to enter other properties.	Tenancies within a shopping complex, connected via water meters without *Containment protection*.	*Cross-connection* will affect *drinking water* to 100 people or greater. Consideration is needed as to whether water meters may not have suitable backflow protection or may not be adequate to mitigate the risk.	3

Deemed-to-Satisfy Provisions

B5D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement* B5P1 is satisfied by complying with B5D2 to B5D7.

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

NSW B5D2

B5D2 Drinking water service

(1) A hazard exists wherever it is possible for water or *contaminants* to enter a *drinking water* service or supply via any potential or actual *cross-connection* between—

(a) the *drinking water* service; and

(b) any of the following:

(i) A *non-drinking water* service.

(ii) A *rainwater service*.

(iii) An alternative water supply.

(iv) A *swimming pool*.

(v) Pipes, fixtures or specialist equipment (including *boilers* and pumps) containing chemicals, liquids, gases or other substances which may be harmful to health or safety.

(2) Each hazard must—

(a) be assigned—

(i) an *Individual protection Hazard Rating* in accordance with B5D7(4), (5),or (6); or

(ii) a zone protection hazard rating in accordance with B5D7(7), (8), (9); and

(b) be isolated from the *drinking water* service by an appropriate *backflow prevention device* which is selected and installed in accordance with AS/NZS 3500.1.

(3) Where a *site* is served by a *Network Utility Operator's drinking water* supply, appropriate *containment protection* must be selected and installed in accordance with of AS/NZS 3500.1.

Explanatory Information: Integral backflow protection

No additional individual or zone protection backflow prevention protection is *required* where *cross-connection* mitigation is provided in accordance with AS/NZS 3500.1 as an integral part of a fixture, appliance or apparatus and is suitable for the *Hazard Rating* specified in B5D7.

NSW B5D3

SA B5D3

B5D3 Non-drinking water service

(1) A hazard exists wherever it is possible for water or *contaminants* to enter a *non-drinking water* service or supply via any potential or actual *cross-connection* between itself and another separate *non-drinking water* service on the same *site*.

(2) Each hazard must—

(a) be assigned a *Hazard Rating* in accordance with B5D7(10), B5D7(11) or B5D7(12); and

(b) be isolated from the *non-drinking water* service by appropriate protection which is selected and installed in accordance with AS/NZS 3500.1.

Exemptions

B5D3 is not applicable to *non-drinking water* service used for agricultural purposes where the *non-drinking water* service is supplied solely by *non-drinking water* service(s) and is fully independent from any other water service.

Explanatory Information

For the purposes of B5D3, a 'separate' *non-drinking water* service exists where multiple *non-drinking water* services are on the same *site* and each is supplied by water from different sources.

For example, on a *site* connected to both recycled water and bore water, both may be considered *non-drinking water* services and are supplied by different sources. Therefore, each is a 'separate' *non-drinking water* service.

B5D4 Fire-fighting water service

Each fire-fighting water service must—

(a) be assigned a *Hazard Rating* in accordance with B5D7(13) and B5D7(14); and

(b) be isolated from the *drinking water* service by an appropriate *backflow prevention device* which is selected and installed in accordance with AS/NZS 3500.1.

B5D5 Unprotected water service

Water downstream of a *backflow prevention device* protected by *individual protection* or *zone protection* is considered to be an *unprotected water service*.

NSW B5D6

SA B5D6

B5D6 Rainwater

Protection of *drinking water* services from rainwater must be in accordance with AS/NZS 3500.1 (2018) Clause 16.4 and Table 16.4.

Applications

B5D6 applies to scenarios not covered by B5D7(10)(b).

VIC B5D7

B5D7 Cross-connection hazards

(1) The *Hazard Ratings* prescribed for the *cross-connection* hazards described in (4) to (14) must be used for selecting the required backflow protection for the purposes of compliance with B5D2, B5D3, B5D4, B5D5 and B5D6.

(2) *Cross-connection* hazards within the *site* must be rated in accordance with—

(a) (4), (5) and (6) for *individual protection* at the point of each individual hazard; or

(b) (7), (8) and (9) for *zone protection* at the point where a group of hazards can be isolated.

(3) The hazard posed by the *site* to the *Network Utility Operator*'s *drinking water* supply must be rated for *containment protection* in accordance with (10), (11) and (12).

(4) The following are *Low Hazard* for the purpose of *individual protection*:

(a) Carbonated drink dispensing machines.

(b) Drinking fountains and bottle fillers.

(c) Coils and jackets in heat exchangers, in sealed and non-toxic environments only.

(d) Drink dispensing equipment including vending machines and coffee machines.

(e) External hose taps, with no hazards within 18 m.

(f) Fixtures used for ablutions including baths, basins, showers and bidettes with a minimum 25 mm air gap.

(g) Toilet douche seats where the outlet in all positions is at least 25 mm above the overflow level of the pan.

(h) Fixtures used for food preparation, including sinks.

(i) Flexible hoses used over domestic waste fixtures.

(j) Haemodialysis machines in Class 1, Class 2 and Class 10 buildings.

(k) Hair salon basins or troughs.

(l) In-line water softeners and filters.

(m) Photographic processing machines without developer mixing.

(n) Emergency eye wash and shower stations for use with *drinking water*.

(o) Food preparation or food storage tanks, vats or vessels (without clean-in-place systems).

(5) The following are *Medium Hazard* for the purpose of *individual protection*;

(a) Chemical dispensers (low toxicity).

(b) Dental consoles.

(6) The following are *High Hazard* for the purpose of *individual protection*:

(a) Chlorinators.

(b) Coils and jackets in heat exchangers, in unsealed and toxic environments.

(c) Steam calorifiers.

(d) Steam *boilers*.

(e) Antibiotic injectors (agricultural).

(f) Bidets and toilet douche seats where the outlet in any position is not 25 mm above the overflow level of the pan.

(g) Bidettes installed without a minimum 25 mm air gap.

(h) Handheld bidet/douche hoses and trigger sprays.

(i) Chemical dispensers (high toxicity).

(j) Cooling towers.

(k) Demineralising equipment using ion-exchange resins with acid and alkali regeneration.

(l) Equipment used for handling, mixing, measuring and processing chemical and microbiological substances.

(m) Fogging and cleaning sprays with chemical injection or additives.

(n) Mixing of chemicals.
(o) Pan washing apparatus.
(p) Photographic developers with *drinking water* supply rinse tanks or mixing facilities.
(q) Plants with auxiliary *non-drinking water* supplies.
(r) Type D *irrigation system* injected with fertilisers, herbicides, nematicides, insecticides or weedicides.
(s) Weed and pest spraying and water cartage tasks.
(t) Portable and mobile tankers.
(u) Placenta/surgical waste disposal units.
(v) Food preparation or food storage tanks, vats or vessels (with clean-in-place systems).
(w) *Buried rainwater tank*.

(7) The following are *Low Hazard* for the purpose of *zone protection*:
(a) Fire-fighting water storage tanks without chemical additives.
(b) Food storage tanks, vats or vessels.
(c) Hair salon basins or troughs.
(d) Type B *irrigation systems*.
(e) Water filtration equipment.

(8) The following are *Medium Hazard* for the purpose of *zone protection*:
(a) Type C *irrigation systems*.
(b) Beauty spas and foot salons.

(9) The following are *High Hazard* for the purpose of *zone protection*:
(a) Photographic laboratories.
(b) Aircraft facilities.
(c) Secondary school laboratories, including fume cupboards.
(d) Dental and medical procedure rooms and equipment using drinking water.
(e) Clean-in-place systems.
(f) Commercial laundries.
(g) Cooling or heating systems with recirculating water.
(h) Dockside facilities.
(i) Drinking nipples and troughs (agricultural).
(j) Food preparation or food storage tanks, vats or vessels.
(k) Vats and vessels (clean-in-place systems).
(l) In a Class 9 building—
(i) dissecting rooms; and
(ii) utility rooms which contain fixtures other than hand basins; and
(iii) operating theatres.
(m) Industrial and teaching laboratories.
(n) Industrial process water that has been recirculated.
(o) Mortuary equipment used in funeral parlours, mortuaries and autopsy areas.
(p) Sanitary dump points.
(q) Tanks, vats or vessels associated with electroplating, degreasing, descaling, stripping, pickling, dipping or the like.
(r) Type D *irrigation systems* injected with fertilisers, herbicides, nematicides, insecticides or weedicides.

(10) The following are *Low Hazard* for the purpose of *containment protection*:

(a) A water service provided to a Class 1, Class 2, Class 7a or Class 10 building where—

(i) not more than 12 persons reside; and

(ii) the building may only use non-commercial amounts of cleaning products.

(b) Premises served by a rainwater harvesting system, not including any rainwater storage tanks that are *buried rainwater tanks*.

(c) A water service where there are no *non-drinking water* services within the property.

(11) The following are *Medium Hazard* for the purpose of *containment protection*:

(a) A water service provided to a Class 3, Class 4, Class 5, Class 6 or Class 7b building where chemicals are not stored.

(b) A water service provided to a property that has—

(i) other *non-drinking water* services; or

(ii) a separate fire-fighting water service not directly connected to *Network Utility Operator's* water supply as mentioned in B5D7(13)(a)(i).

(12) The following are *High Hazard* for the purpose of *containment protection*:

(a) A water service provided to a Class 7b building where chemicals may be stored.

(b) A water service provided to a Class 8 or Class 9 building.

(c) A water service provided to a property used for commercial agriculture, farming, turf irrigation, industrial, processing or chemical industries.

(d) A water service provided to a property that has *non-drinking water* services from multiple sources with potential for health related contamination.

(13) The following fire-fighting water services are *Low Hazard*:

(a) A fire-fighting water service which has—

(i) a direct connection to a *Network Utility Operator's* water supply; and

(ii) does not contain a tank, reservoir, connection to another water supply, antifreeze or other additives, or fire brigade booster connection from an auxiliary water supply.

(b) Domestic fire sprinkler systems installed in Class 1 buildings.

(c) FPAA101D fire sprinkler systems.

(14) Any fire-fighting water services not referred to in (13) are *Medium Hazard*.

Notes

For B5D7(13) and B5D7(14), fire hose reels located within an area where a *cross-connection* hazard exists have a *Hazard Rating* the same as the areas within reach of the hose.

Exemptions

(a) B5D7(10)(b) does not apply to a *non-drinking water* service provided to the property by a *Network Utility Operator* as part of a dual water supply.

(b) B5D7(11)(b)(i) does not apply to a *non-drinking water* service provided to the property by a *Network Utility Operator*.

Applications

(a) For B5D7(11), *Medium Hazard* properties for the purposes of containment protection include the following:

(i) Caravan parks.

(ii) Food and beverage processing plants.

(iii) Premises that are connected to a grey water re-use system or a reticulated and disinfected reclaimed water system.

(iv) Public *swimming pools*.

(b) For B5D7(12), *High Hazard* properties for the purpose of *containment protection* include the following:

(i) Abattoirs.

(ii) Car and plant washing facilities.

(iii) Chemical laboratories.

(iv) Chemical plants.

(v) Factories using, processing or manufacturing toxic chemicals.

(vi) Hospitals, mortuaries, dental surgeries, clinics or day surgeries and the like containing patient care areas such as an operating theatre, minor procedures consultation room, resuscitation, intensive care and coronary care.

(vii) Metal finishing plants.

(viii) Pathology laboratories.

(ix) Petroleum processing and storage plants and facilities.

(x) Piers, docks, marinas and other waterfront facilities.

(xi) Premises where access to conduct inspections is restricted.

(xii) Sanitary depots.

(xiii) Sewerage treatment plants and sewerage lift stations.

(xiv) Universities.

(xv) Premises containing wastewater dump points.

(xvi) Industrial processing.

(xvii) Chemical industries.

Explanatory Information: Hazard Ratings

B5D7 only prescribes *Hazard Ratings* for a limited list of known hazards. It does not cover every potential *cross-connection* that may arise.

Where a situation arises which is not listed in the clause, the appropriate *Hazard Ratings* may be determined through a *Performance Solution*. A *Performance Solution* can be developed using *Verification Method* B5V1.

Explanatory Information: Clean-in-place systems

For the purposes of B5D7(4)(o) in *individual protection*, clean-in-place is a method of cleaning the internal surfaces of pipes, vessels, process equipment, filters and associated fittings, without disassembly.

Explanatory Information: Toilet douche seats

For the purposes of B5D7(6)(f), the *high hazard backflow prevention device* can be part of the toilet douche seat or installed separately.

Explanatory Information: Containment protection

- For B5D7(11)(a); Class 3, 5, 6 and 7b buildings are likely to have greater than 12 occupants (residents and/or workers) and may contain moderate amounts of cleaning or commercial chemicals, or a separate fire-fighting water service.
- For B5D7(12)(b) and B5D7(12)(c); a property presents a risk from wastewater effluent *irrigation system*, process water and/or bore water. The property has an increased potential for *cross-connection* between *drinking water* and *non-drinking water* with high consequences such as chemicals, recycled sewerage, medical, biological, toxic or hazardous substances.
- For B5D7(10), B5D7(11), B5D7(12), B5D7(13) and B5D7(14); in some jurisdictions, regulations issued under water supply legislation, and/or rules set by a *Network Utility Operator*, may prescribe backflow prevention requirements that exceed those contained in B5D6. In these circumstances those regulations and/or rules should be followed.

NSW B5D8

Part B6 Rainwater services

Introduction to this Part

This Part sets out the requirements for any part of a *rainwater service* from the *point of connection* of the *rainwater storage*, to the rainwater points of discharge.

This Part applies to a *rainwater service* supplied by stored rainwater collected from a roof, where a separate cold water service is provided for drinking and personal hygiene from a *Network Utility Operator's* supply.

This Part does not apply to rainwater used only for irrigation purposes.

Where water provided by a *Network Utility Operator* is not available or not utilised as the primary water source for drinking and personal hygiene, roof collected rainwater is considered to be a cold water service supplied by an alternative source.

Objectives

B6O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a *rainwater service*; and

(b) conserve water; and

(c) safeguard the environment; and

(d) safeguard public and private infrastructure; and

(e) ensure that a *rainwater service* installation throughout its serviceable life will continue to satisfy the requirements of Objectives (a) to (d).

Functional Statements

B6F1 Rainwater service

A *rainwater service* must be designed and installed so as to operate in a way that avoids the likelihood of inadvertent contamination of any *drinking water* service and minimises any adverse impact on building occupants, the *Network Utility Operator's* infrastructure, property and the environment.

Performance Requirements

B6P1 Pressure

The points of discharge of a *rainwater service* must—

(a) have—

(i) a working pressure of not less than 50 kPa; and

(ii) a static pressure within a building of not more than 500 kPa; or

(b) have water pressures suitable for the correct functioning of the fixture or appliance where water pressures outside

of (a)(i) and (a)(ii) are required.

B6P2 Velocity

Water velocity within the *rainwater service* pipework must not exceed 3 m/s for no less than 99% of the time that water is required during the peak hour.

Explanatory Information

During the hour of heaviest usage in reticulated *rainwater service* pipework, a velocity of 3 m/s must not be exceeded for 99% of the time that any downstream fixture is in use.

NSW B6P3

B6P3 Water efficiency

Where rainwater is used for flushing of toilets or urinals, efficient use of rainwater must be achieved by—

(a) incorporation of—

(i) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600 mm length of a continuous urinal wall; and

(ii) a dual flush cistern or flushing valve that is connected to a water closet pan, to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) other water saving measures which achieve *equivalent* or greater efficiency than (a).

Applications

The flush volumes of B6P3 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

The requirements of B6P3(a)(ii) do not apply to a vacuum *drainage* system.

B6P4 Access

Access must be provided to components of a *rainwater service* that require maintenance or replacement, including mechanical devices and controls.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door or similar obstruction.

B6P5 Isolation

Means of isolation must be provided to a *rainwater service* and components that require testing, maintenance, or replacement, including mechanical devices, appliances and controls.

Explanatory Information

Isolation valves are a means of providing isolation.

B6P6 Identification

Pipes and pipe outlets that form part of a *rainwater service* must be clearly identified.

B6P7 Uncontrolled discharge

The likelihood of failure of, or *uncontrolled discharge* from, a *rainwater service* must be avoided.

VIC B6P8

Deemed-to-Satisfy Provisions

B6D1 Deemed-to-Satisfy Provisions

VIC B6D1(1)

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B6P1 to B6P7 are satisfied by complying with B6D2 to B6D7.

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

SA B6D2

B6D2 General requirements

A *rainwater service* must comply with Section 15 of AS/NZS 3500.1.

B6D3 Identification

(1) *Rainwater* pipework must be marked in accordance with AS/NZS 3500.1.

(2) *Rainwater* outlet fittings must be marked in accordance with AS/NZS 3500.1.

NSW B6D4

B6D4 Water efficiency

(1) Cisterns or flushing devices for water closet pans must—

(a) be a minimum of 3 Star WELS rating, discharging not more than 6 litres or 4.5 litres for a full flush; and

(b) have a dual flushing mechanism.

(2) Cisterns or flushing devices for urinals must—

(a) be a minimum of 2 Stars WELS rating, discharging not more than 2.5 litres; and

(b) serve a single stall or 600 mm length of continuous urinal wall; and

(c) not be automatic or set-cycle.

Applications

The flush volumes of B6D4 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

(1) The requirements of B6D4 do not apply to a vacuum *drainage* system.

(2) The requirements of B6D4(2)(c) do not apply to a programmed solenoid operated flushing system if programmed to shut down during extended periods of non-occupancy of a building.

Explanatory Information

- Prior to installing a programmed solenoid operated flushing system, further advice should be sought from the authority having jurisdiction.
- Where sensor control is used for urinal flushing, sensors should be located to avoid unnecessary ‘nuisance’ flushing triggered by pedestrian traffic.
- AS/NZS 6400 Water Efficient Products - Rating and Labelling, provides the basis for the rating and labelling of a range of *products* under the mandatory Water Efficiency Labelling and Standards (WELS) scheme.
- B6D4 Water efficiency outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of greater efficiency *products* and technologies should be considered.

B6D5 Access

Access for maintenance of mechanical components and operational controls must be provided in accordance with AS/NZS 3500.1.

Explanatory Information

Access to mechanical components may require the removal of an access panel, cover, door, or similar obstruction.

B6D6 Isolation

A means of isolation for the *rainwater service*, appliances and devices for testing and maintenance must be provided in accordance with AS/NZS 3500.1.

Explanatory Information

Access to mechanical components may require the removal of an access panel, cover, door, or similar obstruction.

B6D7 Bushfire prone areas

A rainwater service in a *designated bushfire prone area* must be in accordance with AS 3959.

VIC B6D8

Part B7 Rainwater storage

Introduction to this Part

This Part sets out the requirements for *rainwater storage* and applies from the point of rainwater entry to the *rainwater storage* to the *point of connection* to the cold or *rainwater service* (as applicable).

This Part applies to the storage of water intended for drinking and personal hygiene use as an alternative water source supplying a cold water service.

This Part applies to rainwater provided for non-drinking purposes where water for drinking and personal hygiene is provided by the *Network Utility Operator*.

This Part does not apply to rainwater stored for the purposes of fire-fighting water services or an *irrigation system*.

State, Territory or Local Government Authorities may in some areas require the mandatory installation of rainwater tanks. Consultation with the relevant authority having jurisdiction is recommended.

Objectives

B7O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss of amenity*) due to the failure of a *rainwater storage*; and

(b) conserve water; and

(c) safeguard the environment; and

(d) safeguard public and private infrastructure; and

(e) ensure that the *rainwater storage* throughout its serviceable life will continue to satisfy the requirements of Objectives (a) to (d).

Functional Statements

B7F1 Rainwater storage

Rainwater storage systems must be designed and installed so as to operate in a way that avoids the likelihood of inadvertent contamination of any *drinking water* service, and minimises any adverse impact on building occupants, the *Network Utility Operator's* infrastructure, property and the environment.

Performance Requirements

TAS B7P1

B7P1 Contamination

(1) Rainwater must be stored in a way that reduces the likelihood of contamination.

(2) Stored *rainwater* must not pose a hazard to public health.

Exemptions

B7P1 does not apply to *sites* not provided with a *drinking water* service by a *Network Utility Operator*.

TAS B7P2

B7P2 Uncontrolled discharge

The likelihood of failure of, or *uncontrolled discharge* from, *rainwater storage* must be avoided.

Exemptions

B7P2 does not apply to *sites* not provided with a *drinking water* service by a *Network Utility Operator*.

TAS B7P3

B7P3 Access

Access must be provided to components of *rainwater storage* that require maintenance or replacement, including mechanical devices and controls.

Exemptions

B7P3 does not apply to *sites* not provided with a *drinking water* service by a *Network Utility Operator*.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door, or similar obstruction.

TAS B7P4

B7P4 Isolation

Means of isolation must be provided to a *rainwater storage* and components that require testing, maintenance, or replacement including mechanical devices, appliances and controls.

Exemptions

B7P4 does not apply to *site* not provided with a *drinking water* service by a *Network Utility Operator*.

Explanatory Information

Isolation valves are a means of providing isolation.

TAS B7P5

B7P5 Identification

Rainwater storage and holding tanks used only for non-drinking purposes must be clearly identified.

Exemptions

(1) Identification is not *required* where *rainwater storage* is intended to supply water for drinking and personal hygiene purposes.

(2) B7P5 does not apply to *sites* not provided with a *drinking water* service by a *Network Utility Operator*.

Deemed-to-Satisfy Provisions

B7D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B7P1 and B7P5 are satisfied by complying with B7D3 and B7D4.

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

TAS B7D2

B7D2 Application of Part

The *Deemed-to-Satisfy Provisions* of this Part do not apply to sites not provided with a *drinking water* service by a *Network Utility Operator*.

TAS B7D3

B7D3 Collection of rainwater

Rainwater storage must only contain roof captured *rainwater*.

Exemptions

Rainwater storage may be supplemented with *drinking water* where necessary.

Explanatory Information

The Environmental Health Standing Committee (enHealth) has produced a document, Guidance on the use of rainwater tanks. This guidance document includes information on design and installation as well as the potential contribution of rainwater tanks to improved water conservation.

Any cold water service from a *Network Utility Operator's drinking water* supply to a *rainwater storage* system top up or switching device must comply with Part B1.

B7D4 Identification

The *rainwater storage* must be identified as rainwater in accordance with AS/NZS 3500.1.

Exemptions

Where *rainwater storage* is intended to supply water for drinking and personal hygiene, identification of the storage and holding tanks is not required.

Section C Sanitary plumbing and drainage systems

Part C1 Sanitary plumbing systems

Objectives

C1O1 Objective

Functional Statements

C1F1 Disposal system

Performance Requirements

C1P1 Disposal
C1P2 Access
C1P3 Water efficiency
C1P4 Uncontrolled discharge
C1P5 Ventilation
C1P6 Contamination
C1P7 Damage

Verification Methods

C1V1 Determination of sanitary plumbing wastewater flowrates
C1V2 System design using wastewater flowrates

Deemed-to-Satisfy Provisions

C1D1 Deemed-to-Satisfy Provisions
C1D2 Invert levels
C1D3 General requirements
C1D4 Bushfire prone areas
C1D5 Water efficiency

Part C2 Sanitary drainage systems

Objectives

C2O1 Objective

Functional Statements

C2F1 Disposal system
C2F2 Swimming pool wastewater disposal

Performance Requirements

C2P1 Disposal
C2P2 Swimming pool drainage
C2P3 Access
C2P4 Ventilation
C2P5 Contamination
C2P6 Uncontrolled discharge
C2P7 Damage

Verification Methods

C2V1 Velocity and liquid-to-air ratio
C2V2 Pressure testing
C2V3 Determination of sanitary drainage wastewater flowrates
C2V4 Sanitary drainage design

Deemed-to-Satisfy Provisions

C2D1 Deemed-to-Satisfy Provisions
C2D2 Invert levels
C2D3 Swimming pool drainage
C2D4 General requirements
C2D5 Bushfire prone areas

Part C3 On-site wastewater management

Objectives

C3O1 Objective

Functional Statements

C3F1 On-site wastewater management

Performance Requirements

C3P1 Health impacts
C3P2 Environmental impacts
C3P3 Community systems
C3P4 Discharge to a Network Utility Operator sewer
C3P5 General requirements
C3P6 Land application systems
C3P7 Access for maintenance
C3P8 Uncontrolled discharge
C3P9 Identification

Deemed-to-Satisfy Provisions

C3D1 Deemed-to-Satisfy Provisions
C3D2 Septic tanks
C3D3 Composting toilets
C3D4 Secondary treatment systems
C3D5 Domestic grey water treatment systems
C3D6 Land application systems
C3D7 Common effluent drainage systems

Part C1 Sanitary plumbing systems

Introduction to this Part

This Part sets out the requirements for any part of a sanitary *plumbing* system of a property including from sanitary fixtures and appliances from the *point of connection* to a sanitary *drainage* system.

Objectives

C1O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a sanitary *plumbing* installation; and

(b) ensure that a sanitary *plumbing* installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a sanitary *plumbing* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

C1F1 Disposal system

Sanitary fixtures and sanitary appliances must be provided with an adequate disposal system that does not impact adversely on the occupants of the premises, property, the environment or the *Network Utility Operator's* infrastructure.

Performance Requirements

C1P1 Disposal

Sewage and sullage must be conveyed through a sanitary *plumbing* system to—

(a) a sanitary *drainage* system; or

(b) an *approved disposal system* authorised by an authority having jurisdiction.

Explanatory Information

An *approved disposal system* may be—

(a) an *on-site wastewater management system*; or

(b) a connection to a *Network Utility Operator's* sewerage system.

Explanatory Information: Non-flushing (waterless) urinals

Where a non-flushing (waterless) urinal is to be installed to a sanitary *plumbing* system comprising of copper, copper alloy or other metallic piping, undiluted discharge transported through such pipework may increase the likelihood of corrosion.

Practitioners should also be aware that undiluted discharge, transported through pipework of any material, can cause a build-up of struvite (ammonium magnesium phosphate) inside the pipework, potentially causing *blockage* within the sanitary *plumbing* system.

C1P2 Access

Access must be provided to components of a sanitary *plumbing* system that require maintenance or replacement including mechanical devices, controls and for clearing *blockages*.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door, or similar obstruction.

C1P3 Water efficiency

A sanitary *plumbing* system must ensure efficient use of *drinking water* by—

(a) limiting water usage from—

(i) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600 mm length of a continuous urinal wall; and

(ii) a dual flush cistern or flushing valve that is connected to a water closet pan to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) water saving measures *equivalent* to or greater than those described in (a).

Applications

The flush volume of C1P3 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

The requirements of C1P3 do not apply to a vacuum *drainage* system.

C1P4 Uncontrolled discharge

Any failure or *uncontrolled discharge* from a sanitary *plumbing* system must be avoided.

C1P5 Ventilation

A sanitary *plumbing* system must ensure that ventilation is provided to avoid hydraulic load imbalance such that—

(a) there is less than a 1% likelihood during the peak hour that when any fixture discharges, air pressure at any trap seal exceeds ±375 Pa difference from atmospheric pressure; or

(b) an *equivalent* level of safety to human health is achieved as a system complying to (a).

Exemptions

C1P5 Ventilation does not apply to vacuum *drainage* systems.

C1P6 Contamination

(1) The entry of water, foul gases, sewerage and sullage from a sanitary *plumbing* system into buildings must be avoided.

(2) The entry of foul gases from a sanitary plumbing system into buildings must be avoided, such that—

(a) at pressures of up to ±375 Pa, water trap seals will not be reduced to depths less than

(i) 70 mm for trap seals in pressurised rooms; and

(ii) 25 mm for all other applications; or

(b) an *equivalent* level of safety to human health is achieved as a system complying with (a).

(3) The entry of *surface water*, *sub-surface water* and stormwater into a sanitary plumbing system must be avoided.

C1P7 Damage

Damage to a sanitary *plumbing* system from superimposed loads, ground movement or root penetration must be avoided.

Explanatory Information

Superimposed loads that a sanitary *plumbing* system is susceptible to damage from, include building loads and loads arising from building movement or ground movement.

Verification Methods

C1V1 Determination of sanitary plumbing wastewater flowrates

(1) Compliance with C1P3 for pipe sizing is verified for each sanitary *plumbing* pipework section when the discharge flowrate is not less than the greater of—

(a) the probable simultaneous wastewater flowrate calculated in accordance with (2); or

(b) the Discharge Unit (DU) value of the highest fixture connected upstream of the pipework section as given in Table C1V1b, in litres per second.

(2) For the purposes of (1)(a), for each pipework section, the design probable simultaneous wastewater flowrate must be calculated in accordance with the following:

$$QTotal = K\sqrt{\sum DU} + QOther$$

(3) In the equation shown at (2)—

(a) $QTotal$ = the probable simultaneous wastewater flowrate for that pipework section (l/s); and

(b) $QOther$ = the sum of any other wastewater flowrates such as pumped discharges (l/s); and

(c) κ = the frequency factor given in Table C1V1a (dimensionless); and

(d) $\sum DU$ = the sum of the discharge units as given in Table C1V1b, connected upstream of that pipework section (dimensionless).

Table C1V1a: Frequency factors

NCC building class	NCC building class example	Frequency factor (K)	Time interval between fixture use averaged over peak period (s)
Class 1	Residential dwelling, duplexes, or townhouses	0.5	1200
Class 2	Apartment or unit	0.5 - 0.8	450 - 1200
Class 3	Hotel, hostel, dormitory	0.6 - 0.8	450 - 800
Class 4	Sole dwelling within a Class 5-9 building	0.5	1200
Class 5	Office	0.6 - 0.8	450 - 800
Class 6	Retail, shop, restaurant, café	0.6 - 0.8	450 - 800
Class 7	Carpark, warehouse, storage building	0.6 - 0.8	450 - 800
Class 8	Factory, workshop, laboratory	0.6 - 0.8	450 - 800
Class 9a	Healthcare building, hospital, and GP clinics	0.6 - 0.8	450 - 800
Class 9b	Public event buildings, stadiums, theatres, schools, universities, and churches	1.0 - 1.2	200 - 300
Class 9c	Aged care facilities	0.6 - 0.8	450 - 800

Table C1V1b: Discharge units

Fixture	Discharge Units (DU)
Basin	0.3
Bath (with shower)	0.5
Bath (without shower)	0.6
Bidet	0.3
Shower (single)	0.4
Urinal (wall-hung)	0.5
Urinal (stall for each 600 mm length of slab)	0.2
Kitchen sink	0.6
Water closet (6L cistem)	1.8
Water closet (4L cistem)	1.8
Washing machine	0.6
Domestic dishwasher	0.6
Floor waste gully	Sum of DU from connected fixtures

Explanatory Information: Table C1V1a

When using Table C1V1a, the hydraulic practitioner should use their own judgement to select the frequency factor most

appropriate to their design based on the estimated average time between fixture usage during peak periods of use.

Explanatory Information: Table C1V1b

Considerations when using Table C1V1b are as follows:

- The Discharge Unit (DU) values in Table C1V1b are based on the BS EN 12056.2 System II fixture values where branch discharge pipes are designed with a filling degree of 70%. The use of these fixture values is up to the discretion of the practitioner.
- Filling degree is defined as the ratio between the height of fluid in a pipe (h) and the internal diameter of the pipe (D), or h/D.
- Where a washing machine is connected to a fixture trap, only the fixture discharge unit is considered.

C1V2 System design using wastewater flowrates

(1) Compliance with C1P5 for pipe sizing is verified for the *plumbing* design when—

(a) fully vented systems and fully vented modified systems are designed in accordance with Section 8 of AS/NZS 3500.2: and

(b) single stack systems and single stack modified systems are designed in accordance with Section 9 of AS/NZS 3500.2: and

(c) consideration by the designer is given to expanding the exclusion zones referenced in AS/NZS 3500.2 (1 m exclusion zone at the base of the stack) for high rise buildings.

(2) For the purposes of (1), for each pipework section, the probable simultaneous wastewater flowrate determined through C1V1 may be converted to an equivalent AS/NZS 3500.2 Fixture Unit (FU) in accordance with the following:

$$FU_{Total} = 6.75Q^2_{Total}$$

(3) In the equation shown at (2):

(a) Q = the wastewater flowrate (L/s); and

(b) FU = the equivalent fixture units converted from a flowrate (dimensionless) where the result is rounded up to the next integer.

(4) For the purposes of (1), all relevant sizing tables and design guidance referencing FU in AS/NZS 3500.2 may alternatively be converted to an equivalent flowrate using the following:

$$Q = \sqrt{\frac{\Sigma FU}{6.75}}$$

(5) In the equation shown at (4), ΣFU = the sum of fixture units to be converted (dimensionless).

Explanatory Information

The conversion of the probable simultaneous wastewater flowrate into fixture units (FU) using the formula in (2) allows the resultant (FU) value to be used when applying the relevant sizing tables and design guidance in the applicable sections of AS/NZS 3500.2 in accordance with (1).

Deemed-to-Satisfy Provisions

C1D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement* C1P1 to C1P7 is satisfied by complying

with C1D2 to C1D5.

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

C1D2 Invert levels

The invert level of a trap or gully weir must be a minimum of 10 mm higher than the soffit of the pipe to which it connects.

SA C1D3

WA C1D3

C1D3 General requirements

A sanitary *plumbing* system must be in accordance with AS/NZS 3500.2.

C1D4 Bushfire prone areas

A sanitary *plumbing* system in a *designated bushfire prone area* must be in accordance with AS 3959.

C1D5 Water efficiency

A sanitary *plumbing* system must ensure the efficient use of *drinking water* by—

(a) limiting water usage from—

(i) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600 mm length of a continuous urinal wall; and

(ii) a dual flush cistern or flushing valve that is connected to a water closet pan to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) water saving measures *equivalent* to or greater than those described in (a).

Applications

The flush volumes of C1D5 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

The requirements of C1D5 do not apply to a vacuum *drainage* system.

Explanatory Information: Cross-volume considerations

NCC Volumes One and Two deal with a number of areas of on-site construction which are relevant to sanitary *plumbing*

services. These include, but are not limited to, those listed in Table C1.

Table C1: Cross-volume considerations

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Termite management for attachments to buildings and penetrations through a slab	B1 Structural provisions	H1 Structure
Penetrations for pipework through a vapour barrier	B1 Structural provisions	H1 Structure
Pipework in timber bearers and joists of solid timber or engineered wood products	B1 Structural provisions	H1 Structure
Fittings, fixtures and pipework installations in steel framed construction	B1 Structural provisions	H1 Structure
Penetrations through a fire-resisting wall or floor	C1 Fire resistance Performance Requirements and C4 Protection of openings	H3 Fire safety
Fixtures and fittings in a wet area	F2 Wet areas and overflow protection	H4 Health and amenity
Service pipework external to the building and penetrations through roof cladding in a bushfire prone area	G5 Construction in bushfire prone areas	H7 Ancillary provisions and additional construction requirements
Flues, chimneys, pipes, gas storage, domestic fuel tanks, cooling or heating appliances or other services	C4 Protection of openings	H3 Fire safety
Pipework sound insulation	F7 Sound transmission and insulation	H4 Health and amenity

Part C2 Sanitary drainage systems

Introduction to this Part

This Part sets out the requirements for any part of a sanitary *drainage* system of a property including from sanitary fixtures, appliances and sanitary *plumbing* systems from the *point of connection* to an *approved disposal system*.

Objectives

C2O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a sanitary *drainage* installation; and

(b) ensure that a sanitary *drainage* installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) safeguard people from illness caused by the discharge of *swimming pool* waste water; and

(g) protect *other property* from damage caused by the discharge of *swimming pool* waste water; and

(h) ensure that a sanitary *drainage* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (g).

Functional Statements

C2F1 Disposal system

Sanitary fixtures and sanitary appliances must be provided with an adequate disposal system that does not impact adversely on occupants of the premises, property, the environment or the *Network Utility Operator's* infrastructure.

C2F2 Swimming pool wastewater disposal

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

Performance Requirements

C2P1 Disposal

Sewage must be conveyed through a sanitary *drainage* system to an *approved disposal system* authorised by an authority having jurisdiction.

Explanatory Information

An *approved disposal system* may be—

(1) an *on-site wastewater management system*; or

(2) a connection to a *Network Utility Operator's* sewerage system.

NT C2P2

C2P2 Swimming pool drainage

(1) An adequate means of draining a *swimming pool* must be designed and installed in a way that will not cause illness to people.

(2) An adequate means of draining a *swimming pool* must be designed and installed in a way that will not affect any *other property*.

C2P3 Access

Access must be provided to components of a sanitary *drainage* system that require maintenance or replacement including mechanical devices, controls and for clearing *blockages*.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door, or similar obstruction.

C2P4 Ventilation

(1) A sanitary *drainage* system must ensure there is adequate ventilation to avoid foul air and gases accumulating in the sanitary *drainage* and sewerage system.

(2) A sanitary *drainage* system must ensure that ventilation is provided to avoid hydraulic load imbalance such that—

(a) there is less than a 1% likelihood during the peak hour that when any fixture discharges, air pressure at any trap seal exceeds ±375 Pa difference from atmospheric pressure; or

(b) an *equivalent* level of safety to human health is achieved as a system complying to (a).

C2P5 Contamination

(1) The entry of water, foul gases, sewerage and sullage from a sanitary *drainage system* into buildings must be avoided.

(2) A sanitary *drainage system* must be protected against internal contamination.

(3) The entry of foul gases from a sanitary *drainage system* into buildings must be avoided, such that—

(a) at pressures of up to ±375 Pa, water trap seals will not be reduced to depths less than—

(i) 70 mm for trap seals in pressurised rooms; and

(ii) 25 mm for all other applications; or

(b) an equivalent level of safety to human health is achieved as a system complying to (a).

(4) The entry of *surface water*, *sub-surface water* and stormwater into a sanitary *drainage system* must be avoided.

Explanatory Information

Consideration should be given to the type, quality and quantity of waste being discharged to a sanitary *drainage system* and the suitability and compatibility of the materials used.

C2P6 Uncontrolled discharge

Any failure or *uncontrolled discharge* from a sanitary *drainage system* must be avoided.

NSW C2P7

C2P7 Damage

(1) Damage to sanitary *drainage systems* from superimposed loads must be avoided.

(2) Damage to sanitary *drainage systems* from ground movement must be avoided.

(3) Damage to sanitary *drainage systems* from root penetration must be avoided.

(4) Damage to the *Network Utility Operator's* sewerage system or any *approved disposal system* must be avoided.

(5) Damage to siteworks or existing buildings from a sanitary *drainage systems* must be avoided.

Explanatory Information

- For C2P7(1), superimposed loads that a sanitary *drainage system* is susceptible to damage from, include building loads and loads arising from building movement or ground movement.
- For C2P7(2), the soil classification of a *site* should provide an indication of the likelihood for ground movement.
- For C2P7(3), consideration should be given to the location of sanitary *drainage systems* in respect to the existing or proposed surrounding landscape features and implementing appropriate strategies to minimise the likelihood of root penetration.
- For C2P7(5), consideration should be given to factors such as the anticipated type, quality and quantity of waste intended to be discharged. Suitable pre-treatment may be necessary to prevent any potential for damage.

Verification Methods

C2V1 Velocity and liquid-to-air ratio

Compliance with C2P1 is achieved if the sanitary *drainage* system is designed to operate with—

(a) a liquid-to-air ratio of between 1 to 1 and 0.65 to 0.35; and

(b) a minimum velocity of 0.8 m/s; and

(c) a maximum velocity of—

(i) 2 m/s under normal operating conditions; and

(ii) 3.5 m/s under surge conditions.

Explanatory Information

- The purpose of the minimum velocity is to minimise the likelihood of *blockage* in the sanitary *drainage* system.
- The maximum velocity is intended to minimise the likelihood of damage to the system.

C2V2 Pressure testing

Compliance with C2P1 is achieved if the sanitary *drainage* system passes one or more of the pressure tests set out in AS/NZS 3500.2.

C2V3 Determination of sanitary drainage wastewater flowrates

(1) Compliance with C2P1 for pipe sizing is verified for each sanitary *drainage* pipework section when the design flow rate is not less than—

(a) the probable simultaneous wastewater flow rate calculated in accordance with (2); or

(b) the Discharge Unit (DU) value of the highest fixture connected upstream of the pipework section as given by Table C2V3b, in litres per second, whichever is greater.

(2) For the purposes of (1)(a), for each pipework section, the design probable simultaneous wastewater flow rate must be calculated in accordance with the following:

$$QTotal = K\sqrt{\sum DU} + QOther$$

(3) In the equation shown at (2):

(a) $QTotal$ = the probable simultaneous wastewater flowrate for that pipework section (l/s).

(b) $QOther$ = the sum of any other wastewater flowrates such as pumped discharges (l/s).

(c) K = the frequency factor given in Table C2V3a (dimensionless).

(d) $\sum DU$ = the sum of the discharge units as given in Table C2V3b connected upstream of that pipework section (dimensionless).

Table C2V3a: Frequency factors

NCC building class	NCC building class example	Frequency factor (K)	Time interval between fixture use averaged over peak period (s)
Class 1	Residential dwelling, duplexes, or townhouses	0.5	1200
Class 2	Apartment or unit	0.5 - 0.8	450 - 1200
Class 3	Hotel, hostel, dormitory	0.6 - 0.8	450 - 800
Class 4	Sole dwelling within a Class 5-9 building	0.5	1200
Class 5	Office	0.6 - 0.8	450 - 800
Class 6	Retail, shop, restaurant, café	0.6 - 0.8	450 - 800
Class 7	Carpark, warehouse, storage building	0.6 - 0.8	450 - 800
Class 8	Factory, workshop, laboratory	0.6 - 0.8	450 - 800
Class 9a	Healthcare building, hospital, and GP clinics	0.6 - 0.8	450 - 800
Class 9b	Public event buildings, stadiums, theatres, schools, universities, and churches	1.0 - 1.2	200 - 300
Class 9c	Aged care facilities	0.6 - 0.8	450 - 800

Table C2V3b: Discharge units

Fixture	Discharge Units (DU)
Basin	0.3
Bath (with shower)	0.5
Bath (without shower)	0.6
Bidet	0.3
Shower (single)	0.4
Urinal (wall-hung)	0.5
Urinal (stall for each 600 mm length of slab)	0.2
Kitchen sink	0.6
Water closet (6L cistern)	1.8
Water closet (4L cistern)	1.8
Washing machine	0.6
Domestic dishwasher	0.6
Floor waster gully	Sum of DU from connected fixtures

Notes

In applying Table C2V3b, the practitioner may introduce their own fixture values where a desired fixture type is not listed.

Explanatory Information: Table C2V3a

When using Table C2V3a, the hydraulic practitioner should use their own judgement to select the frequency factor most appropriate to their design based on the estimated average time between fixture usage during peak periods of use.

Explanatory Information: Table C2V3b

Considerations when using Table C2V3b are as follows:

- The Discharge Unit (DU) values in Table C2V3b are based on the BS EN 12056.2 System II fixture values where branch discharge pipes are designed with a filling degree of 70%. The use of these fixture values is up to the discretion of the practitioner.
- Filling degree is defined as the ratio between the height of fluid in a pipe (h) and the internal diameter of the pipe (D), or h/D.
- Where a washing machine is connected to a fixture trap, only the fixture discharge unit is considered.
- In applying the note, evidence of engineering best practice, careful consideration and/or experimentation demonstrating the real-life performance of the fixture(s) compared with the proposed DU values should be provided.

C2V4 Sanitary drainage design

(1) Compliance with C2P1 for main drains and branch drains is verified if (2) to (4) are complied with.

(2) Sanitary *drainage* pipework shall be sized in accordance with AS 2200 and C2V1.

(3) The following limitations shall be applied:

(a) The size of the drain shall be of nominal size as specified in Table 3.4.1 of AS/NZS 3500.2.

(b) The minimum size of a main drain shall be as per Clause 3.3.2 of AS/NZS 3500.2.

(c) The minimum size of a branch drain shall be as per Clause 3.3.3 of AS/NZS 3500.2.

(d) Not more than 2 water closet pans shall be connected to a vented DN 80 branch drain.

(4) When using the Colebrook-White equation provided in AS 2200—

(a) minimum and maximum pipe grades shall be designed such that (2) is satisfied; and

(b) the filling degree shall be designed such that (2) is satisfied; and

(c) the flowrate of the designed drain must be greater than or equal to that determined in accordance with C2V3; and

(d) unless alternative values are appropriate, the design values must be—

(i) 1.5 mm for pipe roughness; and

(ii) 1.01 x 10^{-6} m^2s^{-1} for kinematic viscosity.

Deemed-to-Satisfy Provisions

C2D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* C2P1 to C2P7 are satisfied by complying with C2D2 to C2D5.

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

C2D2 Invert levels

The invert level of a trap or gully weir must be a minimum of 10 mm higher than the soffit of the pipe to which it connects.

C2D3 Swimming pool drainage

NT C2D3(1)

Where pumped discharge from a *swimming pool* discharges into a sanitary *drainage system* it must be in accordance with AS/NZS 3500.2.

Explanatory Information

Consideration should be given to 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.

NSW C2D4

SA C2D4

VIC C2D4

WA C2D4

C2D4 General requirements

A sanitary *drainage system* must be in accordance with AS/NZS 3500.2.

TAS C2D4(2)

C2D5 Bushfire prone areas

A sanitary *drainage* system in a *designated bushfire prone area* must be in accordance with AS 3959.

TAS C2D6

Explanatory Information: Cross-volume considerations

NCC Volumes One and Two deal with a number of areas of on-site construction which are relevant to a sanitary *drainage* system. These include, but are not limited to, those listed in Table C2.

Table C2: Cross-volume considerations

Item	NCC Volume One Class 2 to 9 buildings	NCC Volume Two Class 1 and 10 buildings
Excavations for pipework adjacent to a building and footings	B1 Structural provisions	H1 Structure
Termite management for attachments to buildings and penetrations through a slab	B1 Structural provisions	H1 Structure
Penetrations for pipework through a vapour barrier	B1 Structural provisions	H1 Structure
Pipework in timber bearers and joists of solid timber or engineered wood products	B1 Structural provisions	H1 Structure
Fittings, fixtures and pipework installations in steel framed construction	B1 Structural provisions	H1 Structure
Penetrations through a fire-resisting wall or floor	C1 Fire resistance Performance Requirements and C4 Protection of openings	H3 Fire safety

Part C3 On-site wastewater management

NSW Part C3

Introduction to this Part

This Part sets out the requirements for any part of an *on-site wastewater management system* from the *point of connection* of a sanitary *drainage* system up to and including the appropriate means of waste disposal.

Objectives

C3O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss of amenity*) due to the failure of an *on-site wastewater management system* installation; and

(b) ensure that an *on-site wastewater management system* installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that an *on-site wastewater management system* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

C3F1 On-site wastewater management

On-site wastewater management systems must collect, contain, treat, assimilate and process wastewater, human excreta, or both so that public health and environmental standards required by the authority having jurisdiction are achieved.

Performance Requirements

C3P1 Health impacts

On-site wastewater management systems must protect public health by ensuring that—

(a) risks associated with the discharge of treated wastewater and/or the end product from a composting toilet to the environment are minimised; and

(b) foul air and gasses are prevented from accumulating within or entering into buildings; and

(c) the likelihood of contamination of the *drinking water* supply is avoided.

Explanatory Information

Wastewater contains a range of pathogens that can cause illness in humans. A well designed, maintained, and operated

wastewater system improves sanitation and reduces the risk to public and environmental health. Poorly designed and maintained wastewater systems can result in, contamination of drinking water and recreational water sources, including those used for food production, as well as increased risks of direct wastewater contact by the public.

C3P2 Environmental impacts

On-site wastewater management systems must protect the environment by ensuring that—

(a) *surface water* and ground water are not polluted: and

(b) soil productivity is maintained or enhanced; and

(c) the likelihood of contamination of soils, ground water and waterways is avoided.

C3P3 Community systems

On-site wastewater management systems must minimise the impacts on and maintain and enhance community *amenity*. They must ensure that the *on-site wastewater management system* design and its implementation contribute to improving and sustaining aesthetic values within individual properties and groups of properties.

C3P4 Discharge to a Network Utility Operator sewer

Where an *on-site wastewater management system* discharges to the *point of connection* of a *Network Utility Operator's* sewer system, the connection must comply with the *Network Utility Operator* requirements.

TAS C3P5

C3P5 General requirements

On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must be designed and constructed—

(a) with *required* treatment and storage capacity for the volume and make up of waste and frequency of discharge for disposal; and

(b) with *required* size, strength and rigidity for the nature, flow rates, volume of wastes and/or waste products which must be processed; and

(c) using materials which are impervious both to the waste for which disposal is required and to water; and

(d) to avoid the likelihood of *surface water* and stormwater entering the system.

C3P6 Land application systems

(1) *On-site wastewater management systems* and associated land application systems must—

(a) complete the treatment, uptake and absorption of the final effluent within the boundaries of the approved area; and

(b) protect against internal contamination; and

(c) provide ventilation to avoid the likelihood of foul air and gases from accumulating in the system.

(2) *On-site wastewater management systems* and associated land application systems must avoid the likelihood of—

(a) the creation of unpleasant odours or the accumulation of offensive matter; and

(b) stormwater run-off entering the system; and

(c) root penetration or ingress of ground water entering the system; and

(d) unintended or *uncontrolled discharge*; and

(e) *blockage* and leakage; and

(f) damage from superimposed loads or ground movement.

C3P7 Access for maintenance

(1) *On-site wastewater management systems* that facilitate on-site storage, treatment, disposal or re-use of wastewater must—

(a) provide vehicle access for collection, if necessary; and

(b) avoid the likelihood of unauthorised access by people; and

(c) permit cleaning, maintenance, measurement and performance sampling.

(2) Land application systems must—

(a) provide access, as required, for maintenance; and

(b) incorporate provisions, as required, for effective cleaning.

C3P8 Uncontrolled discharge

On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must avoid *blockage* or *uncontrolled discharge*.

C3P9 Identification

On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must permit the manufacturer model, serial number and designed capacity to be easily accessed and identifiable after installation.

Deemed-to-Satisfy Provisions

C3D1 Deemed-to-Satisfy Provisions

(1) *Performance Requirements* C3P1 to C3P9 are satisfied by complying with C3D2 to C3D7.

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

SA C3D2

C3D2 Septic tanks

A septic tank must be in accordance with AS/NZS 1546.1.

SA C3D3

C3D3 Composting toilets

A waterless composting toilet must be in accordance with AS/NZS 1546.2.

SA C3D4

C3D4 Secondary treatment systems

A secondary treatment system must be in accordance with AS 1546.3.

SA C3D5

C3D5 Domestic grey water treatment systems

A domestic grey water treatment system must be in accordance with AS/NZS 1546.4.

SA C3D6
TAS C3D6

C3D6 Land application systems

A domestic land application system must be in accordance with AS/NZS 1547.

SA C3D7

C3D7 Common effluent drainage systems

A common effluent *drainage* system must be in accordance with AS/NZS 3500.2.

Section D Excessive noise

Part D1 Excessive noise

Objectives

D1O1 Objective

Functional Statements

D1F1 Excessive noise

Performance Requirements

D1P1 Undue noise

D1P2 Excessive noise

Deemed-to-Satisfy Provisions

D1D1 Deemed-to-Satisfy Provisions

D1D2 Undue noise

D1D3 Sound insulation

Part D1 Excessive noise

Introduction to this Part

This Part sets out the requirements to prevent excessive noise being generated from a *plumbing* and *drainage* system that could cause illness or *loss* of *amenity* to occupants in a building.

Objectives

D1O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to excessive noise of a *plumbing* and *drainage* system; and

(b) ensure that a *plumbing* and *drainage* system installation throughout its serviceable life will continue to satisfy the requirements of Objective (a).

Functional Statements

D1F1 Excessive noise

A *plumbing* and *drainage* system must operate in a way that avoids the likelihood of excessive noise of any part of the *plumbing* and *drainage* system, and minimises any adverse impact on building occupants.

Performance Requirements

D1P1 Undue noise

A *plumbing* and *drainage* system must not create undue noise.

D1P2 Excessive noise

(1) A *plumbing* and *drainage* system must reduce the transmission of airborne and/or impact generated sound which may cause illness or *loss* of *amenity* to occupants.

(2) The *required* sound insulation of a floor or wall must not be compromised by the incorporation or penetration of a *plumbing* or *drainage* system.

Applications

D1P2 only applies to a *plumbing* or *drainage* system that is located in—

(a) a *separating wall* of a Class 1 building; or

(b) a Class 2, Class 3 or Class 9c building that is *required* to be sound rated.

Notes

(1) Part F7 in Volume One of the NCC contains *Performance Requirements* F7P1 through to F7P4 which cover sound transmission and insulation in walls and floors of Class 2, Class 3 and Class 9c buildings.

(2) Part H4 in Volume Two of the NCC contains *Performance Requirement* H4P6 which covers sound insulation of walls in Class 1 buildings.

Deemed-to-Satisfy Provisions

D1D1 Deemed-to-Satisfy Provisions

NT D1D1(1)

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement*—

(a) D1P1 is satisfied by complying with D1D2; and

(b) D1P2 is satisfied by complying with D1D3.

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

D1D2 Undue noise

To prevent undue noise, *plumbing* and *drainage* systems must comply with—

(a) B1D3 for cold water services.

(b) B2D9 for *heated water* services.

(c) B3D3 for *non-drinking water* services.

(d) B4D2 for fire-fighting water services.

(e) B6D2 for *rainwater services*.

(f) C1D3 for sanitary *plumbing* systems.

(g) C2D4 for sanitary *drainage* systems.

NT D1D3

D1D3 Sound insulation

(1) If a *plumbing* or *drainage* system serves or passes through more than one *sole-occupancy unit* in a Class 2, Class 3 or Class 9c building, it must be separated from the rooms of any other *sole-occupancy unit* by construction with an $R_w + C_{tr}$ (airborne) not less than—

(a) 40 if the adjacent room is a *habitable room* (other than a kitchen); or

(b) 25 if the adjacent room is a kitchen or a non-*habitable room*.

(2) In Class 2, Class 3 or Class 9c buildings, a flexible coupling must be used to connect a pump to a *plumbing* or *drainage* system.

(3) If a *plumbing* or *drainage* system is located in (or passes through) a *separating wall* in a Class 1 building, it must—

(a) only be installed in *discontinuous construction*; and

(b) not be fixed to the wall of a dwelling that it does not serve; and

(c) have a gap not less than 10 mm between the pipe and a wall of a dwelling that it does not serve; and

(d) not be chased in if the *separating wall* is made of concrete or masonry.

Explanatory Information

Specification 28 lists sound ratings for some common forms of construction. If any of these common forms of construction are used, the *plumbing* or *drainage* system must be installed in accordance with the requirements of that Specification.

Section E Facilities and ancillary additions

Part E1 Facilities

Objectives

E1O1 Objective

Functional Statements

E1F1 Facilities

Performance Requirements

E1P1 Facilities for people with disability

Deemed-to-Satisfy Provisions

E1D1 Deemed-to-Satisfy Provisions

E1D2 General requirements

Part E1 Facilities

Introduction to this Part

This Part sets out the requirements to allow people with disability to use the facilities provided by a *plumbing* and *drainage* system.

Objectives

E1O1 Objective

The Objective of this Part is to—

(a) ensure that the facility of a *plumbing* and *drainage* system (including an installation provided for use by people with disability) is suitable; and

(b) ensure that the facility of a *plumbing* and *drainage* system installation throughout its serviceable life will continue to satisfy the requirements of Objective (a).

Functional Statements

E1F1 Facilities

The facility of a *plumbing* and *drainage* system must be designed and installed so as to be operable by people with disability.

Performance Requirements

E1P1 Facilities for people with disability

Where a *plumbing* and *drainage* system is provided, supply taps or other operational controls must be *accessible* and suitable for use.

Deemed-to-Satisfy Provisions

E1D1 Deemed-to-Satisfy Provisions

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement* E1P1 is satisfied by complying with E1D2.

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

E1D2 General requirements

Where supply taps or other operational controls are provided in sanitary facilities for people with disability they must be in accordance with—

(a) AS 1428.1 (2001) and AS 1428.2 for passenger use areas of Class 9b and Class 10 public transport buildings; and

(b) AS 1428.1 (2021) for all other buildings.

Explanatory Information: Cross-volume considerations

Part F4 of NCC Volume One sets out the requirements for the design and construction of *accessible* sanitary facilities in Class 1b, 2 to 9 and 10a buildings.

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

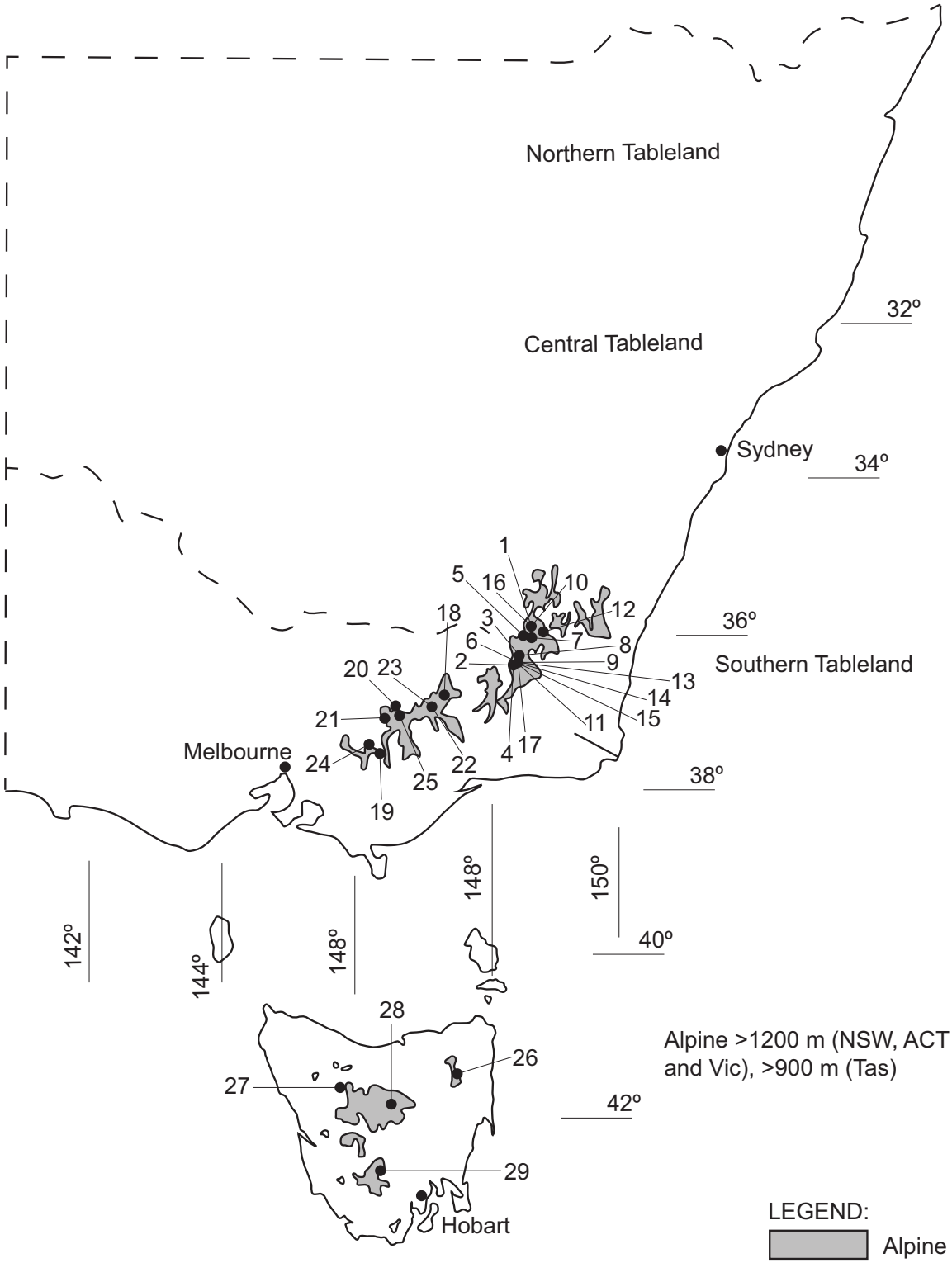


Figure Notes

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

SA Certificate of Accreditation

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 room

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

State	Location	*Climate zone*
NSW	Tamworth	4
NSW	Thredbo	8
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

State	Location	*Climate zone*
SA	Murray Bridge	6
SA	Oodnadatta	4
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

State	Location	*Climate zone*
VIC	Wangaratta	7
VIC	Warrnambool	6
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

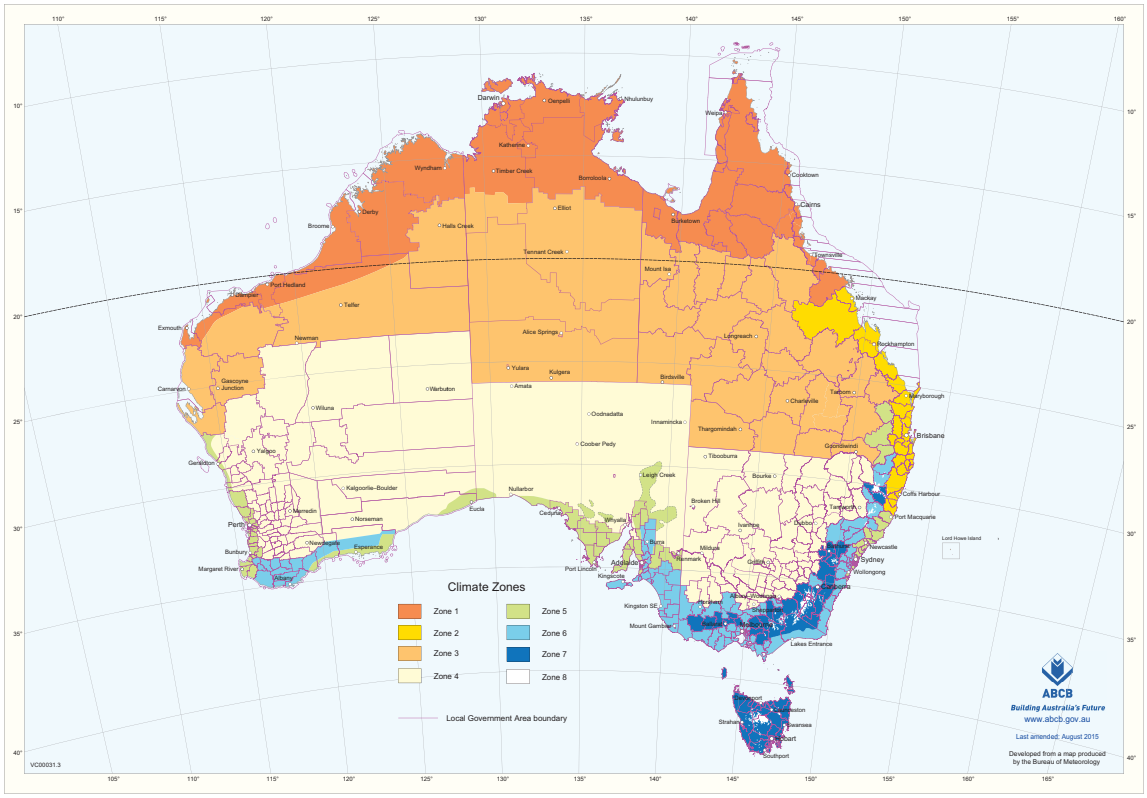


Figure Notes

(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*.

NSW Combustible

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.

NSW Critical radiant flux

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*.

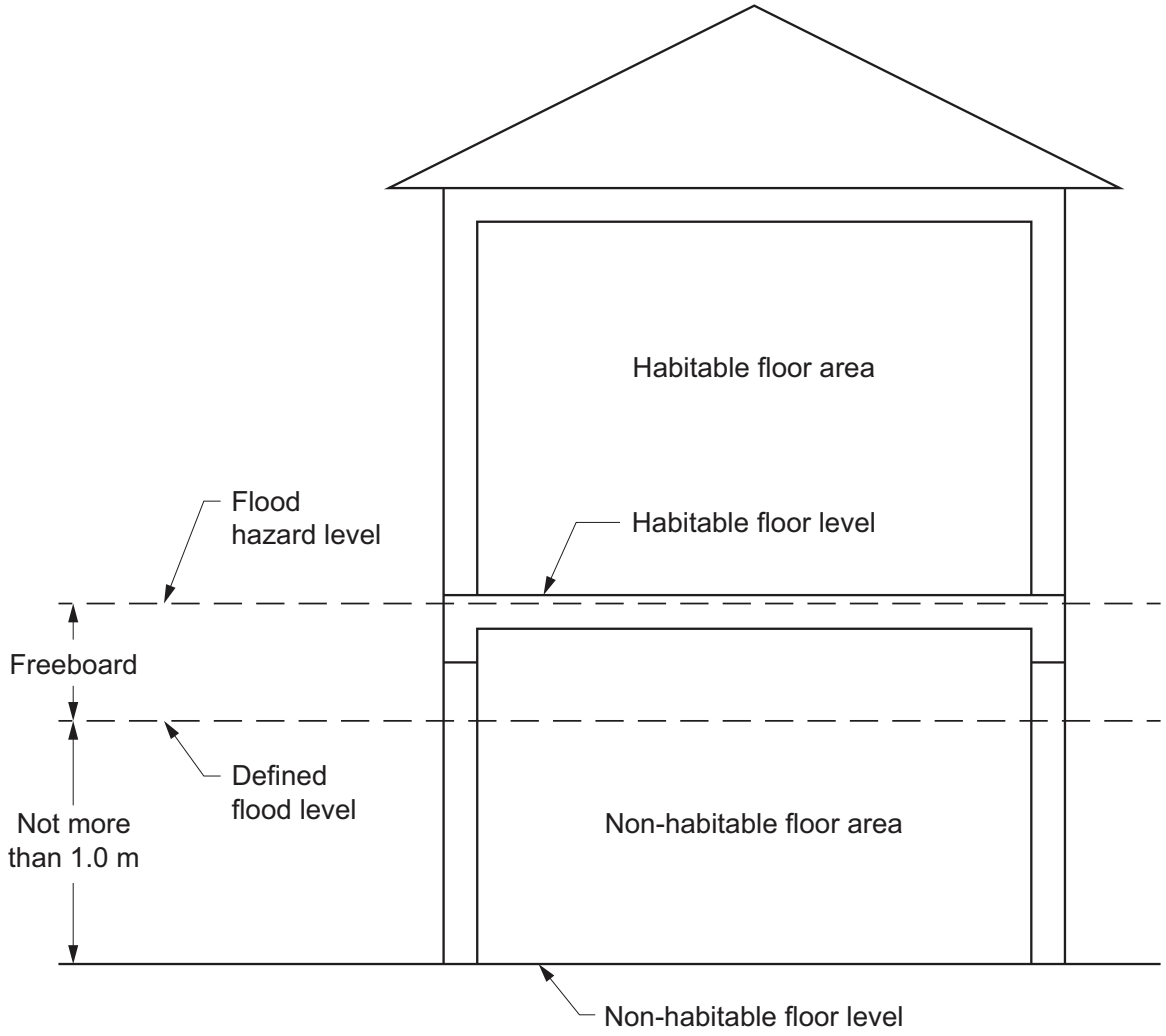
Deemed-to-Satisfy Solution: A method of satisfying the *Deemed-to-Satisfy Provisions*.

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.

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

Non-cyclonic Region A and B1	Cyclonic Region B2, C and D
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

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*; or

(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*.

WA Existing building

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.

NSW Flammability Index

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*.

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.

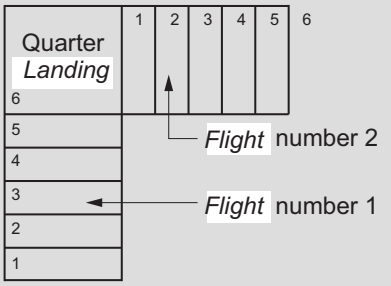
Flight: That part of a stair that has a continuous series of *risers*, including *risers* of *winders*, not interrupted by a *landing* or floor.

Explanatory Information

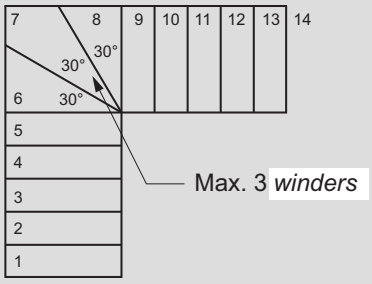
A *flight* is the part of a stair that has a continuous slope created by the nosing line of treads. The length of a *flight* is limited to restrict the distance a person could fall down a stair.

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*.

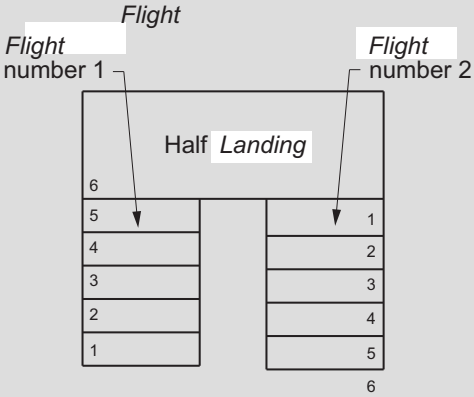
Figure 1 (explanatory): Identification of stair flights — Plan view



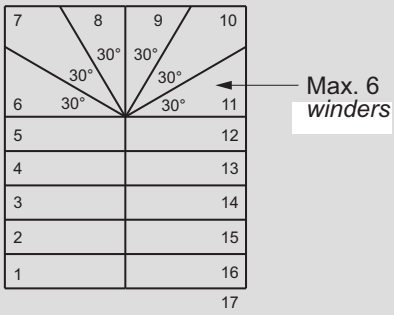
(a) Quarter landing stairway – 2 flights



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



(c) Half landing stairway – 2 flights



(d) Continuous stairway – 1 flight (180º 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

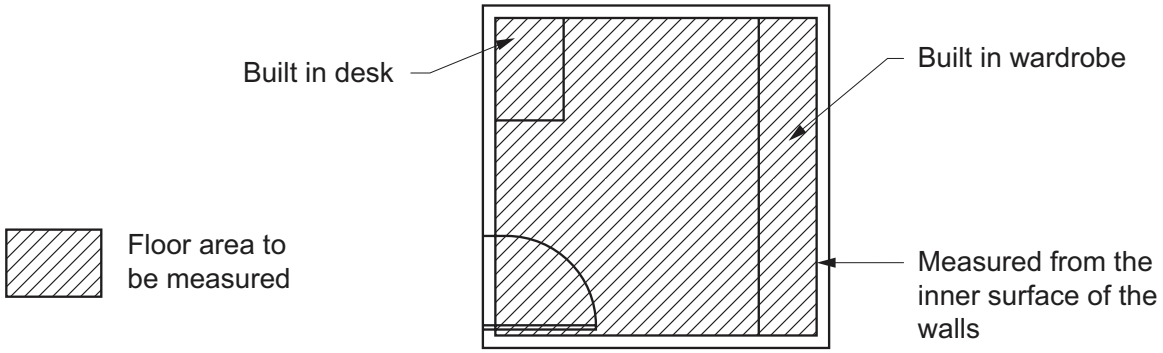
(c) in relation to a room — the area of the room measured within the internal finished surfaces of the walls, and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting; and

(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

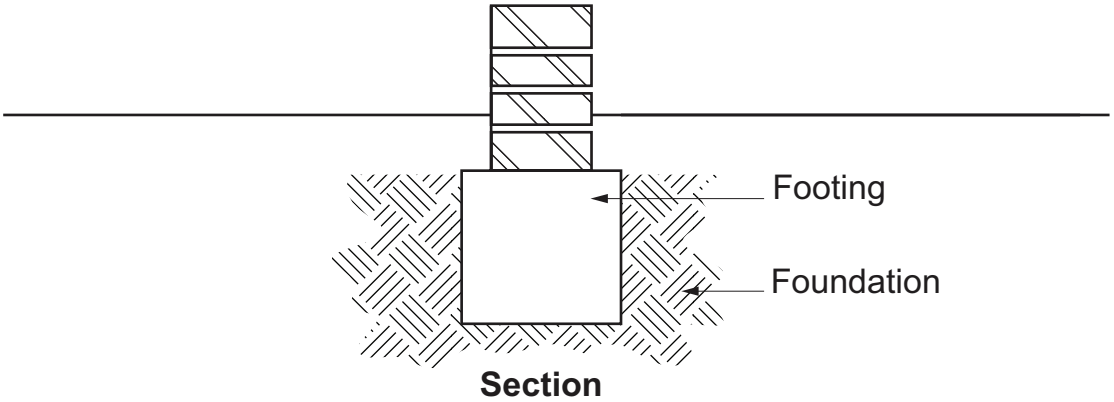


Floor waste: A grated inlet within a graded floor intended to drain the floor surface.

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.

NSW Non-combustible

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’.

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.

(g) 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.

(h) 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.

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)

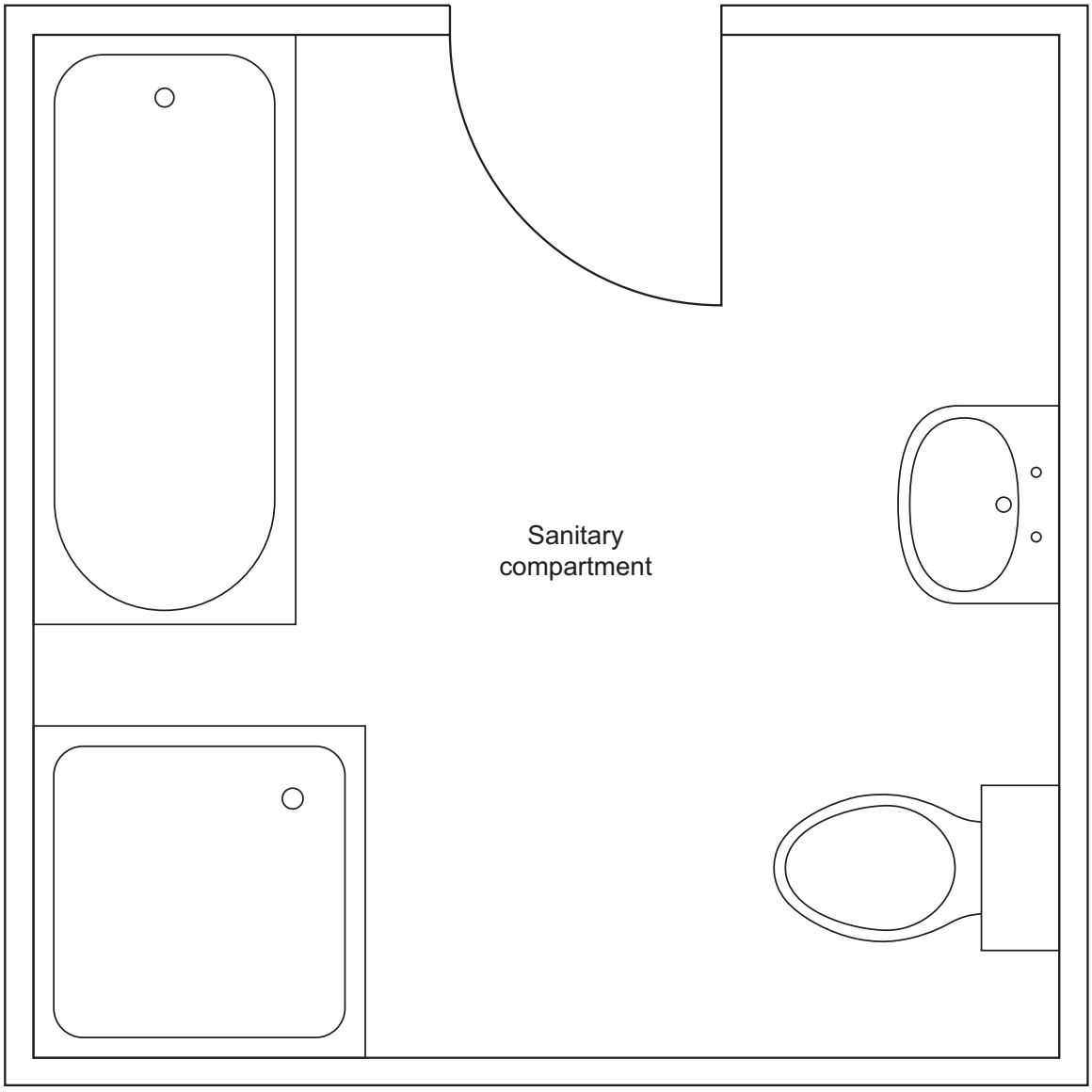
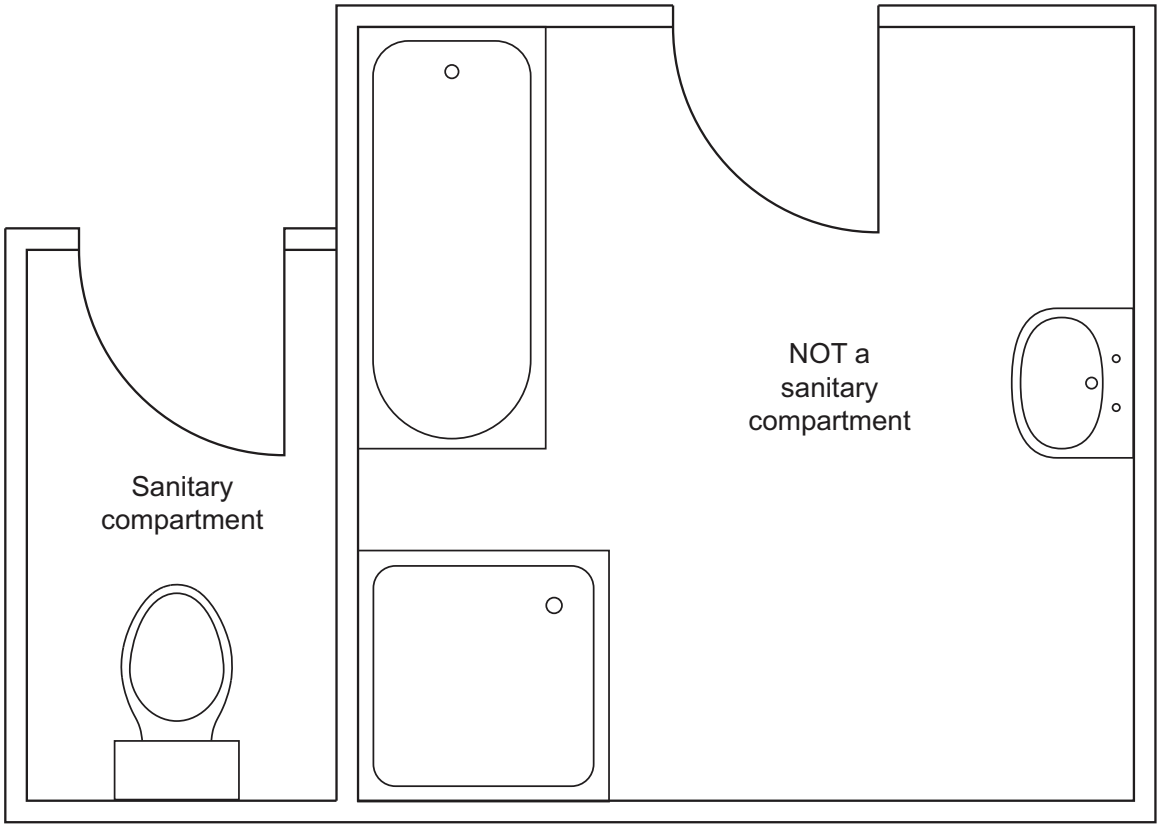


Figure 6b: Identification of a sanitary compartment (diagram b)



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.

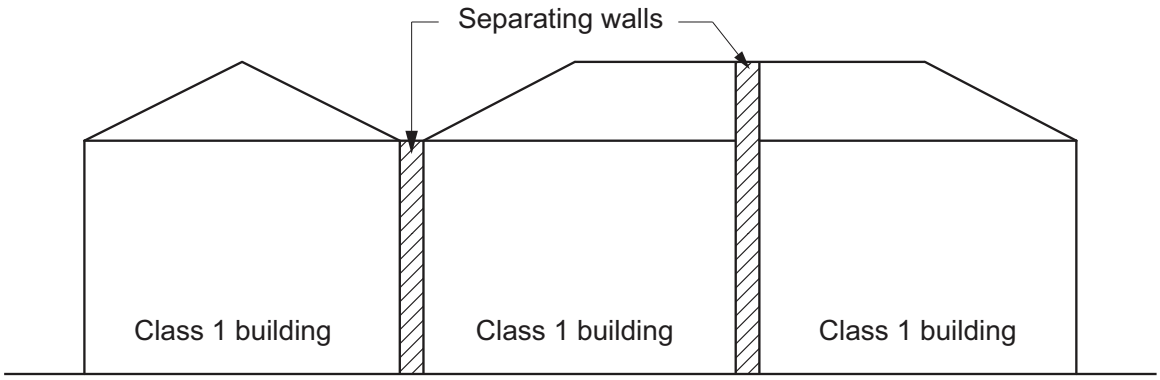
Self-draining: A *surface finish* allowing *water* to be conveyed by gravity from the finished surface level to the membrane on the top surface of the *structural substrate*.

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.

NSW Smoke-Developed Index

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*.

NSW Smoke development rate

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).

NSW Spread-of-Flame Index

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	2026	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)	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 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

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 4020	2018	Testing of products for use in contact with drinking water (incorporating amendment 1)	A5G4	A5G4	N/A	A5G4
AS 4055	2021	Wind loads for housing (incorporating amendment 1)	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
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 4654 Part 2	2012	Waterproofing membranes for external above-ground use — Design and installation	C2D14, F1D6, F1D5	H2D8	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
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
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

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
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
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

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
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	2025	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

Schedule 3 Commonwealth of Australia

Footnote: Other legislation affecting buildings

Footnote: Other legislation affecting buildings

In addition to any applicable provisions of this Code, there are a number of other legislative technical requirements and policies affecting the design, construction and/or performance of buildings that practitioners may need to be aware of, including, but not necessarily limited to, the following list. Additional legislative instruments such as regulations, codes and standards may exist under the legislation listed.

1. Aged Care Buildings

Administering Agency

Department of Health, Disability and Ageing

Relevant Legislation

Aged Care Act 2024

2. Australian Capital Territory

Administering Agency

Department of Finance, section 27 insofar as it relates to the declaration of land in the Australian Capital Territory to be National Land where the land is required for Commonwealth purposes other than for the special purposes of Canberra as the National Capital.

Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts, except to the extent administered by the Minister for Finance

Relevant Legislation

National Capital Plan (established under the Australian Capital Territory (Planning and Land Management) Act 1988)

Administering Agency

Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts

Relevant Legislation

Parliament Act 1974

Australian Capital Territory National Land (Leased) Ordinance 2022

Australian Capital Territory National Land (Unleased) Ordinance 2022

3. Indian Ocean Territories

Administering Agency

Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts

Relevant Legislation

Christmas Island Act 1958

Cocos (Keeling) Islands Act 1955

4. Communications and Information Technology

Administering Agency

Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts

Relevant Legislation

Australian Postal Corporation Act 1989

National Transmission Network Sale Act 1998

Telecommunications Act 1997

Telstra Corporation Act 1991

Telecommunications (Consumer Protection and Service Standards) Act 1999

Relevant Policy

Telecommunications Infrastructure in New Developments (TIND) policy

5. Defence Buildings

Administering Agency

Department of Defence

Relevant Legislation

Defence Act 1903

Relevant Regulations

Defence Regulation 2016, Part 11A

Relevant Codes, Standards and Publications

Manual of Fire Protection Engineering

Building Works Manual

Manual of Infrastructure Engineering - Electrical

The Defence Estate Quality Management System (DEQMS) https://www.defence.gov.au/EstateManagement/

6. Disability Discrimination

Administering Agency

Attorney-General's Department

Relevant Legislation

Disability (Access to Premises - Buildings) Standards 2010

Disability Discrimination Act 1992

Disability Standards for Accessible Public Transport 2002

Disability Standards for Education 2005, noting this:

- does not affect the application of premises standards to building work (including construction of a new building) undertaken as an adjustment or part of an adjustment; and
- does not require the building work to meet specifications more onerous than those required by the premises standards.

7. Environment

Administering Agency

Department of Climate Change, Energy, the Environment and Water

Relevant Legislation

Environmental Protection and Biodiversity Conservation Act 1999

Environment Protection and Biodiversity Conservation Regulations 2025

Relevant Policy

Energy Efficiency in Government Operations (2007)

Significant impact guidelines – matters of national environmental significance

8. Federal Airports

Administering Agency

Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts

Relevant Legislation

Airports Act 1996

Airports Regulations 2024

Airports (Building Control) Regulations 1996

Airports (Control of On-Airport Activities) Regulations 1997

Airports (Environment Protection) Regulations 1997

Airports (Protection of Airspace) Regulations 1996

9. Jervis Bay Territory

Administering Agency

Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts

Relevant Legislation

Jervis Bay Territory Acceptance Act 1915

10. Occupational Health and Safety

Administering Agency

Department of Employment and Workplace Relations

Relevant Legislation

Work Health and Safety Act 2011

Work Health and Safety Regulations 2011

11. Australian Antarctic Territory

Administering Agency

Department of Climate Change, Energy, the Environment and Water (Australian Antarctic Division)

Relevant Legislation

Antarctic Treaty (Environment Protection) Act 1980

Antarctic Treaty (Environment Protection) (Environmental Impact Assessment) Regulations 1993

Antarctic Treaty (Environment Protection) (Waste Management) Regulations 1994

Environment Protection and Biodiversity Conservation Act 1999

Environment Protection and Biodiversity Conservation Regulations 2025

12. Territory of Heard Island and McDonald Islands

Administering Agency

Department of Climate Change, Energy, the Environment and Water (Australian Antarctic Division)

Relevant Legislation

Environment Protection and Management Ordinance 1987 (HIMI)

Environment Protection and Biodiversity Conservation Act 1999

Heard Island and McDonald Islands Marine Reserve management plan in operation under the Environment Protection and Biodiversity Conservation Act 1999

Environment Protection and Biodiversity Conservation Regulations 2025

13. National or World Heritage Places

Administering Agency

Department of Climate Change, Energy, the Environment and Water

Relevant Legislation

Environment Protection and Management Ordinance 1987 (HIMI)

Antarctic Treaty (Environment Protection) (Environmental Impact Assessment) Regulations 1993

Environment Protection and Biodiversity Conservation Act 1999

Heard Island and McDonald Islands Marine Reserve management plan in operation under the Environment Protection and Biodiversity Conservation Act 1999

Environment Protection and Biodiversity Conservation Regulations 2025

14. National Parks

Administering Agency

Director of National Parks, Climate Change, Energy, the Environment and Water Portfolio

Relevant Legislation

Commonwealth Reserve management plans in operation under the Environment Protection and Biodiversity Conservation Act 1999

Environment Protection and Biodiversity Conservation Act 1999

Environment Protection and Biodiversity Conservation Regulations 2025

15. Commonwealth funding for building work

Administering Agency

Department of Employment and Workplace Relations

The Federal Safety Commissioner (FSC)

Relevant Legislation

Federal Safety Commissioner Act 2022

- Federal Safety Commissioner (Accreditation Scheme) Rules 2023 (WHS Accreditation Scheme)
- Building and Construction Industry (Improving Productivity) (Federal Safety Officers) General Directions 2017

16. Commonwealth buildings

Administering Agency

Department of Employment and Workplace Relations

Office of the Federal Safety Commissioner

Relevant Legislation

Federal Safety Commissioner Act 2022

- Federal Safety Commissioner (Accreditation Scheme) Rules 2023
- Building and Construction Industry (Improving Productivity) (Federal Safety Officers) General Directions 2017

Notes

(1) The Federal Safety Commissioner Act is concerned with the regulation of Workplace Relations in the building industry, it also establishes the functions of the Federal Safety Commissioner (FSC).

(2) The Federal Safety Commissioner Act legislates additional requirements for those building contractors undertaking Commonwealth funded building work through the Work Health and Safety Accreditation Scheme (WHS Accreditation Scheme), administered by the FSC. Of direct relevance to the NCC: Provisions in Federal Safety Commissioner Act include a requirement that the Federal Safety Commissioner audits building contractors' compliance with the NCC in relation to building materials, which is a condition of accreditation under the WHS Accreditation Scheme.

Schedule 4 Australian Capital Territory

Introduction

Footnote: Other legislation affecting water and plumbing systems

ACT Introduction

The Australian Capital Territory Appendix to the Plumbing Code of Australia (PCA) forms part of the ACT Plumbing Code in accordance with the Water and Sewerage Act 2000. The ACT Appendix contains variations and additions to the PCA that apply to plumbing and drainage work undertaken in the ACT and information about the application of the PCA in the ACT. The ACT Appendix is notified on the ACT Legislation Register and can be found at https://www.legislation.act.gov.au/a/2000-68/ under the Regulations and Instruments tab.

While some ACT-specific clauses are flagged in the text of the PCA, others may not be. Users of the PCA should confirm they are using the version of the ACT Appendix currently in force and are applying all relevant variations and additions. Historical versions of the ACT Appendix are also available on the register.

ACT Footnote: Other legislation affecting water and plumbing systems

In addition to any applicable provisions of the Building Act 2004 and this Code, there are other legislative technical requirements affecting the design, construction and/or performance of buildings that practitioners may need to be aware of. A list of relevant legislation and links to where it can be found on the ACT Legislation Register can be found in the ACT Appendix at https://www.legislation.act.gov.au/a/2004-11/ under the Regulations and Instruments tab.

In addition to this Code, there are a number of other legislative technical requirements affecting the design, construction, installation, replacement, repair, alteration and maintenance of water and plumbing systems that practitioners may need to be aware of including, but not necessarily limited to, the following list.

1. Plumbing and Drainage

Administering Agency

City and Environment Directorate

Relevant Legislation

Water and Sewerage Act 2000

2. Building

Administering Agency

City and Environment Directorate

Relevant Legislation

Building Act 2004

3. Health

Administering Agency

Health and Community Service Directorate

Canberra Health Services

Relevant Legislation

Health Act 1993

4. Environment

Administering Agency

City and Environment Directorate

Relevant Legislation

Environment Protection Act 1997

5. Gas

Administering Agency

City and Environment Directorate

Relevant Legislation

Gas Safety Act 2000

6. Electrical

Administering Agency

City and Environment Directorate

Relevant Legislation

Electricity Safety Act 1971

7. Utilities

Administering Agency

City and Environment Directorate

Justice and Community Safety Directorate

Chief Minister, Treasury and Economic Development Directorate

Relevant Legislation

Utilities Act 2000

8. Planning

Administering Agency

City and Environment Directorate

Relevant Legislation

Planning Act 2023

Schedule 5 New South Wales

Section A	**Governing requirements**	
	Part A2	Compliance with the NCC
	NSW A2G2	Performance Solution
	Part A5	Documentation of design and construction
	NSW A5G3	Evidence of suitability — Volumes One and Two (BCA)
	NSW A5G6	Fire hazard properties and combustibility
	Part A6	Building classification
	NSW A6G7	Class 6 buildings
Section B	**Water services**	
	Part B1	Cold water services
	NSW B1P5	Water Efficiency
	NSW B1D2	Water Efficiency
	NSW B1D3	General requirements
	Part B2	Heated water services
	NSW B2P8	Energy use and source
	NSW B2P12	Water efficiency
	NSW B2D2	Water heater in a heated water supply system
	NSW B2D4	Water efficiency
	NSW B2D5	Maximum delivery temperature
	NSW B2D6	Temperature control devices
	NSW B2D9	General Requirement
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	NSW B3P8	Water Efficiency
	NSW B3D3	General requirements
	NSW B3D5	Water efficiency
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	NSW B5D2	Drinking water service
	NSW B5D3	Non-Drinking Water Service
	NSW B5D6	Rainwater
	NSW B5D8	Cooling tower water service
	Part B6	Rainwater services
	NSW B6P3	Water efficiency
	NSW B6D4	Water Efficiency
NSW Part B4	**Fire-fighting water services**	
Section C	**Sanitary plumbing and drainage systems**	
	Part C2	Sanitary drainage systems
	NSW C2P7	Damage
	NSW C2D4	General requirements
NSW Part C3	**On-site wastewater management**	
Schedule 1	**Definitions**	
Schedule 2	**Referenced documents**	

Footnote: Other legislation affecting buildings

Section A Governing requirements

Part A2 Compliance with the NCC

Delete A2G2 and insert NSW A2G2 as follows:

NSW A2G2 Performance Solution

(1) A *Performance Solution* is achieved by demonstrating—

(a) compliance with all relevant *Performance Requirements*; or

(b) the solution is at least *equivalent* to the *Deemed-to-Satisfy Provisions*.

(2) A *Performance Solution* must be shown to comply with the relevant *Performance Requirements* through one or a combination of the following *Assessment Methods*:

(a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, *plumbing* and *drainage product*, form of construction or design meets the relevant *Performance Requirements*.

(b) A *Verification Method* including the following:

(i) The *Verification Method* provided in the NCC.

(ii) Other *Verification Method*, 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*.

Part A5 Documentation of design and construction

Delete A5G3 and insert NSW A5G3 as follows:

NSW A5G3 Evidence of suitability — Volumes One and Two (BCA)

(1) Subject to A5G5, NSW 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

NSW 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

NSW 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.

NSW A5G3(1)(f) allows for the use of alternative forms of documentary evidence to those included in NSW 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 NSW 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, NSW 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, NSW 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 NSW A5G3 is a report from an *Accredited Testing Laboratory* (see NSW A5G3(1)(d)). For this form of evidence, the following applies:

- For documenting the result of a test performed under S1C2(b), the report from an *Accredited Testing Laboratory* may be either—
  - the test report referred to in clause 2.16.2 of AS 1530.4 (also referred to as a full test report); or
  - the regulatory information report referred to in clause 2.16.3 of AS 1530.4 (also referred to as a short-form report).
- 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—

- fulfil the description in NSW 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 NSW A5G3 may be used to provide evidence to support the proposal and show that the *fire hazard properties* have been determined in accordance with NSW A5G6.

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*.

Delete A5G6 and insert NSW A5G6 as follows:

NSW 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) it is identical with a prototype that has been tested in accordance with (1) and the *fire hazard property* achieved by the prototype is confirmed in a report that—

(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) it differs in only a minor degree from a prototype tested under (a) and a report—

(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 1530.1 and has not been deemed *combustible*; or

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

(c) it differs in only a minor degree to a material tested under (a) and a report—

(i) confirms that the material can achieve the attribute of being *non-combustible* despite the minor departures from the tested material; and

(ii) describes any limitations which are necessary to achieve the attribute of being *non-combustible*.

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

Part A6 Building classification

Delete A6G7 and insert NSW A6G7 as follows:

NSW A6G7 Class 6 buildings

A Class 6 building is a shop or other building for sale of goods by retail or the supply of services direct to the public, including—

(a) an eating room, cafe, restaurant, milk or soft drink bar; or

(b) a dining room, bar, shop or kiosk part of a hotel or motel; or

(c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or

(d) market or sale room, showroom, or *service station*; or

(e) *small live music or arts venue*.

Section B Water services

Part B1 Cold water services

Delete B1P5 and insert NSW B1P5 as follows:

NSW B1P5 Water Efficiency

Where a cold water service is used, efficient use of *drinking water* must be achieved by—

(a) Incorporation of—

(i) a tap or outlet for a shower, basin, kitchen sink or laundry trough, to a flow rate of not more than 9 l/m; and

(ii) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600 mm length of a continuous urinal wall; and

(iii) a dual flush cistern or flushing valve that is connected to a water closet pan to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) water saving measures *equivalent* to or greater than those described in (a).

Explanatory Information

In New South Wales, fixtures, tapware and appliances installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Applications

The flush volumes of B1P4 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) ±0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.5 litres for a 4.5/3 litre cistern

Exemptions

The requirements of B1P4 do not apply to a vacuum *drainage* system

Delete B1D2 and insert NSW B1D2 as follows:

NSW B1D2 Water Efficiency

(1) A tap or outlet used for a shower, basin, kitchen sink or laundry trough must be a minimum of 3 Star WELS rated and discharge not more than 9 litre per minute.

(2) Cisterns or flushing devices for water closets must—

(a) Have a dual flushing mechanism; and

(b) Be a minimum 3 Star WELS rating discharging not more than 6 litres or 4.5 litre for a full flush.

(3) Cisterns or flushing devices for urinals must—

(a) Be a minimum 2 Star WELS rating discharging a volume of not more than 2.5 litres of each—

(i) Single urinal stall; or

(ii) 600mm length of continuous urinal wall; and

(b) Not be set-cycled or activated by any method other than manual or use activation.

Explanatory Information

In New South Wales, fixtures, tapware and appliances installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Applications

(a) B1D2(1) applies to outlets that provide cold water only. The *Deemed-to-Satisfy Provision* for outlets that deliver a combination of cold water and *heated water* is B2D4.

(b) The flush volumes of B1D2(2) and B1D2(3) may be within a tolerance of—

(i) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(ii) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(iii) ±0.2 litres for a 4.5/3 litre cistern.

Exemptions

(a) The requirements of B1D2(1) do not apply to a shower intended to provide rapid drenching of a person for emergency purposes, such as chemical removal.

(b) The requirements of B1D2(2) and B1D2(3) do not apply to a vacuum *drainage* system.

(c) The requirements of B1D2(3)(b) do not apply to a programmed solenoid operated flushing system if programmed to shut down during extended periods of non-occupancy of a building.

Explanatory Information

Prior to installing a programmed solenoid operated flushing system, further advice should be sought from the authority having jurisdiction.

Where sensor control is used for urinal flushing, sensors should be located to avoid unnecessary ‘nuisance’ flushing triggered by pedestrian traffic.

AS/NZS 6400 Water Efficient Products - Rating and labelling, provides the basis for the rating and labelling of a range of products under the mandatory Water Efficiency Labelling and Standards (WELS) Scheme.

B1D2 outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of *products* and technologies of greater efficiency should be considered.

Delete B1D3 and insert NSW B1D3 as follows:

NSW B1D3 General requirements

(1) A cold water service must be in accordance with AS/NZS 3500.1, with the following variations

(a) Clause 5.4.2: insert subclause (m) Where valves are located below ground within the property boundary, they shall be provided with a surface box and riser. The box lid shall be permanently marked with a “W”.

(2) Notwithstanding (1), plastic pipes and fittings must not be used in a cold water service above-ground to supply combined sprinkler and hydrant systems.

Part B2 Heated water services

Delete B2P8 and insert NSW B2P8 as follows:

NSW B2P8 Energy use and source

(1) A *heated water* service, including any associated distribution system and components, must ensure the efficient use of energy and water

(2) Features in B2P8(1) must be appropriate to the following:

(a) The *heated water* service and its usage.

(b) The geographic location of the building.

(c) The location of the *heated water* service.

(d) The energy or water source.

Explanatory Information

In New South Wales the types of water heaters in be installed for new Class 1 and 2 Buildings is subject to the energy efficiency targets regulated under BASIX

Explanatory Information

Excessive 'dead water' draw-off, i.e. where cooled water from the supply pipe is drained off prior to delivery of *heated water*, can result in water and energy wastage.

To improve the efficiency of *heated water* systems, the design should consider factors such as the number of outlets, their purpose and expected typical usage, and the distance between the water heater and each of the outlets. The water heater should be positioned nearest to the most used outlets, or installed to provide consistent coverage of the building. Where this is not viable, the use of multiple water heaters or a flow and return pipe loop may need to be considered.

B2P8(2) permits the energy source of the *heated water* service to be considered. This means that the net energy obtained from *renewable energy* sources such as solar, geothermal, wind, and biofuels may be considered as 'free' energy in calculating the energy consumption. Similarly, heat reclaimed from another 'free' source such as a by-product from co-generation type processes as well as other industrial processes, which could otherwise be rejected from the building, could be considered as 'free' energy in calculating the energy consumption.

Delete B2P12 and insert NSW B2P12 as follows:

NSW B2P12 Water efficiency

A *heated water* service must ensure the efficient use of *drinking water* by limiting water use from a tap or outlet for a shower, basin, kitchen sink or laundry trough to a flow rate of not more than 9 l/m.

Explanatory Information

In New South Wales, fixtures, tapware and appliances installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Delete B2D2 and insert NSW B2D2 as follows:

NSW B2D2 Water heater in a heated water supply system

In New South Wales energy efficiency is regulated under the Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2021, Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 and State Environmental Planning Policy (Sustainable Buildings 2022)

Compliance is not required with the national provisions of B2D2 as the sources of energy for new Class 1 and 10 buildings are regulated under BASIX.

Delete B2D4 and insert NSW B2D4 as follows:

NSW B2D4 Water efficiency

A tap or outlet used for a shower, basin, kitchen sink or laundry trough must be a minimum of 3 Star WELS rated and discharge not more than 9 litre per minute

Explanatory Information

In New South Wales, fixtures, tapware and appliances installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Exemptions

The requirements of B2D4 do not apply to a shower intended to provide rapid drenching of a person for emergency purposes, such as chemical removal.

Applications

A *heated water* outlet includes an outlet which delivers any combination of *heated water* and cold water.

Explanatory Information

AS/NZS 6400 Water Efficient Products - Rating and labelling, provides the basis for the rating and labelling of a range of products under the mandatory Water Efficiency Labelling and Standards (WELS) Scheme.

B2D4 outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of *products* and technologies of greater efficiency should be considered.

Delete B2D5 and insert NSW B2D5 as follows:

NSW B2D5 Maximum delivery temperature

The delivery temperature of *heated water* at the outlet of each sanitary fixture must be—

(a) not more than 45°C in any—

(i) residential part of an *aged care building*; or

(ii) *patient care area* in a *health-care building*; or

(iii) part of an *early childhood centre*, or primary or secondary school, that is used by children; or

(iv) any facility designated for use by people with a disability; or

(b) not more than 50°C in all other cases.

Applications

B2D5 applies to all *heated water* installations for personal hygiene purposes.

Delete B2D6 and insert NSW B2D6 as follows:

NSW B2D6 Temperature control devices

(1) A temperature control device used to deliver *heated water* in accordance with B2D5(a) must be a—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap.

(2) A temperature control device used to deliver *heated water* in accordance with B2D5(b) must be a—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap; or

(c) tempering valve; or

(d) temperature limited water heater with a maximum delivery temperature of 50°C marked in accordance with AS 3498.

(3) The *required* maximum delivery temperature must be achieved in accordance with AS/NZS 3500.4.

Applications

B2D6 only applies to sanitary fixtures for personal hygiene purposes—

(a) When installing new *heated water* services, including extensions or additions to an existing heated water service; or

(b) When replacing a hot water heater, regardless of the type or location of the heater.

Exemptions

A temperature control device need not be installed if one or more, but not all water heaters in a bank of water heaters are replaced.

Delete B2D9 and insert NSW B2D9 as follows:

NSW B2D9 General Requirement

A heated water service must be in accordance with AS/NZS 3500.4, with the following variations:

(a) Insert clause 3.4 Tempering Valve

(b) A tempering valve shall:

(i) have unions or similar couplings on the inlets and outlets; and

(ii) be accessible for adjustment, maintenance or replacement.

Part B3 Non-drinking water services

Delete B3P8 and insert NSW B3P8 as follows:

NSW B3P8 Water Efficiency

Where a *non-drinking water* service is used for flushing toilets or urinals, efficient use of *non-drinking water* must be achieved by—

(a) Incorporation of—

(i) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600mm length of a continuous urinal wall; and

(ii) a dual flush cistern or flushing valve that is connected to a water closet pan, to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) water saving measures equivalent to or greater than those described in (a).

Explanatory Information

In New South Wales, fixtures, tapware and appliances installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Applications

The flush volumes of B3P8 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) ±0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.5 litres for a 4.5/3 litre cistern

Exemptions

The requirements of B3P8 do not apply to a vacuum drainage system

Delete B3D3 and insert NSW B3D3 as follows:

NSW B3D3 General requirements

A *non-drinking water* service must be in accordance with AS/NZS 3500.1, with the following additions to clause 10.3—

(a) Clause 10.3(d): Top up from a *drinking water* supply shall be by an indirect trickle top up with a visible air gap external to the tank.

(b) 10.3(e): There shall be no connection between treated greywater systems and *drinking water*, rainwater or other sources of supply.

Delete B3D5 and insert NSW B3D5 as follows:

NSW B3D5 Water efficiency

(1) Cisterns or flushing devices for water closets must—

(a) Have a dual flushing mechanism; and

(b) Be a minimum 3 Star WELS rating discharging not more than 6 litres or 4.5 litre for a full flush.

(2) Cisterns or flushing devices for urinals must—

(a) Be a minimum 2 Star WELS rating discharging a volume of not more than 2.5 litres of each—

(i) Single urinal stall; or

(ii) 600mm length of continuous urinal wall; and

(b) Not be set-cycled or activated by any method other than manual or use activation.

Explanatory Information

In New South Wales, cisterns and flushing devices installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Applications

The flush volumes of B3D5(2) and B3D5(3) may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Explanatory Information

- Prior to installing a programmed solenoid operated flushing system, further advice should be sought from the authority having jurisdiction.
- Where sensor control is used for urinal flushing, sensors should be located to avoid unnecessary 'nuisance' flushing triggered by pedestrian traffic.
- AS/NZS 6400 Water Efficient Products - Rating and labelling, provides the basis for the rating and labelling of a range of *products* under the mandatory Water Efficiency Labelling and Standards (WELS) Scheme.
- B1D2 outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of *products* and technologies of greater efficiency should be considered.

Exemptions

(1) The requirements of B3D5(2) and B3D5(3) do not apply to a vacuum *drainage* system.

(2) The requirements of B3D5(3)(b) do not apply to a programmed solenoid operated flushing system if programmed to shut down during extended periods of non-occupancy of a building.

Part B5 Cross-connection control

Delete B5D2 and insert NSW B5D2 as follows:

NSW B5D2 Drinking water service

(1) A hazard exists wherever it is possible for water or *contaminants* to enter a *drinking water* service or supply via any potential or actual *cross-connection* between—

(a) The *drinking water* service; and

(b) Any of the following:

(i) A *non-drinking water* service.

(ii) A *rainwater service*.

(iii) An alternative water supply,.

(iv) A *swimming pool*.

(v) Pipes, fixtures or specialist equipment (including *boilers* and pumps) containing chemicals, liquids, gases or other substances which may be harmful to health or safety.

(2) Each hazard must—

(a) Be assigned—

(i) an *Individual protection Hazard Rating* in accordance with B5D7(4), (5),or (6); or

(ii) a Zone protection Hazard Rating in accordance with B5D7(7), (8), (9); and

(b) Be isolated from the *drinking water* service by an appropriate *backflow prevention device* which is selected and installed in accordance with Section 4 of AS/NZS 3500.1.

(3) Where a site is served by a *Network Utility Operator's drinking water*, appropriate *containment protection* must be:

(a) selected and installed in accordance with the Network Utility Operators relevant regulations, guidelines, policies or similar documents; or

(b) where the *Network Utility Operator* does not prescribe requirements for *containment protection*, assign a *Containment protection Hazard Rating* in accordance with B5D7 (10), (11) or (12), and select and install appropriate *containment protection* in accordance with Section 4 of AS/NZS 3500.1

Explanatory Information

Where a *Containment protection backflow prevention device* is installed external of a *Network Utility Operator* water meter, the valve remains the responsibility of the property owner unless owned by the *Network Utility Operator*, including any testing, servicing and maintenance that may be required.

Where the *Network Utility Operator* prescribes *containment protection hazard ratings* above the *hazard rating* set out in B5D7 (10), (11), and (12), the *Network Utility Operator* is responsible for the regulation of the containment backflow installation.

Explanatory Information

No additional individual or zone protection backflow prevention protection is required where cross-connection mitigation is provided in accordance with AS/NZS 3500.1 as an integral part of a fixture, appliance or apparatus and is suitable for the *Hazard Rating* specified in B5D7.

Delete B5D3 and insert NSW B5D3 as follows:

NSW B5D3 Non-Drinking Water Service

(1) A *non-drinking water* service or supply may have a *cross-connection* to another separate *non-drinking water* service on the same site provided it is protected with a low hazard device. The low hazard device must be selected and installed in accordance with Section 4 of AS/NZS 3500.1

(2) Where a site is served by a *Network Utility Operator's* drinking water supply, appropriate *containment protection* must be:

(a) selected and installed with the *Network Utility Operator* relevant regulations, guidelines, policies or similar documents; or

(b) where the *Network Utility Operator* does not prescribe requirements for *containment protection*, assign a *containment protection Hazard Rating* in accordance with B5D7(10), B5D7(11) or B5D7(12), and select and install appropriate *containment protection* in accordance with Section 4 of AS/NZS 3500.1

Explanatory Information

Where a *Containment Protection* backflow prevention device is installed external of a *Network Utility Operator* water meter, the valve remains the responsibility of the property owner unless owned by the *Network Utility Operator*, including any testing, servicing and maintenance that may be required.

Where the *Network Utility Operator* prescribes *containment protection hazard ratings* above the *hazard rating* set out in B5D7(10), B5D7(11), and B5D7(12), the *Network Utility Operator* is responsible for the regulation of the *containment* backflow installation.

Exemptions

B5D3 is not applicable to *non-drinking water* service used for agricultural purposes where the *non-drinking water* service is supplied solely by *non-drinking water* service(s)and is fully independent from any other water service.

Explanatory Information

For the purposes of B5D3, a 'separate' *non-drinking water* service exists where multiple *non-drinking water* services are on the same site and each is supplied by water from different sources.

For example, on a site connected to both recycled water and bore water, both may be considered *non-drinking water* services and are supplied by different sources. Therefore, each is a 'separate' *non-drinking water* service.

Delete B5D6 and insert NSW B5D6 as follows:

NSW B5D6 Rainwater

When *drinking water* is used to top up a rainwater tank or supplement a rainwater service through the use of changeover device:

(a) it must be assigned a hazard rating based on the following building and rainwater tank types:

(i) zone protected from *above ground*, *buried* or *partially buried rainwater tank* in Class 1 buildings, using a low hazard device; or

(ii) zone protected for all other classes of buildings using:

(A) High hazard device for buried rainwater tanks,

(B) Low Hazard for partially buried rainwater tanks, and

(C) Low Hazard for above ground rainwater tanks

(b) devices are to be selected and installed in accordance with Section 4 of AS/NZS 3500.1:

Explanatory Information

- When drinking water is not connected to rainwater storage or a rainwater service, backflow prevention is not required
- The water supply used to top up a rainwater tank may be from a Network Utility Operator drinking water supply or an alternative water supply.
- A Network Utility Operator may prescribe backflow prevention requirements that exceed those contained in B5D6. In these circumstances those Network Utility Operator Requirements should be followed
- Non-drinking water may be used to top up a rainwater tank, or supplement a rainwater service, however it must comply with the requirements set out in Parts B3 and B5D3

Insert NSW B5D8 as follows:

NSW B5D8 Cooling tower water service

Water systems permanently attached to cooling towers backflow prevention shall be positioned so that—

(a) cooling tower air gap must be measured from the rim of the cooling tower basin; and

(b) if a *drinking water* service to the cooling tower passes through the basin, the service pipe must be provided with a double wall protection; and

(c) if a fast fill connection is required, the fast fill line shall terminate externally to the unit, with an air gap over either the basin or a tundish.

Notes

See NSW Figure B5D7 for typical cooling tower connections.

Insert NSW Figure B5D8 as follows:

NSW Figure B5D8: Typical cooling tower service

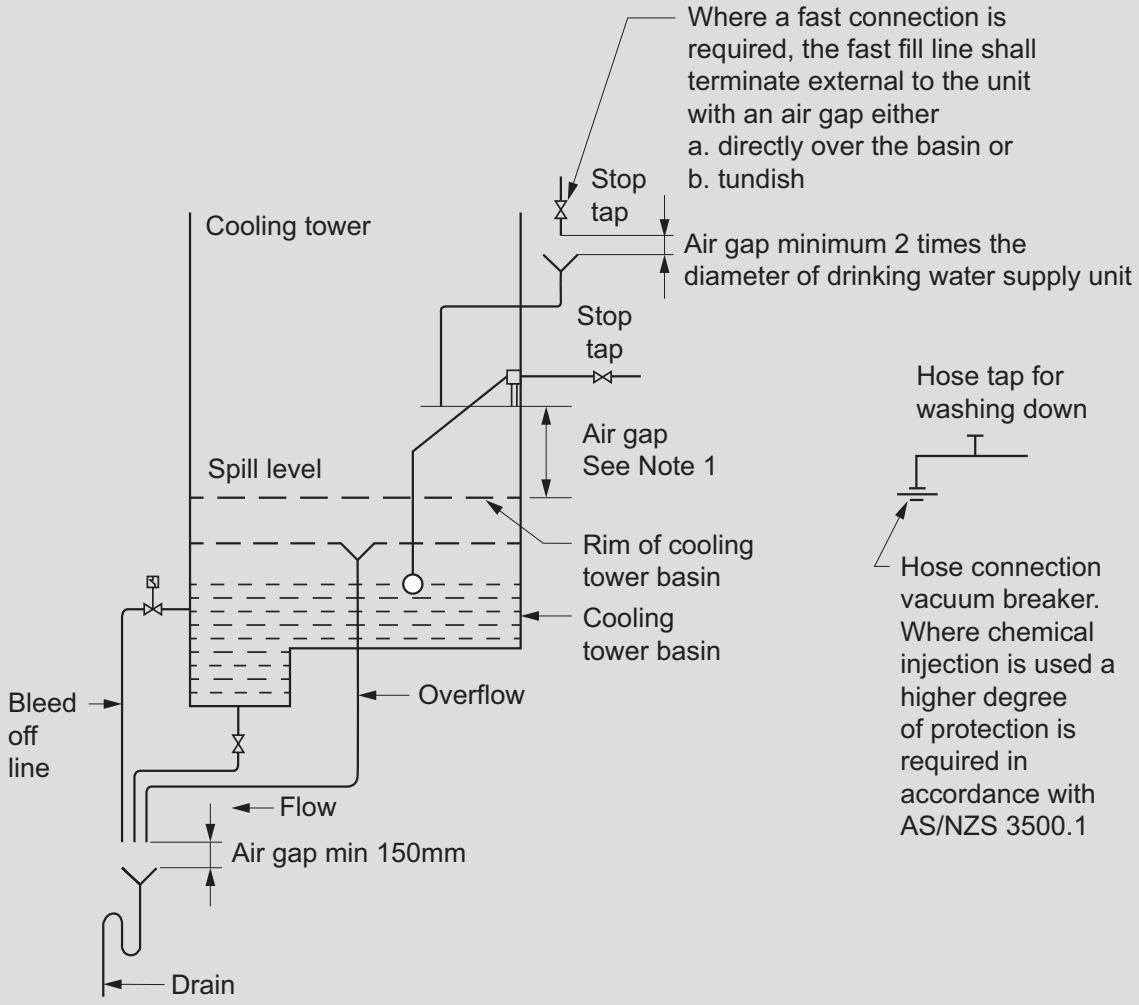


Figure Notes

Note 1.

Refer to AS/NZS 3500.1 Part 1 Table 4.6.3.2

Part B6 Rainwater services

Delete B6P3 and insert NSW B6P3 as follows:

NSW B6P3 Water efficiency

Where rainwater is used for flushing of toilets or urinals, efficient use of rainwater must be achieved by—

(a) incorporation of—

(i) a cistern or flushing device for a urinal, to a flush volume of not more than 2.5 litres for each—

(A) single urinal stall; or

(B) 600 mm length of a continuous urinal wall; and

(ii) a dual flush cistern or flushing valve that is connected to a water closet pan, to a flush volume of not more than—

(A) 6 and 3 litres; or

(B) 4.5 and 3 litres; or

(b) other water saving measures which achieve *equivalent* or greater efficiency than (a).

Explanatory Information

In New South Wales, fixtures, tapware and appliances installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Applications

The flush volumes of B6P3 may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Explanatory Information

The requirements of B6P3(a)(ii) do not apply to a vacuum *drainage* system.

Delete B6D4 and insert NSW B6D4 as follows:

NSW B6D4 Water Efficiency

(1) Cisterns or flushing devices for water closets must—

(a) Have a dual flushing mechanism; and

(b) Be a minimum 3 Star WELS rating discharging not more than 6 litres or 4.5 litre for a full flush.

(2) Cisterns or flushing devices for urinals must—

(a) Be a minimum 2 Star WELS rating discharging a volume of not more than 2.5 litres of each—

(i) Single urinal stall; or

(ii) 600mm length of continuous urinal wall; and

(b) Not be set-cycled or activated by any method other than manual or use activation.

Explanatory Information

In New South Wales, cisterns and flushing devices installed within new Class 1 and 2 Buildings are subject to the water efficiency targets regulated under BASIX

Applications

The flush volumes of B3D5(2) and B3D5(3) may be within a tolerance of—

(a) ±0.5 litres for the full flush of a 6/3 litre cistern; or

(b) +0.5 litres for the reduced flush of a 6/3 litre cistern; or

(c) ±0.2 litres for a 4.5/3 litre cistern.

Explanatory Information

Prior to installing a programmed solenoid operated flushing system, further advice should be sought from the authority having jurisdiction.

Where sensor control is used for urinal flushing, sensors should be located to avoid unnecessary ‘nuisance’ flushing triggered by pedestrian traffic.

AS/NZS 6400 Water Efficient Products - Rating and labelling, provides the basis for the rating and labelling of a range of products under the mandatory Water Efficiency Labelling and Standards (WELS) Scheme.

B1D2 outlines the minimum level of water efficiency for certain *plumbing products* and fixtures, however the adoption of *products* and technologies of greater efficiency should be considered.

Exemptions

(a) The requirements of B6D4 do not apply to a vacuum *drainage* system.

(b) The requirements of B6D4(2)(c) not apply to a programmed solenoid operated flushing system if programmed to shut down during extended periods of non-occupancy of a building.

NSW Part B4 Fire-fighting water services

Introduction to this Part

In New South Wales Fire-fighting water services are not the responsibility of the plumbing regulator.

In New South Wales compliance is not required with the national provisions of B4 as fire-fighting water services are regulated under the Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2021 and Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 which references the Building Code of Australia.

Section C Sanitary plumbing and drainage systems

Part C2 Sanitary drainage systems

Delete C2P7 and insert NSW C2P7 as follows:

NSW C2P7 Damage

(1) Damage to sanitary *drainage systems* from superimposed loads must be avoided.

(2) Damage to sanitary *drainage systems* from ground movement must be avoided.

(3) Damage to sanitary *drainage systems* from root penetration must be avoided.

(4) Damage to the *Network Utility Operator's* sewerage system or any *approved disposal system* must be avoided.

(5) Damage to siteworks or existing buildings from a sanitary drainage system must be avoided.

Notes

Deemed-to-Satisfy Provisions for the use of flexible joints in sanitary *drainage systems* to address ground movement can be found in the NSW C2D4. Other installation methods to avoid damage from superimposed loads, or ground movement to a sanitary *drainage system* require the submission of a *Performance Solution* to the *Plumbing* Regulator.

Explanatory Information

- For C2P7(1), superimposed loads that a sanitary *drainage system* is susceptible to damage from, include building loads and loads arising from building movement or ground movement.
- For C2P7(2), the soil classification of a *site* should provide an indication of the likelihood for ground movement.
- For C2P7(3), consideration should be given to the location of sanitary *drainage systems* in respect to the existing or proposed surrounding landscape features and implementing appropriate strategies to minimise the likelihood of root penetration.
- For C2P7(5), consideration should be given to factors such as the anticipated type, quality and quantity of waste intended to be discharged. Suitable pre-treatment may be necessary to prevent any potential for damage.

Delete C2D4 and insert NSW C2D4 as follows:

NSW C2D4 General requirements

A sanitary *drainage* system must be in accordance with AS/NZS 3500.2 with the following variations:

(a) Clause 4.3.1 insert subclause: (i) Shall not have DN40 or DN50 traps installed.

(b) Clause 4.4.1 insert the following as the second paragraph: Boundary trap or inspection shafts shall not terminate within:

(i) Bedrooms

(ii) Living rooms

(iii) Lounge rooms

(iv) Music rooms

(v) Television rooms

(vi) Kitchens

(vii) Dining rooms

(viii) Sewing rooms

(ix) Study

(x) Playroom

(xi) Family room

(xii) Home theatre room

(xiii) Sunroom

(xiv) Bathroom

(xv) Laundry

(xvi) Water closet

(xvii) Pantry

(xviii) Walk-in wardrobe

(xix) Corridor

(xx) Hallway

(xxi) Lobby

(xxii) Photographic darkroom

(xxii) Clothes drying room; and

(xxiv) Other spaces of a specialised nature occupied neither frequently nor for extended periods.

(c) Clause 4.5.2 insert subclause: (c) Soil and waste stacks shall not discharge through a reflux valve except where a reflux valve is installed at the connection to the sewer *required* with surcharging sewers or where a *Network Utility Operator* may prescribe soffit requirements.

NOTE: Where the *Network Utility Operator* prescribes a reflux valves to be installed for Soffit Requirements, the *Network Utility Operator* is responsible for the regulation of the reflux valve.

(d) Clause 4.5.3 delete and insert: Where a surcharge is likely to occur a reflux valve shall be installed immediately downstream of the boundary trap or inspection shaft.The invert of the outlet of the reflux valve shall be installed a minimum of 80mm higher than the invert of the *Network Utility Operator*'s system it is connected to.

NOTE 1: See NSW Figures C2D4a and C2D4b.

NOTE 2: Where a reflux valve is installed the valve remains the responsibility of the property owner.

(e) Clause 4.6.2 insert subclause: (d) be installed vertically with no offsets.

(f) Clause 4.6.7.1 insert the following as the second paragraph: A submerged floor waste gully and compact floor waste gully with water seal trap insert shall only be used in sanitary plumbing systems.

(g) Clause 4.7.1 insert subclauses (i) and (j): (i) At each drain connecting one or more water closets or slop hoppers to provide direct maintenance rodding access and be raised to finished surface level in an accessible location with a sealed airtight cover. If access to an under floor area is more than 600mm above the inspection opening, the riser may be omitted. (j) at the point to which a drain connects to an onsite wastewater treatment system, wet well or similar apparatuses. For wet wells and similar apparatuses with electrical components located within, a junction of 45° in the opposite direction of flow and vertical riser terminated at ground level with a sealed airtight cover shall be installed to direct future drain maintenance away from the wet well or apparatus.

NOTE: Water Closets and Slop Hoppers where connected to sanitary plumbing and above ground pipework using *drainage* principles are not subject to the requirements of Clause 4.7.1 (i).

(h) Insert Clause 4.12 Flexible joints in drains where:

(i) 4.12.1 - General: Flexible joints should be installed to accommodate movement to drains that may otherwise cause damage and affect the normal performance of a sanitary *drainage* system.

NOTE: See PCA Variation Clause 5.6 for information on Drains in other than stable ground.

(ii) 4.12.2 – Location: Where flexible joints are installed in a sanitary *drainage* system to accommodate ground movement, a detailed design of the installation shall be prepared by a suitably qualified engineer or recognised expert for the sanitary *drainage* system to avoid damage from ground movement. The design shall include the proposed locations of the flexible joints and any alternative methods of support for the sanitary *drainage* system. The flexible joints shall be installed in the location and configuration detailed in the design and a copy of the design showing the location of the flexible joints shall be provided to the local plumbing regulator prior to an inspection.

NOTE 1: See Appendix G for information on the installation of plastic pipe *drainage* systems in unstable soils within Australia.

NOTE 2: AS2870 provides special design considerations for drains associated with residential slab or footing systems on moderately, highly or extremely reactive soils

NOTE 3: See PCA NSW Variation Clause 5.6 for information on Drains in other than stable ground.

(i) Clause 5.6 delete and insert: If drains are to be laid in filled, unstable, water-charged ground or ground prone to movement, methods of support, bedding or accommodating movement, shall be designed to withstand and suit the ground conditions where sanitary *drainage* on sites with soils classified H1, H2 and E should accommodate ground movement.

NOTE 1: For proclaimed mine subsidence or landslip district the appropriate authority should be referred to for advice on subsidence or landslip design condition parameters for proposed *drainage* systems.

NOTE 2: Sites with soils classified M or P may be provided with protection from ground movement.

NOTE 3: Clause 3.8.3 provide special design considerations for drains in close proximity to footings.

NOTE 4: See PCA Variation Clause 4.12 for Flexible joints in drains requirements.

NOTE 5: See Appendix G for information on the installation of plastic pipe *drainage* systems in unstable soils within Australia.

NOTE 6: AS2870 provides special design considerations for drains associated with residential slab or footing systems on moderately, highly or extremely reactive soils.

NOTE 7: In Australia performance requirements are prescribed in the Plumbing Code of Australia to ensure that a design may be suitable. A performance solution is to be provided to the Plumbing Regulator.

(j) Clause 12.6.3 delete and insert: The wet well shall have a minimum DN 80 Vent except where:

(i) manufactured wet wells are watermark approved with a smaller vent size; or

(ii) the pump and wet well is approved for use by the *Network Utility Operator* of the pressure sewer system to which it will connect and has a self venting lid or similar.

(iii) Venting of a wet well is not to cause nuisance to occupants of a dwelling.

(k) Clause 12.7 delete and insert: : The pump discharge pressure piping shall conform to the relevant sections of AS/NZS 3500.1 and this document. The outlet pipe shall discharge to one of the following locations:

(i) An inspection chamber

(ii) A boundary trap shaft

(iii) A stack below the lowest fixture connection on any floor.

(iv) A drain or combined discharge pipe, provided the connection is at least 2.5m form any other connection.

(v) Downstream of a reflux valve or at least 2.5m upstream of a reflux valve.

(vi) A minimum of 1m downstream of a boundary trap.

(vii) Direct to the *Network Utility Operator*'s sewer where approved by the *Network Utility Operator*.

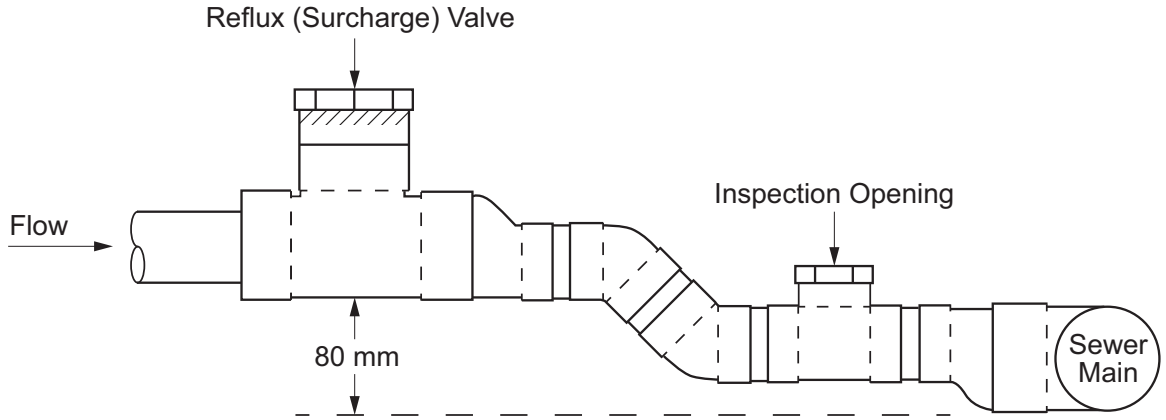
(viii) A marker tape must be laid along the top of all pump discharge or rising mains pipes at intervals of not more than 3 m.

NOTE 1: Sewage management facilities shall be accredited by NSW Health and comply with local government requirements.

NOTE 2: Before a connection is made to pump raw sewage or effluent from a septic tank or holding well to the *Network Utility Operator*'s sewer, an application must be made to that *Network Utility Operator*. Applicants must meet the pump to sewer requirements and conditions for all connections to the sewer.

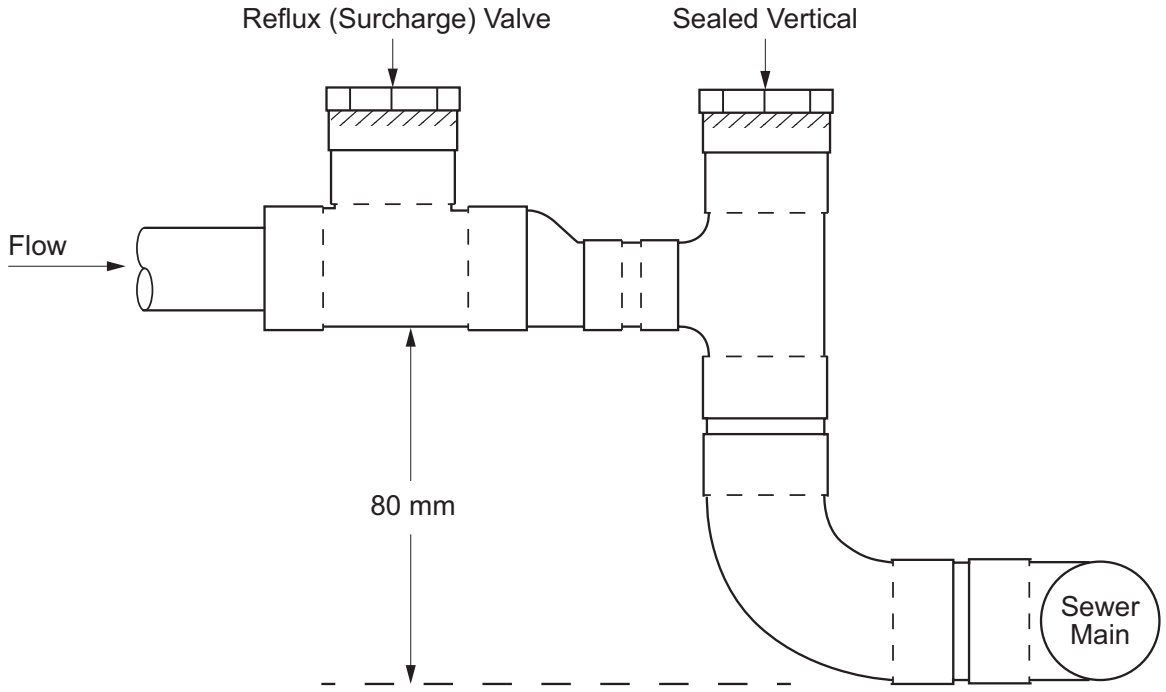
Insert NSW Figure C2D4a as follows:

NSW Figure C2D4a: Reflux valves - diagram 1



Insert NSW Figure C2D4b as follows:

NSW Figure C2D4b: Reflux valves - diagram 2



Notes

Where a reflux valve is installed the valve remains the responsibility of the property owner.

NSW Part C3 On-site wastewater management

Introduction to this Part

This Part sets out the requirements for any part of an *on-site wastewater management system* from the *point of connection* of a sanitary *drainage* system up to and including the appropriate means of waste disposal.

In New South Wales *On-site wastewater management systems* are not the responsibility of the plumbing regulator and compliance is not required with the national provisions of C3..

For sewerage management facilities which treat sewerage of a domestic nature from premises occupied by a maximum of 10 persons or where the average daily flow of sewerage is less than 2000 litres, the facility must be accredited by the NSW Ministry of Health in accordance with Local Government (General) Regulation 2021.

Information on on-site single domestic wastewater management and accreditation guidelines can be found on the following website: https://www.health.nsw.gov.au/environment/domesticwastewater

For land application areas the regulatory authority for land application systems is the local government (Council) and most local governments have a sewerage management strategy or policy. A list of NSW local governments may be found here; https://www.olg.nsw.gov.au/public/local-government-directory

Schedule 1 Definitions

Aisle: A walkway at the end of *rows* of seating, not being *continental seating*, leading to a cross-over or to an egress doorway.

Appropriate authority

The relevant authority with the responsibility to determine the particular matter.

Assembly building

A building where people may assemble for—

(a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or

(b) educational purposes in a *school*, *early childhood centre*, preschool, or the like; or

(c) entertainment, recreational or sporting purposes including—

(i) a cinema; or

(ii) a sports stadium, sporting or other club; or

(d) transit purposes including a bus station, railway station, airport or ferry terminal.

Auditorium: A part of an *entertainment venue* used or intended to be used for the purposes of accommodating an audience to an entertainment.

Combustible

Applied to—

(a) a material — means combustible as determined by AS 1530.1; and

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

Continental seating: *Rows* of seating in which the *rows* extend the full width of an *auditorium* without intervening *aisles*.

Critical radiant flux (CRF)

The critical heat flux at extinguishment (CHF in kW/m^2) as determined by AS ISO 9239.1.

Cross-over: In relation to an *entertainment venue* or *temporary structure*, means a walkway between *aisles* or between an *aisle* and an egress doorway.

Designated bushfire prone area

Land that is designated as bush fire prone land on a bush fire prone land map certified by the Commissioner of NSW Rural Fire Service in accordance with Section 10.3 of the Environmental Planning and Assessment Act 1979

Development consent: Is as defined in the Environmental Planning and Assessment Act 1979.

Entertainment venue: Is as defined in the Environmental Planning and Assessment Regulation 2021.

Film: A cinematograph film of a size of 35 mm or greater.

Flammability Index

The index number as determined by AS 1530.2.

Flying scenery: Scenery of a kind that is lifted above the *stage* floor by means of lines run from a *grid*.

Garage top dwelling: A Class 1a dwelling located above a Class 10a *private garage* which is not associated with that Class 1a dwelling and includes any internal entry stair serving the garage top dwelling.

Grid: A framework from which lines are run for the purpose of lifting *flying scenery* above the *stage* floor.

Information and education facility: Is as defined in the Standard Instrument—Principal Local Environment Plan.

Licensed premises: Is as defined in the Liquor Act 2007.

Minimum lateral clearance: A permanently unobstructed space having a height above floor level of not less than 2000 mm and a width of not less than the specified measurement.

Non-combustible

Applied to—

(a) a material — means not deemed *combustible* as determined by AS 1530.1; or

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

Planning for Bush Fire Protection: Is as prescribed by the Environmental Planning and Assessment Regulation 2021.

Projection suite: Such part of an *entertainment venue* as is designed to accommodate apparatus used for projecting *films*.

Row: A row of seating—

(a) between a wall or other barrier and an *aisle*; or

(b) between 2 *aisles*.

Small live music or arts venue: The whole or part of a building—

(a) in which cultural activities including live music, visual arts' displays, dancing, poetry and spoken word performances are provided to the public; and

(b) that has a *floor area* of not more than 300 square metres; and

(c) that has a *rise in storeys* of not more than 2; and

(d) that occupies not more than 2 *storeys* including the ground floor *storey*; and

(e) where pyrotechnics or theatrical smoke (smoke machines, hazers or the like) are not used.

Smoke-Developed Index

The index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate

The development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Spa pool: Is as defined in the Swimming Pools Act 1992.

Special fire protection purpose: (As per Section 100B(6) of the Rural Fires Act 1997) means any of the following purposes:

(a) a school,

(b) a child care centre,

(c) a hospital (including a hospital for the mentally ill or mentally disordered),

(d) a hotel, motel or other tourist accommodation,

(e) a building wholly or principally used as a home or other establishment for mentally incapacitated persons,

(f) seniors housing within the meaning of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (now SEPP (Housing) 2021),

(g) a group home within the meaning of State Environmental Planning Policy No 9 - Group Homes (now SEPP (Housing) 2021),

(h) a retirement village,

(i) any other purpose prescribed by the regulations (Rural Fires Regulation 2022).

Notes

For application of this definition in the BCA, the term "school" does not include a college, university or similar tertiary educational establishment.

Spread-of-Flame Index

The index number for spread of flame as determined by AS/NZS 1530.3.

Temporary structure: Either—

(a) a booth, tent or other temporary enclosure, whether or not a part of the booth, tent or enclosure is permanent; or

(b) a mobile structure.

Schedule 2 Referenced documents

Insert NSW Table 1 as follows:

NSW Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions
AS/NZS 1596	2014	The Storage and Handling of LP Gas (incorporating amendments 1 and 2)	NSW I4D61	N/A	N/A
AS 1603 Part 3	2018	Automatic fire detection and alarm systems — Heat alarms (See Note 1)	N/A	N/A	NSW 9.5.1
AS 2001 Part 5.4	2005	Methods of test for textiles: Dimensional washing and drying procedures for textile texting	NSW S7C7	N/A	N/A
AS/NZS 3000	2018	Electrical installations (known as the Australian/New Zealand Wiring Rules) (incorporating amendments 1, 2 and 3)	NSW I5D14	N/A	N/A
AS/NZS 3002	2021	Electrical installations — Shows, carnivals and events	NSW I5D14	N/A	N/A
SSL	N/A	Appraisal Specification FAS102	NSW I4D46	N/A	N/A
NSW Legislation	1979	Environmental Planning and Assessment Act	NSW Schedule 1	NSW Schedule 1	NSW Schedule 1
NSW Legislation	2021	Environmental Planning and Assessment Regulation	NSW I4D1, NSW I4D46, NSW Schedule 1	NSW Schedule 1	NSW Schedule 1
NSW Legislation	2007	Liquor Act	NSW Schedule 1	NSW Schedule 1	NSW Schedule 1
NSW Legislation	1997	Rural Fires Act	NSW G5D2, NSW G5D3, NSW G5D4, NSW Schedule 1	NSW Schedule 1, NSW H7D4	NSW Schedule 1

No.	Date	Title	Volume One	Volume Two	Housing Provisions
NSW Legislation	N/A	Standard Instrument—Principal Local Environmental Plan	NSW Schedule 1	NSW Schedule 1	NSW Schedule 1
NSW Legislation	1992	Swimming Pools Act	NSW G1P2, NSW G1D2, NSW Schedule 1	NSW H7P1, NSW H7D2, NSW Schedule 1	NSW Schedule 1
NSW Legislation	2018	Swimming Pools Regulation	NSW G1P2, NSW G1D2	NSW H7P1, NSW H7D2	N/A
NSW Legislation	2011	Work Health and Safety Act	NSW G1P6, NSW G1D6	N/A	N/A

Table Notes

(1) Heat alarms complying with AS 1603.3 must be a class type A1 or A2.

NSW Footnote: Other legislation affecting buildings

1. Plumbing and Drainage

Administering Agency

Building Commission NSW

Relevant Legislation

Plumbing and Drainage Act 2011

Plumbing and Drainage Regulation 2017

Approval to Connect to Network Utility Operator's System

Refer to the *Network Utility Operator* for the current Act and Regulation

Hunter Water Act 1991

Local Government Act 1993

Sydney Water Act 1994

Water Industry Competition Act (WICA) 2006

2. Building

Administering Agency

Department of Planning, Housing and Infrastructure

Relevant Legislation

Environmental Planning and Assessment Act 1979

Environmental Planning and Assessment Regulation 2021

Environmental Planning and Assessment (Development and Fire Safety) Regulation 2021

Administering Agency

Building Commission NSW

Relevant Legislation

Design and Building Practitioners Act 2020

Design and Building Practitioners Regulation 2021

Home Building Act 1989

Home Building Regulation 2014

Residential Apartment Buildings (Compliance and Enforcement Powers) Act 2020

Residential Apartment Buildings (Compliance and Enforcement Powers) Regulation 2020

3. Health

Administering Agency

NSW Ministry of Health

Relevant Legislation

Public Health Act 2010

Public Health Regulation 2012

4. On-site Wastewater Installations

Administering Agency

Department of Planning, Housing and Infrastructure

Relevant Legislation

Local Government Act 1993

Local Government (General) Regulation 2021

5. Environment

Administering Agency

Department of Climate Change, Energy, the Environment and Water

Relevant Legislation

Protection of the Environment Operations Act 1997

6. Gas

Administering Agency

Department of Climate Change, Energy, the Environment and Water

Relevant Legislation

Gas Supply Act 1996

Gas Supply (Safety and Network Management) Regulation 2013

Administering Agency

Building Commission NSW

Relevant Legislation

Gas and Electricity (Consumer Safety) Act 2017

Gas and Electricity (Consumer Safety) Regulation 2018

7. Electrical

Administering Agency

Building Commission NSW

Relevant Legislation

Gas and Electricity (Consumer Safety) Act 2017

Gas and Electricity (Consumer Safety) Regulation 2018

Administering Agency

SafeWork NSW

Relevant Legislation

Work Health and Safety Regulation 2017

Schedule 6 Northern Territory

Introduction

Section C **Sanitary plumbing and drainage systems**

Part C2	Sanitary drainage systems
NT C2P2	Swimming pool drainage
C2D3	Swimming pool drainage

Section D **Excessive noise**

Part D1	Excessive noise
D1D1	Deemed-to-Satisfy Provisions
NT D1D3	Sound insulation

Schedule 2 **Referenced documents**

Footnote: Other legislation affecting buildings

NT Introduction

This Appendix contains variations and additions to the Plumbing Code of Australia (PCA) provisions which are considered necessary for the effective application of the Code in the Northern Territory.

Section C Sanitary plumbing and drainage systems

Part C2 Sanitary drainage systems

Delete C2P2 and insert NT C2P2 as follows:

NT C2P2 Swimming pool drainage

This clause has deliberately been left blank.

C2D3 Swimming pool drainage

Delete C2D3(1) and insert NT C2D3(1) as follows:

(1) In Northern Territory, discharging water from swimming pools into sanitary drainage is not allowed.

Section D Excessive noise

Part D1 Excessive noise

D1D1 Deemed-to-Satisfy Provisions

Delete D1D1(1) and insert NT D1D1(1) as follows:

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement*—

(a) D1P1 is satisfied by complying with D1D2; and

(b) D1P2 is satisfied by complying with—

(i) NT F5.0 through to NT F5.8 in the NT Appendix to NCC Volume One for Class 2, 3 and 9c buildings; and

(ii) NT Part 3.8.6 in NCC Volume Two for Class 1 buildings.

Delete D1D3 and insert NT D1D3 as follows:

NT D1D3 Sound insulation

This clause has deliberately been left blank.

Schedule 2 Referenced documents

Insert NT Table 1 as follows:

NT Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions
AS/NZS 1170 Part 2	2024	Structural design actions: Wind actions	NT S4C3, B1D4	N/A	N/A
AS 2047	2014	Windows and external glazed doors in buildings (incorporating amendments 1 and 2) See Note	B1D4, F1V1, F1D14	H1D8, H2V1	NT 13.4.4
AS 3660 Part 1	2014	Termite management: New building work	NT B1D4	N/A	NT 3.4.1(2), NT 3.4.2
AS 3660 Part 3	2014	Termite management: Assessment criteria for termite management systems	N/A	N/A	NT 3.4.2
AS 4055	2021	Wind loads for Housing	NT S4C3	H1D6, H1D8	N/A
AS 4254 Part 1	2021	Ductwork for air handling systems in buildings — Flexible duct	N/A	N/A	NT 13.7.4
AS 4254 Part 2	2012	Ductwork for air handling systems in buildings — Rigid duct	Spec 7	N/A	NT 13.7.4
AS/NZS 4859.1	2024	Thermal insulation materials for buildings — General criteria and technical provisions Amendment 1	N/A	N/A	NT 13.2.2, NT 13.7.4, 13.7.2
AS ISO 717.1	2024	Acoustics - Rating of sound insulation in buildings and of building elements, Part 1: Airborne sound insulation	F7V1, F7V2, F7V4, NT F7D3	N/A	10.7.1
BCA 2009	May 2009	Building Code of Australia	NT Section J	N/A	N/A
BCA 2019	May 2019	Building Code of Australia	NT Section J	N/A	N/A

Table Notes

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.

NT Footnote: Other legislation affecting buildings

1. Plumbing and Drainage

Administering Agency

Department of Lands, Planning and Environment

Department of Trade, Business and Asian Relations

Relevant Legislation

Building Act 1993

Building Regulations 1993

Plumbers and Drainers Licensing Act 1983

2. Building

Administering Agency

Department of Lands, Planning and Environment

Relevant Legislation

Building Act 1993

Building Regulations 1993

3. Health

Administering Agency

Department of Health

Relevant Legislation

Public and Environmental Health Act 2011

Public and Environmental Health Regulations 2014

4. Planning

Administering Agency

Department of Lands, Planning and Environment

Relevant Legislation

Planning Act 1999

Planning Regulation 1999

5. Gas

Administering Agency

Attorney General's Department

Relevant Legislation

Dangerous Goods Act 1998

6. Electrical

Administering Agency

Attorney General's Department

Relevant Legislation

Electrical Safety Act 2022

Electricity Reform Act 2000

7. Water Supply and Sewage Services

Administering Agency

Power and Water Corporation

Relevant Legislation

Water Supply and Sewerage Services Act 2000

Water Supply and Sewerage Services Regulations 2002

Schedule 7 Queensland

Introduction

Section B Water services

Part B1 Cold water services
B1D2 Water efficiency
B1D3 General requirements
Part B2 Heated water services
QLD B2P8 Energy use and source
QLD B2D2 Water heater in a heated water supply system

QLD Part B4 Fire-fighting water services

Schedule 1 Definitions

Schedule 2 Referenced documents

QLD Introduction

This Appendix contains variations and additions to the Plumbing Code of Australia (PCA) provisions which are considered necessary for the effective application of the Code in Queensland and shall be treated as amendments to the Code.

In Queensland all the NCC 2022 provisions remain in force until 30 April 2027.

In Queensland, the NCC 2025 edition is adopted and has legal effect from 1 May 2027.

Any amendments to NCC 2025 will also be adopted and have lawful effect from 1 May 2027.

The Queensland Plumbing and Wastewater Code continues to apply to the NCC edition in force in Queensland.

Section B Water services

Part B1 Cold water services

B1D2 Water efficiency

Delete B1D2(2) and insert QLD B1D2(2) as follows:

(2) For a new Class 1 or Class 2 building, in an area serviced by a *Network Utility Operator* water supply, toilet cisterns must—

(a) have a dual flushing mechanism; and

(b) be a minimum 4 Star WELS rating discharging not more than 4.5 litres for a full flush; and

(c) are compatible with the size of the toilet bowl to allow for proper functioning of the toilet.

For all other installations, cisterns or flushing devices for water closets must—

(a) have a dual flushing mechanism; and

(b) be a minimum 3 Star WELS rating discharging not more than 6 litres or 4.5 litres for a full flush.

B1D3 General requirements

Insert subclause QLD B1D3(3) in clause B1D3 as follows:

(3) Notwithstanding (1), Appendix I of AS/NZS 3500.1 is adopted as an Informative appendix.

Insert subclause QLD B1D3(4) in clause B1D3 as follows:

(4) For clause 2.5.3(c) of AS/NZS 3500.1, the minimum pressure rating for plastic pipes used in a cold water service is PN 12.

Part B2 Heated water services

Delete B2P8 and insert QLD B2P8 as follows:

QLD B2P8 Energy use and source

This clause has deliberately been left blank.

Delete B2D2 and insert QLD B2D2 as follows:

QLD B2D2 Water heater in a heated water supply system

This clause has deliberately been left blank.

QLD Part B4 Fire-fighting water services

Introduction to this Part

Part B4 does not apply in Queensland.

Notes

This Part does not apply in Queensland. Fire-fighting water services are required under the Queensland Building Act 1975.

Schedule 1 Definitions

Primary building element

For the purposes of—

(1) 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

(2) Volume Two—

(a) A member of a building specifically designed to take part of the building loads and includes roof, ceiling, floor, stairway or ramp and wall framing members including bracing members designed for the specific purpose of acting as a brace to those members; and

(b) door jambs, window frames and reveals, architraves and skirtings.

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.

Schedule 2 Referenced documents

Insert QLD Table 1 as follows:

QLD Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions
N/A	December 2017	Queensland Government, Department of Agriculture, Fisheries and Forestry – Construction timbers in Queensland: Book 1 and Book 2: Properties and specifications for satisfactory performance of construction timbers in Queensland – Class 1 and 10 buildings (Houses, carports, garages, greenhouses and sheds)	QLD B1D4	QLD H1D6	N/A
N/A	N/A	Building Act 1975	QLD B1P3, QLD B1D6, QLD G1D2	QLD H1P2, QLD H1D10, QLD H7P1, QLD H7D2	N/A
N/A	N/A	Building Regulation 2021	QLD G1P2, QLD G1D2	QLD H7P1, QLD H7D2	N/A
		Queensland Development Code MP 3.4 - Swimming pool barriers	QLD G1D2	QLD H7P1, QLD H7D2	N/A
		Queensland Development Code MP 3.5 - Construction of buildings in flood hazard areas	QLD B1P3, QLD B1D6	QLD H1P2, QLD H1D10	N/A
		Queensland Development Code MP 4.1 – Sustainable buildings	Section J	Part H6	Section 13

Schedule 8 South Australia

Introduction

Section A Governing requirements

Part A6 Building classification
SA A6G7 Class 6 buildings

Section B Water services

Part B2 Heated water services
SA B2D2 Water heater in a heated water supply system
SA B2D5 Maximum delivery temperature
SA B2D9 General requirements
Part B5 Cross-connection control
SA B5D3 Non-drinking water service
SA B5D6 Rainwater
Part B6 Rainwater services
SA B6D2 General requirements

Section C Sanitary plumbing and drainage systems

Part C1 Sanitary plumbing systems
SA C1D3 General requirements
Part C2 Sanitary drainage systems
SA C2D4 General requirements
Part C3 On-site wastewater management
SA C3D2 Septic tanks
SA C3D3 Composting toilets
SA C3D4 Secondary treatment systems
SA C3D5 Domestic grey water treatment systems
SA C3D6 Land application systems
SA C3D7 Common effluent drainage systems

Schedule 1 Definitions

Schedule 2 Referenced documents

Footnote: Other legislation affecting buildings

SA Introduction

This Appendix contains variations and additions to the PCA provisions which are considered necessary for the effective application of the Code in South Australia.

These variations and additions are to be treated as amendments to the PCA.

Section A Governing requirements

Part A6 Building classification

Delete A6G7 and insert SA A6G7 as follows:

SA A6G7 Class 6 buildings

A Class 6 building is a shop or other building for the sale of goods by retail or the supply of services direct to the public, including—

(a) an eating room, cafe, restaurant, milk or soft drink bar; or

(b) a dining room, bar, shop or kiosk part of a hotel or motel; or

(c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or

(d) market or sale room, showroom, or *service station*; or

(e) a *small arts venue*.

Section B Water services

Part B2 Heated water services

Delete B2D2 and insert SA B2D2 as follows:

SA B2D2 Water heater in a heated water supply system

(1) In a new or established Class 1 or Class 10 building, a water heater in a heated water supply system must comply with a standard made under section 66 of the Water Industry Act 2012.

(2) The requirements of (1) do not apply to the following:

(a) Water heaters serving buildings other than Class 1 or Class 10.

(b) Repairs to water heaters including:

(i) Like for like replacements that are the result of manufacturer, supplier or installer warranty arrangements.

(ii) Repairs of components for an existing water heater that does not include a full replacement of a water heater.

Explanatory Information: Gas water heaters

The energy ratings for natural gas and LPG water heaters are available at: http://www.aga.asn.au/product_directory

Explanatory Information: Solar water heaters and electric heat pump water heaters

STCs are Small-scale Technology Certificates. References to Renewable Energy Certificates (RECs) refer equally to STCs. The number of STCs is provided for each eligible model of solar water heater and electric heat pump water heater at: https://www.cleanenergyregulator.gov.au/RET/Scheme-participants-and-industry/Agents-and-installers/Small-scale-systems-eligible-for-certificates/Register-of-solar-water-heaters.

Delete B2D5 and insert SA B2D5 as follows:

SA B2D5 Maximum delivery temperature

(1) The delivery temperature of *heated water* at the outlet of each sanitary fixture must be—

(a) not more than 45 °C in any—

(i) residential part of an *aged care building*; or

(ii) *patient care area* in a *health-care building*; or

(iii) part of an *early childhood centre*, or primary or secondary *school*, that is used by children; or

(iv) designated *accessible* facility in a common area of a Class 2 building, or in any part of a Class 3, Class 5, Class 6, Class 7, Class 8, Class 9a, 9b, 9c or Class 10 building; or

(b) not more than 50 °C in all other cases.

(2) All new solar water installations (including solar water heater replacements) shall be in accordance with 1(a) and (b).

(3) Where an existing building is altered or extended in such a way that sanitary fixtures used primarily for personal hygiene purposes are installed in a location where, before the alteration or extension, no such fixture existed, the delivery temperature at the fixture shall be in accordance with 1(a) and (b).

(4) Where a water heater is replaced, a temperature control device is required where such a device was in place prior to the installation of the replaced water heater. The device must meet the requirements of 1 (a) and (b).

Applications

B2D5 applies to all *heated water* installations intended for personal hygiene.

Explanatory Information

Scenarios covered in B2D5 may include where—

- a *heated water* service is installed on the premises for the first time; or
- a water heater forming part of an existing *heated water* service is—
  - replaced with a like-for-like water heater; or
  - replaced with a different type of water heater; or
  - relocated, and is reconnected to, some or all of the sanitary fixtures to which it was previously connected; or
- more than one existing sanitary fixture is replaced with new similar fixtures; or
- an existing *heated water* service on the premises is altered or extended to serve additional sanitary fixtures.

Consideration should be given to the intended occupants of a building when commissioning the *heated water* delivery temperature. For example, if the occupants of a Class 1 building are older adults or young children, a lower temperature than specified in B2D5(b) should be considered.

A duty of care should be exercised by installers to explain to clients the merits of temperature control for *heated water* delivered to existing sanitary fixtures used primarily for personal hygiene purposes.

Delete B2D9 and insert SA B2D9 as follows:

SA B2D9 General requirements

A *heated water* service must be in accordance with AS/NZS 3500.4 with the following variations—

(a) substitute AS/NZS 3500.4 clause 5.8(c) with: 5.8(c) All new or replacement unvented storage water heaters shall be fitted with new temperature/pressure relief and expansion control valves.

(b) substitute AS/NZS 3500.4 clause 5.11.2.1 with: 5.11.2.1 The drain lines from the outlet of the temperature/pressure-relief valve and the expansion control valve on an individual water heater shall not be interconnected.

(c) substitute AS/NZS 3500.4 clause 5.11.3(e) with: 5.11.3(e) All drain lines shall discharge separately over a gully, tundish or other visible approved outlet.

Part B5 Cross-connection control

Delete B5D3 and insert SA B5D3 as follows:

SA B5D3 Non-drinking water service

(1) A hazard exists wherever it is possible for water or *contaminants* to enter a *non-drinking water* service or supply via any potential or actual *cross-connection* between itself and another separate *non-drinking water* service on the same *site*.

(2) Each hazard must—

(a) be assigned a *Hazard Rating* in accordance with B5D7(10), B5D7(11) or B5D7(12); and

(b) be isolated from the *non-drinking water* service by appropriate protection which is selected and installed in accordance with AS/NZS 3500.1.

(3) If a drinking water service is interconnected with a *non-drinking water* service for the purpose of emergency backup or to supplement, the *drinking water* supply shall be fitted with a high hazard backflow prevention device at the point of interconnection as a *zone protection*.

Explanatory Information

The Office of the Technical Regulator has produced a document ‘Guidelines for Non-drinking water in South Australia’.

The guidance document has been designed for the plumbing and water industries, water industry entities, and property owners with a non-drinking water supply.

The guidelines outline the requirements and responsibilities for installing, operating, and maintaining non-drinking water systems per the Water Industry Act 2012, Water Industry Regulations 2012, and appropriate technical standards.

Delete B5D6 and insert SA B5D6 as follows:

SA B5D6 Rainwater

(1) Protection of *drinking water* services from rainwater must be in accordance with Part B5 Cross connection control with the following variations.

(2) When *drinking water* is used to top up a *rainwater tank* or supplement a rainwater service using a change-over device—

(a) It must be assigned a hazard rating based on the rainwater tank location.

(i) high hazard for buried rainwater tanks

(ii) low hazard for partially buried rainwater tanks

(iii) low hazard for above-ground rainwater tanks.

(b) A reduction of the *Hazard Rating* for a buried rainwater tank to low may be permitted following a risk assessment of—

(i) the risk to tank rainwater quality from air pollution is low; and

(ii) the risk to tank rainwater quality from groundwater and/or surface water contamination is low. In assessing this risk the permeability of the tank and piping materials and joints to groundwater contaminants should be addressed; and

(iii) precautions in the design and installation of the rainwater collection system have been taken to reduce impacts to tank rainwater quality from the roof collection and delivery system. Such measures include, but are not restricted to, appropriate materials, gutter guards, filters, first flush devices, dry inlets, guards to exclude vermin and mosquitoes, and the quality of tank maintenance programs; and

(iv) precautions in the design and installation of the *rainwater tank* have been taken to reduce impacts to tank rainwater quality from groundwater and *surface water* pollution. Such measures include, but are not limited to—

(A) location and topography; and

(B) structural integrity of the tank including installation factors such as bedding, embedment, compaction and geotechnical specifications; and

(C) water tightness of tank including all penetrations, connections, access covers and joints; and

(D) ingress of vermin through the overflow e.g. by provision of a reflux valve, self-sealing valve, trap check valve; and

(E) the risk assessment results must be submitted to the authority having jurisdiction.

Part B6 Rainwater services

Delete B6D2 and insert SA B6D2 as follows:

SA B6D2 General requirements

A *rainwater service* must comply with Section 15 of AS/NZS 3500.1 with the following variation—

(d) For Class 1 buildings and extensions or additions to Class 1 buildings the following applies.

Where a drinking water is used to top-up a rainwater tank or supplement a rainwater service, it shall be maintained by an automatic change-over device, automatic top-up device or a device/mechanism that facilitates an automatic switching without manual intervention.

Section C Sanitary plumbing and drainage systems

Part C1 Sanitary plumbing systems

Delete C1D3 and insert SA C1D3 as follows:

SA C1D3 General requirements

A sanitary *plumbing* system must be in accordance with AS/NZS 3500.2 with the following variations:

(a) Substitute AS/NZS 3500.2 clause 2.3(a) as follows: Bends in pipes shall have a throat radius complying with Table 5.6 and Figure B6 of AS/NZS 1260 (2017) and shall be free from wrinkling and flattening.

(b) After AS/NZS 3500.2 clause 10.5.2(e) insert clause (f) as follows: Where inspection openings are installed, they shall be downstream of a fixture where practical.

(c) After AS/NZS 3500.2 clause 12.7(g), insert clause 12.7(h) as follows: Buried pumped discharge pipes and rising mains shall be placed in close-fitting durable sleeving or continually spirally wrapped. The sleeving or spiral wrapping shall be identified for the full length with the following statement: “sewer rising main” or “pumped discharge pipe” in accordance with AS 1345.

(d) After AS/NZS 3500.2 clause 12.7(h), insert clause 12.7(i) as follows: Above ground pumped discharge pipes and rising mains shall be permanently identified with the following statement: “sewer rising main” or “pumped discharge pipe” in accordance with AS 1345. The statement shall be installed in a visible position running longitudinally, at no more than 3 metre intervals.

Part C2 Sanitary drainage systems

Delete C2D4 and insert SA C2D4 as follows:

SA C2D4 General requirements

A sanitary *drainage* system must be in accordance with AS/NZS 3500.2 with the following variations:

(a) Substitute AS/NZS 3500.2 clause 2.3(a) as follows: Bends in pipes shall have a throat radius complying with Table 5.6 and Figure B6 of AS/NZS 1260 (2017) and shall be free from wrinkling and flattening.

(b) Substitute AS/NZS 3500.2 clause 2.6.2(c) as follows: Vitrified clay pipes and fittings shall not be used above ground. Vitrified clay pipes and fittings shall not be used for drains under buildings unless they have been renovated using a cured in-place pipe (CIPP) techniques in accordance with Clause 3.16.3.

(c) After AS/NZS 3500.2 clause 3.9.1(g) insert (h) and (i) as follows: (h) at the downstream end of a trade waste pre-treatment equipment, close to the outlet; and (i) at the upstream end of a trade waste drain connected to trade waste pre-treatment equipment and where required by the Network Utility Operator, fitted with a wind driven turbine ventilator at the termination unless otherwise authorised by the receiving Network Utility Operator or authority.

(d) After AS/NZS 3500.2 clause 3.9.3.1(e) add (f) and (g) as follows: (f) where required by Clause 3.9.1(h) the downstream vent on any trade waste drain shall not be less than DN80; and (g) where required by Clause 3.9.1(g) the upstream vent on a trade waste drain shall not be less than DN80.

(e) After AS/NZS 3500.2 clause 4.4.1 insert the following: An inspection shaft or inspection point provided by the Network Utility Operator outside or within the allotment boundary satisfies the requirements of Clause 4.4.

(f) After AS/NZS 3500.2 clause 4.6.7.4 insert the following: The size of waste pipes from fixtures connecting into floor waste gullies shall comply with Table 6.3(A).

(g) After AS/NZS 3500.2 clause 4.7.1(h), insert clause 4.7.1(i) as follows: Inspection openings indicated in 4.7.1(b), (d), (e) and (f) shall be raised to finished surface level. All other inspection openings need not be raised provided they are not below paved, concreted or similar finished surfaces.

(h) After AS/NZS 3500.2 clause 4.7.3(c) insert clause 4.7.3.1 as follows: Where inspection openings are installed, they shall be downstream of a fixture where practical.

(i) After AS/NZS 3500.2 clause 12.7(g), insert clause 12.7(h) as follows: Buried pumped discharge pipes and rising mains shall be placed in close-fitting durable sleeving or continually spirally wrapped. The sleeving or spiral wrapping shall be identified for the full length with the following statement: “sewer rising main” or “pumped discharge pipe” in accordance with AS 1345.

(j) After AS/NZS 3500.2 clause 12.7(h), insert clause 12.7(i) as follows: Above ground pumped discharge pipes and rising mains shall be permanently identified with the following statement: “sewer rising main” or “pumped discharge pipe” in accordance with AS 1345. The statement shall be installed in a visible position running longitudinally, at no more than 3 metre intervals.

(k) After AS/NZS 3500.2 clause 13.27.2 insert clause 13.28 as follows: All trade waste pre-treatment equipment shall connect to the sanitary drainage system via a disconnector gully. Where discharge to the disconnector gully will cause the accumulation of foul gases the disconnector gully riser shall be sealed with a removable airtight cover and vented with a DN50 vent pipe in accordance with Clause 6.9.4.

(l) After AS/NZS 3500.2 Clause 6.9.3(d), insert (e). The vent from a sealed disconnector gully as required in Clause 13.28 may interconnect with the required downstream arrestor vent at a minimum of 300 mm above the overflow level of the lowest fixture connected to the trade waste pre-treatment device.

Explanatory Information

It is illegal to discharge unauthorised liquid trade waste. Trade waste authorisation is granted by the receiving *Network Utility Operator* or authority having jurisdiction.

Liquid Trade waste generated from industry, business, trade or manufacturing must be treated to the required standards of the authority having jurisdiction or receiving *Network Utility Operator*.

The Office of the Technical Regulator regulates plumbing work in South Australia under the Water Industry Act 2012, including sanitary plumbing and drainage systems for liquid trade waste.

Part C3 On-site wastewater management

Delete C3D2 and insert SA C3D2 as follows:

SA C3D2 Septic tanks

A septic tank must be in accordance with the South Australia On-Site Wastewater Systems Code.

Delete C3D3 and insert SA C3D3 as follows:

SA C3D3 Composting toilets

A waterless composting toilet must be in accordance with the South Australia On-Site Wastewater Systems Code.

Delete C3D4 and insert SA C3D4 as follows:

SA C3D4 Secondary treatment systems

A secondary treatment system must be in accordance with the South Australia On-Site Wastewater Systems Code.

Delete C3D5 and insert SA C3D5 as follows:

SA C3D5 Domestic grey water treatment systems

A domestic greywater treatment system must be in accordance with the South Australia On-Site Wastewater Systems Code.

Delete C3D6 and insert SA C3D6 as follows:

SA C3D6 Land application systems

A land application system must be in accordance with the South Australia On-Site Wastewater Systems Code.

Delete C3D7 and insert SA C3D7 as follows:

SA C3D7 Common effluent drainage systems

A common effluent drainage system must be in accordance the South Australia Community Wastewater Management Systems Code.

Schedule 1 Definitions

Agriculture: Cropping, grazing, animal husbandry, intensive animal keeping, horticulture, aquaculture, wool shearing or dairy, but not viticulture or forestry.

Assembly building

A building where people may assemble for—

(a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or

(b) educational purposes in a *school*, *early childhood centre*, preschool, or the like; or

(c) entertainment, recreational or sporting purposes including—

(i) a discotheque or nightclub; or

(ii) a cinema; or

(iii) a sports stadium, sporting or other club; or

(d) transit purposes including a bus station, railway station, airport or ferry terminal.

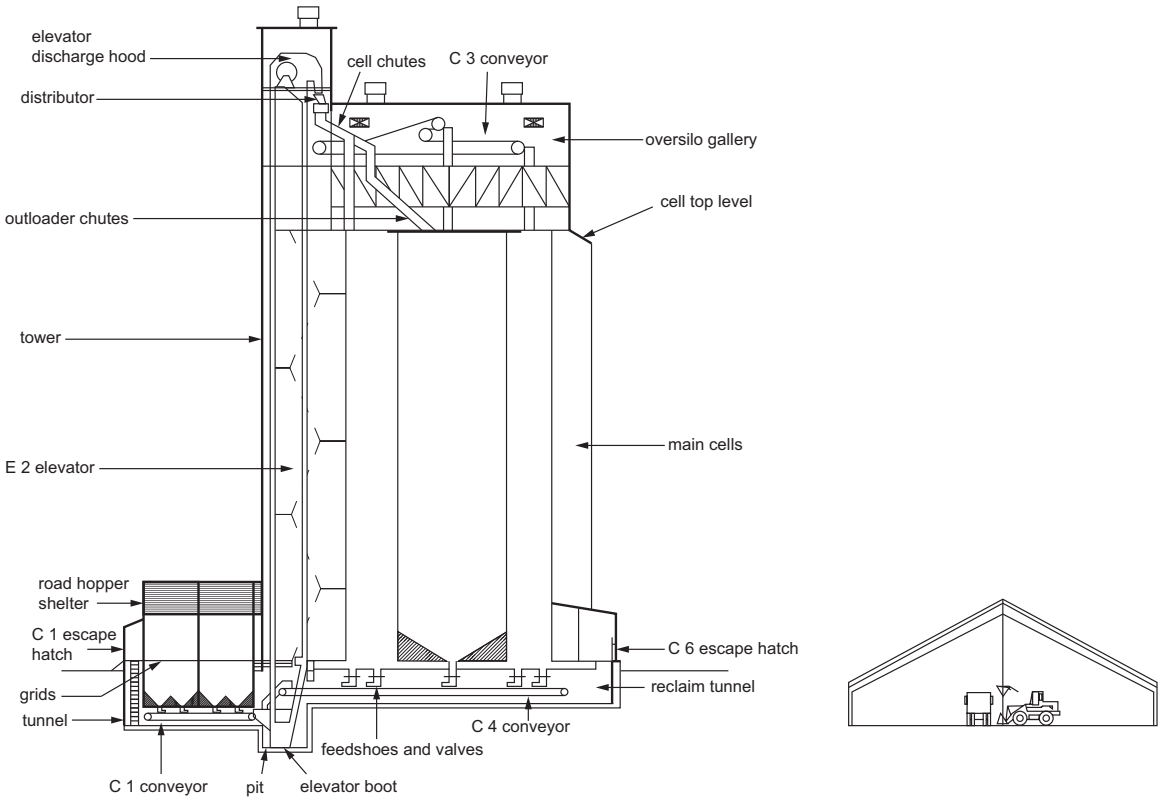
Brush fence: A fence or gate that is primarily constructed of Broombrush (Melalueca Uncinata).

Bulk grain storage facility: A building or structure used for the commercial bulk handling or storage of granular materials such as grain, ore, or the like, where only a small number of occupants are present at one time and includes *cell type silos* and *storage sheds*.

Cell type silo: A type of *bulk grain storage facility* similar to that illustrated in diagram (a) of Figure SA 1.

Insert SA Figure 1 as follows:

SA Figure 1: Two types of bulk grain storage facilities



(a) *Cell type silo* (b) *Storage shed*

Certificate of Accreditation

A certificate issued for accreditation of a building product, building method, design, component, equipment or system under section 237 of the Planning, Development and Infrastructure Act 2016.

Farm building

A single *storey* Class 7 or 8 building that is—

(a) primarily associated with *agriculture* and located on land used primarily for *agriculture*; and

(b) the total number of people accommodated in the building does not exceed one person per 200 m^2 of total *floor area*, or six people, whichever is greater; and

(c) the *floor area* of each building does not exceed the maximum *floor area* and volume specified in Table SA 1 for the type of *farm building*; and

(d) the building does not contain occupancies of excessive fire hazard as listed in E1D5 to E1D13; and

(e) if the building is used for the storage of hay, an open space complying with C3D5(1) is provided around the perimeter of each building.

Insert SA Table SA 1 as follows:

SA Table SA 1: Farm building categories and maximum floor area

Building group	Type of farm building	Maximum floor area	Maximum volume
Group A	Buildings used for keeping, growing and/or harvesting of animals and/or plants, and includes greenhouses with rigid covering material and large implement/vehicle storage sheds.	5,000 m^2	30,000 m^3
Group B	Buildings used for packing, sorting and/or storage of produce and may include workshops.	2,000 m^2	12,000 m^3
Group C	Greenhouses with non-rigid, plastic or fabric covering material.	5,000 m^2	30,000 m^3

Rainwater tank: A vessel for the storage of *surface water* collected from the *roof catchment area* of the building.

Roof catchment area: The area of the roof (expressed in square metres), measured on the horizontal (no allowance for slope or vertical surfaces) and includes the plan area of the gutters.

Small arts venue: The whole or the only part of a building that has a rise in storeys of not more than 2—

(a) in which cultural activities including live music, visual arts displays, dancing, poetry and spoken word performances are provided to the public; and

(b) the floor area used as a *small arts venue* does not exceed 300 m^2; and

(c) no pyrotechnics or theatrical smoke (smoke machines, hazers or the like) are used.

Storage shed: A type of *bulk grain storage facility* similar to that illustrated in diagram (b) of Figure SA 1.

Schedule 2 Referenced documents

Insert SA Table 1 as follows:

SA Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 1260	2017	PVC-U pipes and fittings for drain, waste and vent applications Amdt 1	N/A	N/A	N/A	C1D3
AS 1428 Part 1	2021	Design for access and mobility – General requirements for access – New building work	N/A	SA H10D4	N/A	N/A
AS/NZS 1891 Part 4	2000	Industrial fall-arrest systems and devices: Selection, use and maintenance	SA G8D3	N/A	N/A	N/A
—	See Note 1	Planning and Design Code	SA G5D5	SA H7D4(3)	N/A	N/A

Table Notes

(1) The Planning and Design Code is the version current at the time of project documentation approval, unless noted otherwise.

SA Footnote: Other legislation affecting buildings

In addition to this Code, there are a number of other legislative technical requirements affecting the design, construction, installation, replacement, repair, alteration and maintenance of plumbing that practitioners may need to be aware of, including, but not necessarily limited to, the following list.

1. Plumbing and Drainage

Administering Authority

Office of the Technical Regulator, Department for Energy and Mining

Relevant Legislation

Water Industry Act 2012

Water Industry Regulations 2012

Plumbing Standard published by the Technical Regulator

2. Building

Administering Authority

Planning and Land Use Services, Department for Trade and Investment

Relevant Legislation

Planning, Development and Infrastructure Act 2016

Planning, Development and Infrastructure (General) Regulations 2017

3. Health

Administering Authority

SA Health

Relevant Legislation

South Australian Public Health Act 2011

South Australian Public Health (Wastewater) Regulations 2013

SA Onsite Wastewater Systems Code

SA Community Wastewater Management Systems Code

Safe Drinking Water Act 2011

Safe Drinking Water Regulations 2012

South Australian Public Health (Legionella) Regulations 2013

Guidelines for the Control of Legionella in Manufactured Water Systems in South Australia - revised 2013

4. Environment

Administering Authority

Environmental Protection Authority

Relevant Legislation

Environment Protection Act 1993

Environmental Protection Regulations 2009

Local Nuisance and Litter Control Act 2016 (administered by the Local Governments)

5. Gas

Administering Authority

Office of the Technical Regulator, Department for Energy and Mining

Relevant Legislation

Gas Act 1997

Gas Regulations 2012

AS/NZS 5601 Gas Installations

AS 3814 Industrial and Commercial Gas Fired Appliances

AS/NZS 1596 The Storage and Handling of LP Gas

Energy Products (Safety and Efficiency) Act 2000

Energy Products (Safety and Efficiency) Regulations 2012

6. Electrical

Administering Authority

Office of the Technical Regulator, Department for Energy and Mining

Relevant Legislation

Electricity Act 1996

Electricity (General) Regulations 2012

Energy Products (Safety and Efficiency) Act 2000

Energy Products (Safety and Efficiency) Regulations 2012

AS/NZS 3000 Wiring Rules

Schedule 9 Tasmania

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TAS Introduction

This Appendix contains variations and additions to the Plumbing Code of Australia (PCA) provisions which are considered necessary for the effective application of the PCA in Tasmania and shall be treated as amendments to the Code.

Section A Governing requirements

Part A1 Interpreting the NCC

A1G4 Interpretation

Insert subclause TAS A1G4(7) in clause A1G4 as follows:

(7) The Director of Building Control may issue written advice to deal with arising issues such as interpretation of codes, standards and regulations.

Part A4 Referenced documents

A4G1 Referenced documents

Insert subclause TAS A4G1(7) in clause A4G1 as follows:

(7) All Tasmanian legislative documents referenced within the PCA are taken to be the latest published versions thereof unless noted otherwise.

Part A5 Documentation of design and construction

A5G4 Evidence of suitability — Volume Three (PCA)

Insert subclause TAS A5G4(7) in clause A5G4 as follows:

(7) A *product* used in roof plumbing, heating ventilation and air-conditioning or on-site liquid trade waste are deemed fit to be for their intended purpose if it has evidence of suitability in the form of—

(a) *WaterMark Licence* issued in accordance with the *WaterMark Certification Scheme*; or

(b) a current certificate issued by a certification body stating that the properties and performance of a product meet the requirements of the NCC Volume Three; or

(c) authorisation from the Director of Building Control.

Insert subclause TAS A5G4(8) in clause A5G4 as follows:

(8) A *product* used in *On-site wastewater management systems* are deemed to be fit for their intended purpose if it has evidence of suitability in the form of—

(a) an *On-site wastewater management system* used in a *plumbing* installation must be issued with a Certificate of Accreditation in accordance with the AS 1546 series of Standards; or

(b) a current certificate issued by a JAS-ANZ accredited certification body stating that the properties and performance of a product meets the requirement of NCC Volume Three; and

(c) accreditation from the Director of Building Control.

Insert subclause TAS A5G4(9) in clause A5G4 as follows:

(9) A holding tank or collection well for use in a *plumbing* or *drainage* installation may be verified as meeting the *Performance Requirements* of the Director of Building Control if complies with AS/NZS 1546.1.

Insert subclause TAS A5G4(10) in clause A5G4 as follows:

(10) Under the Tasmanian Building Act, the Director of Building Control may accredit an *On-site wastewater management system*. On-site wastewater management systems larger than that covered by the Australian Standards AS/NZS 1546 Series are exempt from accreditation and a Performance Solution is required.

Products accredited by the Director of Building Control are published in a list available at www.cbos.tas.gov.au.

Section B Water services

Part B1 Cold water services

Delete B1P6 and insert TAS B1P6 as follows:

TAS B1P6 Pressure

The points of discharge for a cold water service must—

(a) have—

(i) a working pressure of not less than 50 kPa; and

(ii) a static pressure within the building of not more than 500 kPa; or

(b) have water pressures suitable for the correct functioning of the fixture or appliance where water pressures outside of (a)(i) and (a)(ii) are required.

Exemptions

B1P5(a)(i) and B1P5(a)(ii) do not apply to existing low-pressure gravity only water services.

Delete B1D3 and insert TAS B1D3 as follows:

TAS B1D3 General requirements

(1) A cold water service must be in accordance with AS/NZS 3500.1.

(2) Notwithstanding (1), plastic pipes and fittings must not be used above-ground in combined sprinkler and hydrant systems.

(3) Cold water tanks forming part of a *drinking water* supply must comply with TAS B1D7.

(4) Backflow prevention for boundary containment must comply with the *Network Utility Operator* Boundary Backflow Containment Selection Requirements.

Exemptions

B1D3(1) does not apply to existing low-pressure gravity only water supply systems.

Insert TAS B1D7 as follows:

TAS B1D7 Cold water storage tanks

(1) B1D7 applies to tanks — including rainwater tanks — connected to the roof *plumbing* system, or a tank supplied from a nearby stream, bore or well used in *drinking water* services, or a *drinking water* supply in reticulated or non-reticulated areas.

Installation of cold-water storage tanks used to supply water to a *drinking water* service must comply with B1D7.

For connection of cold water tanks where reticulated supply is available refer to Sections 8 and 15 of AS/NZS 3500.1.

(2) Cold water storage tanks and their installation must comply with the relevant requirements of the following documents—

(a) AS 2070 Plastics materials for food contact use

(b) AS 3600 Concrete structures

(c) AS 3735 Concrete structures retaining liquids

(d) AS/NZS 2179.1 Specifications for rainwater goods, accessories and fasteners – Metal shape or sheet rainwater goods, and metal accessories and fasteners

(e) AS/NZS 3500.0 Plumbing and drainage

(f) AS/NZS 3500.1 Water services

(g) AS/NZ 3500.3 Stormwater drainage

(h) AS/NZS 4020 Testing of products in contact with drinking water

(i) AS/NZS 4130 Polyethylene (PE) pipes for pressure applications

(j) AS/NZS 4766 Polyethylene storage tanks for water and chemicals

(k) ABCB Procedures for the Certification of Plumbing and Drainage Products Section B Water services Tasmania

(l) NCC 2019 Volume Three - Plumbing Code of Australia Page 134

(i) The followings references are for information only— HB 230 Rainwater Tank Design and Installation Handbook and the enHealth Guidance on the use of rainwater tanks

(3) Materials and products in contact with water in a drinking water supply must comply with AS/NZS 4020. Linings and coatings must comply with AS/NZS 4020 at a surface area to volume ratio not greater than that specified in the conditions of use. Materials and products used in manufacture of tanks must be selected to ensure fitness for their intended purpose. Tanks must be selected from the relevant Standards listed in this Part. Factors to be taken into account include — but are not limited to—

(a) the nature and source of the water;

(b) the risk of corrosion and tank contamination;

(c) the nature of the environment;

(d) the physical and chemical characteristics of the materials and products;

(e) compatibility of materials and products; and

(f) accessibility for monitoring and maintenance.

(4) Plastic tanks must comply with AS/NZS 4766

(5) Waterstops, joint fillers and sealants used in the manufacture of tanks must be certified under the WaterMark Certification Scheme to AS/NZS 4020.

(6) Solders used in the manufacture of tanks must be certified under the WaterMark Certification Scheme to AS/NZS 4020. Soft solder must comply with AS 1834.1 and be lead-free for roof drainage components used for the conveyance of drinking water.

(7) Stainless steel sheet must be manufactured from alloy 304 or 316 complying with ASTM A240/A240M.

(8) Dezincification resistant (DR) copper alloys Where dezincification resistant copper alloys are specified, they must comply with AS 2345.

(9) Steel sheet Hot-dipped zinc-coated or aluminium/zinc-coated sheet steel must comply with AS 1397 and have an internal lining or coating certified to AS/NZS 4020.

(10) Concrete tanks must comply with AS 3735 or AS 3600.

(11) Tank linings must comply with AS/NZS 4020.

(12) In addition to the marking requirements set out in clause 8.9 of AS/NZS 3500.1 all tanks must be permanently marked with the following—

(a) Manufacturer’s name, brand or trademark, and

(b) The Standard which the tank is manufactured to, and

(c) The date of manufacture.

(13) A sludge valve must be fitted when the capacity of the tank exceeds 500 Litres. The minimum size of the valve must be not less than half the outlet pipe size and not less than DN 40.

(14) All openings to tanks must be sealed so that insects, small animals, birds and sunlight cannot enter tanks, in order to minimise the growth of algae and to prevent unauthorised access.

(15) Before using the water from a tank for the first time the tank must be cleaned and disinfected (See Appendix I of AS/NZS 3500.1).

(16) The manufacturer’s warranty must contain the following statement: “This tank has been manufactured for the storage

of drinking water and all materials used are suitable for contact with drinking water."

Explanatory Information

Information on some of the above items listed in the materials above may be obtainable from the manufacturer or supplier of the product or materials.

Rainwater for drinking purposes should not be collected from recently painted roofs (until after the first few rainfalls), timber roofs preserved with chemicals, roofs coated with lead flashings, lead-based paints or tar-based coatings, or parts of roofs near flues from solid fuel heaters. Rainwater for drinking water purposes may be collected from roof types other than those identified above provided the roof and associated gutters are kept clean of leaves, animal remains, dust and other debris. Gutters must be kept clean by installing screens or leaf diverters between the roof and the water tank. The system should incorporate a 'first flush system' or other diversion system that will prevent the first flush of water from entering the tank.

Tanks should be regularly maintained by cleaning out accumulated sludge from the base every 2 - 3 years. For detailed advice on desludging and maintaining tanks refer to the enHealth Guide – Guidance on the use of rainwater tanks; or HB 230 Rainwater tank design and installation handbook

For ongoing maintenance of water quality one or more of the following water quality treatment methods should be adopted: Chlorinating: To commission the tank sufficient chlorine should be added to provide a free chlorine residual of 0.5 mg/L after 30 minutes. To satisfy chlorinating requirements an initial dose of 5 mg/L of chlorine may be necessary. For every kL of water in the tank, add either: 40 mL of liquid pol chlorine (sodium hypochlorite - 12.5% available chlorine); or 8 grams of granular pool chlorine (calcium hypochlorite - 65% available chlorine). To calculate the tank volume in kL for a cylindrical tank the volume in of water in kL = D x D x H x 0.785. Where D = diameter of the tank, and H = depth of water in the tank in metres. To verify this calculation, compare this volume with the maximum capacity of the tank. The chlorine residual may be tested with a swimming pool test kit or dip strips. Water after chlorinating should not be used for 24 hours to enable any harmful microorganisms to be killed off. Filtration: If filters are used in drinking water installations they are to be certified to the relevant Australian Standard under the WaterMark Certification Scheme and should be maintained by following the manufacturer's maintenance instructions. Ultraviolet Disinfection: Filtration may be required to address water turbidity to enable adequate UV disinfection. Ultraviolet treatment is affected by the levels of turbidity, organic content from suspended solids, pH, hardness and UV transmissivity of the water. The intensity of the UV light and the build-up of suspended solids on the quartz tube affect the disinfection performance. Regular monitoring of the quartz tubes is critical. Lamps also need to be replaced regularly in accordance with the manufacturer's instructions.

Part B2 Heated water services

Delete B2P10 and insert TAS B2P10 as follows:

TAS B2P10 Pressure

The points of discharge for a *heated water* service must—

(a) have—

(i) a working pressure of not less than 50 kPa: and

(ii) a static pressure within the building of not more than 500 kPa; or

(b) have water pressures suitable for the correct functioning of the fixture or appliance where water pressures outside of (a)(i) and (a)(ii) are required.

Exemptions

B2P9(a)(i) and B2P9(a)(ii) do not apply to existing low-pressure gravity only water services.

Delete B2D2 and insert TAS B2D2 as follows:

TAS B2D2 Water heater in a heated water supply system

In a new Class 1 or Class 10 building—

(a) a water heater in a *heated water* supply system must be—

(i) a solar water heater complying with (b); or

(ii) a heat pump water heater complying with (b); or

(iii) a gas water heater complying with (c); or

(iv) an electric resistance water heater complying with AS/NZS 3500.4; or

(v) a wood fired thermosiphon water heater or direct fired water heater each complying with AS/NZS 3500.4; and

(b) a solar water heater and a heat pump water heater must have—

(i) for a building with 1 or 2 bedrooms—

(A) at least 14 *Small-scale Technology Certificates* for the zone where it is being installed; or

(B) an energy saving of not less than 40% in accordance with AS/NZS 4234 for a “small” load system; and

(ii) for a building with 3 or 4 bedrooms—

(A) at least 22 *Small-scale Technology Certificates* for the zone where it is being installed; or

(B) an energy saving of not less than 60% in accordance with AS/NZS 4234 for a “medium” load system; and

(iii) for a building with more than 4 bedrooms—

(A) at least 28 *Small-scale Technology Certificates* for the zone where it is being installed; or

(B) an energy saving of not less than 60% in accordance with AS/NZS 4234 for a “large” load system; and

(c) a gas water heater must be rated not less than 5 stars in accordance with AS 4552.

Delete B2D6 and insert TAS B2D6 as follows:

TAS B2D6 Temperature control devices

(1) A temperature control device used to deliver *heated water* in accordance with B2D5(a) must be a—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap.

(2) A temperature control device used to deliver *heated water* in accordance with B2D5(b) must be a—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap; or

(c) tempering valve; or

(d) temperature limited water heater limited to 50°C in accordance with AS 3498.

(3) The *required* maximum delivery temperature must be achieved in accordance with AS/NZS 3500.4.

Applications

B2D6 only applies to new and replacement *heated water* installations.

Exemptions

B2D6 does not apply to the replacement of a single *heated water* storage unit within a range or bank of heaters.

Part B7 Rainwater storage

Delete B7P1 and insert TAS B7P1 as follows:

TAS B7P1 Contamination

(1) Rainwater must be stored in a way that reduces the likelihood of contamination.

(2) Stored *rainwater* must not pose a hazard to public health.

Delete B7P2 and insert TAS B7P2 as follows:

TAS B7P2 Uncontrolled discharge

The likelihood of failure of, or *uncontrolled discharge* from, *rainwater storage* must be avoided.

Delete B7P3 and insert TAS B7P3 as follows:

TAS B7P3 Access

Access must be provided to components of *rainwater storage* that require maintenance or replacement, including mechanical devices and controls.

Explanatory Information

Access to mechanical components may require removal of an access panel, cover, door, or similar obstruction.

Delete B7P4 and insert TAS B7P4 as follows:

TAS B7P4 Isolation

Means of isolation must be provided to a *rainwater storage* and components that require testing, maintenance, or replacement including mechanical devices, appliances and controls.

Explanatory Information

Isolation valves are a means of providing isolation.

Delete B7P5 and insert TAS B7P5 as follows:

TAS B7P5 Identification

Rainwater storage and holding tanks used only for non-drinking purposes must be clearly identified.

Exemptions

Identification is not *required* where *rainwater storage* is intended to supply water for drinking and personal hygiene purposes.

Delete B7D2 and insert TAS B7D2 as follows:

TAS B7D2 Application of Part

This clause has deliberately been left blank.

B7D2 does not apply in TAS.

Delete B7D3 and insert TAS B7D3 as follows:

TAS B7D3 Collection of rainwater

(1) *Rainwater storage* must only collect roof water.

(2) A *rainwater storage* system for Class 1 and Class 10 buildings satisfies B7D1 if it is installed in accordance with the requirements within the Tasmanian Building Act - Directors Guidelines - Charged Downpipes to Rainwater Tanks of Class 1 and Class 10 buildings for *drinking water* purposes document.

Section C Sanitary plumbing and drainage systems

Part C2 Sanitary drainage systems

C2D4 General requirements

Insert subclause TAS C2D4(2) in clause C2D4 as follows:

(2) For Tasmanian venting requirements see TAS C2D6.

TAS C2D6 Venting requirements

(1) A sanitary *drainage* system must provide ventilation in accordance with AS/NZS 3500.2.

(2) A sanitary *drainage* system which connects to an *on-site wastewater management system* must have—

(a) a secondary vent within 10 metres of the *on-site wastewater management system*; or

(b) where (a) cannot be achieved, a low level (ground) vent at the sanitary *drainage point of connection*.

(3) A sanitary *drainage* system which connects to an *on-site wastewater management system* must have inspection openings that—

(a) are located at the *point of connection* to an *on-site wastewater management system*; and

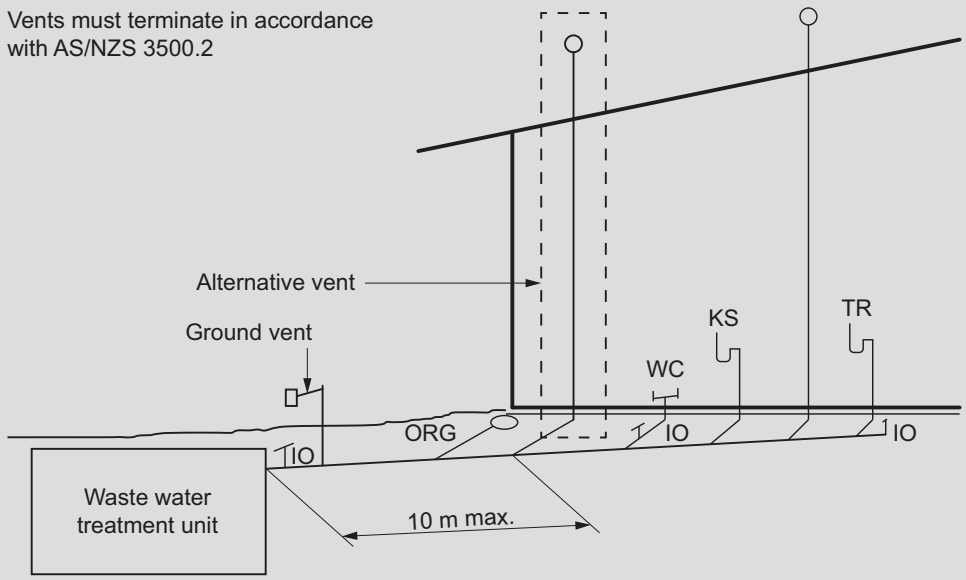
(b) terminate at or above finished surface level.

Explanatory Information

See TAS Figure C2D6 Alternative venting arrangements

Insert TAS Figure C2D6 (explanatory) as follows:

TAS Figure C2D6 (explanatory): Venting requirements



Part C3 On-site wastewater management

Delete C3P5 and insert TAS C3P5 as follows:

TAS C3P5 General requirements

On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must be designed and constructed—

(a) with *required* treatment and storage capacity for the volume and make up of waste and frequency of discharge for disposal; and

(b) with *required* size, strength and rigidity for the nature, flow rates, volume of wastes and/or waste products which must be processed; and

(c) using materials which are impervious both to the waste for which disposal is required and to water; and

(d) to avoid the likelihood of *surface water* and stormwater entering the system; and

(e) so that access or inspection openings provided for desludging and maintenance terminate at or above finished surface level.

(f) so that the installation throughout its serviceable life will continue to satisfy the requirements of C3P1 to C3P9.

Explanatory Information

For alternative venting arrangements, see clause C2D6 in sanitary drainage.

Delete C3D6 and insert TAS C3D6 as follows:

TAS C3D6 Land application systems

(1) An *On-site wastewater management system* and associated land application system must avoid the following:

(a) Damage from root penetration, superimposed loads or ground movement.

(b) Entry of water, foul air or gasses from the system into buildings.

(c) Entry of stormwater into the system.

(d) *Blockage* and unintended or *uncontrolled discharge*.

(2) An *On-site wastewater management system* and associated land application system must provide the following:

(a) Protection against internal contamination.

(b) Access for maintenance and cleaning.

(c) Ventilation to avoid foul air and gasses accumulation in the system.

(3) A facility must continue to satisfy the requirements of C3D6(1) and C3D6(2).

TAS Part C4 On-site liquid trade waste systems

Introduction to this Part

This Part sets out the requirements for the on-site treatment and disposal of liquid trade waste.

Performance Requirements

TAS C4P1 Health, environment and amenity protection

An on-site liquid trade waste system must ensure—

(a) the risks associated with the discharge of treated liquid trade waste to the environment are minimised; and

(b) *surface water* and ground water are not polluted; and

(c) soil productivity is maintained or enhanced.

TAS C4P2 Transferal of liquid trade waste

(1) Liquid trade waste must be transferred within the disposal system and treatment devices in a way that avoids—

(a) *blockage* and *uncontrolled discharge*: and

(b) the entry of foul air and gasses into buildings.

(2) Liquid trade waste must be transferred within the disposal system and treatment devices in a way that ensures—

(a) the safe and hygienic transferal of waste; and

(b) safe access for clearing *blockages*.

TAS C4P3 Design, construction and installation

(1) A trade waste treatment device must—

(a) have appropriate treatment and storage capacity for the volume of waste and frequency of disposal: and

(b) be of the appropriate size, strength and rigidity for the nature, flowrates, volume of wastes, by-products and residues which must be processed; and

(c) have vehicle access for collection of waste, where appropriate; and

(d) be of an appropriate structural strength for when pedestrian or vehicular traffic is likely; and

(e) be constructed from materials which are resistant to water and the expected waste that will be disposed.

(2) A trade waste treatment device must avoid the likelihood of—

(a) contamination of *drinking water*, soils, ground water and waterways; and

(b) foul air and gasses accumulating within or entering buildings; and

(c) *uncontrolled discharge*; and

(d) the unauthorised access by people; and

(e) the entry of stormwater to the sewerage system.

(3) A trade waste treatment device must allow for—

(a) cleaning, maintenance, measurement and performance sampling provisions to the requirements of the Authority having jurisdiction; and

(b) the identification of the manufacturer, model, serial number and capacity after installation.

(4) A trade waste treatment device must continue to satisfy the requirements of C4P1- C4P3 throughout its expected lifetime.

(5) A trade waste treatment device must be approved by—

(a) the receiving *Network Utility Operator*; or

(b) The Authority having jurisdiction for *on-site wastewater management systems*.

Applications

C4P3(2)(e) does not apply in cases where a contaminated stormwater discharge of limited volume is accepted by the *Network Utility Operator*.

Low risk liquid trade wastes can be described as those water-borne discharges, other than sewerage, that are classified by the Permit Authority as presenting a low risk to cause harm to the environment and *on-site wastewater management systems*. These discharges must be trapped and partially treated before being permitted to enter the *on-site wastewater management system*.

Trade waste products or installations may be used if they are considered low risk.

Deemed-to-Satisfy Provisions

TAS C4D1 Application

Performance Requirements C4P1 to C4P3 are satisfied by complying with C4D2 to C4D19.

TAS C4D2 General requirements

(1) Where pre-treatment facilities are installed, they must comply with the requirements of—

(a) the *Network Utility Operator* (where applicable); and

(b) occupational health and safety; and

(c) dangerous goods management; and

(d) environmental protection.

(2) A liquid trade waste system that discharges to a *Network Utility Operator's* sewerage system after pre-treatment must—

(a) be capable of discharging liquid trade waste at a quality set under a Consent to Discharge issued for that equipment or system by the *Network Utility Operator*; and

(b) the sanitary drainage system must comply with:

(i) AS/NZS 3500.2; and

(ii) the *Network Utility Operator's* guidelines, insofar as the provisions relate to the system.

Explanatory Information: Cross-volume considerations

Part B1 of NCC Volume One sets out requirements relevant to the excavation of pipework adjacent to a building and footings for the purpose of installing liquid trade waste systems in Class 2 to Class 9 buildings.

TAS C4D3 Location

(1) Low-risk trade waste appliances must be located as close as practicable to the fixtures served, whether installed internally or externally and may be above or below ground.

(2) Portable appliances must only be installed above ground.

Explanatory Information

Examples of low-risk trade wastes are discharges from—

(1) food preparation in take-away shops, restaurants, hotels, motels and the like

(2) laboratories in education institutions such as schools and universities

(3) service stations, vehicle detailing and washing.

It is the role of the Permit Authority to determine whether trade waste discharge is high-risk or low-risk when installed in areas outside the jurisdiction of the *Network Utility Operator*.

TAS C4D4 Covers

Trade waste appliances must be fitted with covers which can withstand vehicular or pedestrian traffic or other loads likely to be imposed on them and be easily removable by one person.

TAS C4D5 Materials

Trade waste appliances must be constructed from materials suitable for the characteristics of the liquid wastes likely to be discharged.

TAS C4D6 Ventilation

(1) Where airtight covers are fitted, trade waste appliances must be vented with a minimum DN 50 vent.

(2) Outlet ventilation is to be provided by either a—

  (a) DN 100 riser from a disconnector gully outside a building; or

  (b) DN 50 vent from a disconnector gully at the outlet of a non-portable appliance inside a building; or

  (c) DN 50 vent from a DN 80 trap riser at the outlet of a portable appliance, inside a building.

(3) Trade waste appliance vents and outlet vents may be combined inside a building.

(4) Ventilation must be provided in accordance with AS/NZS 3500.2.

Explanatory Information

Sizing of trade waste ventilation should take into consideration the expected discharge volumes and cooling requirements of the specific installation.

TAS C4D7 Connections

(1) The *plumbing* and *drainage* installation upstream of a low-risk trade waste appliance must comply with AS/NZS 3500.2

(2) The sanitary *plumbing* and *drainage* system must be compatible to the nature of the waste.

(3) A trap must be fitted to every fixture or appliance outlet and must be—

  (a) DN 50 minimum for a portable appliance with hydraulic loading up to 5 fixture units; or

  (b) DN 80 minimum for a portable appliance with hydraulic loading greater than 5 fixture units; or

  (c) DN 100 minimum for all other appliances.

Exemptions

Installations outside C4D7(1) may be permitted by the Permit Authority.

TAS C4D8 Silt pits

(1) The silt pit must be connected and authorised by the Permit Authority.

(2) The silt pit bucket must—

(a) be constructed of mild steel plate, minimum 3 mm thick with 4 rows of 10 mm diameter holes at 25 mm centres: and

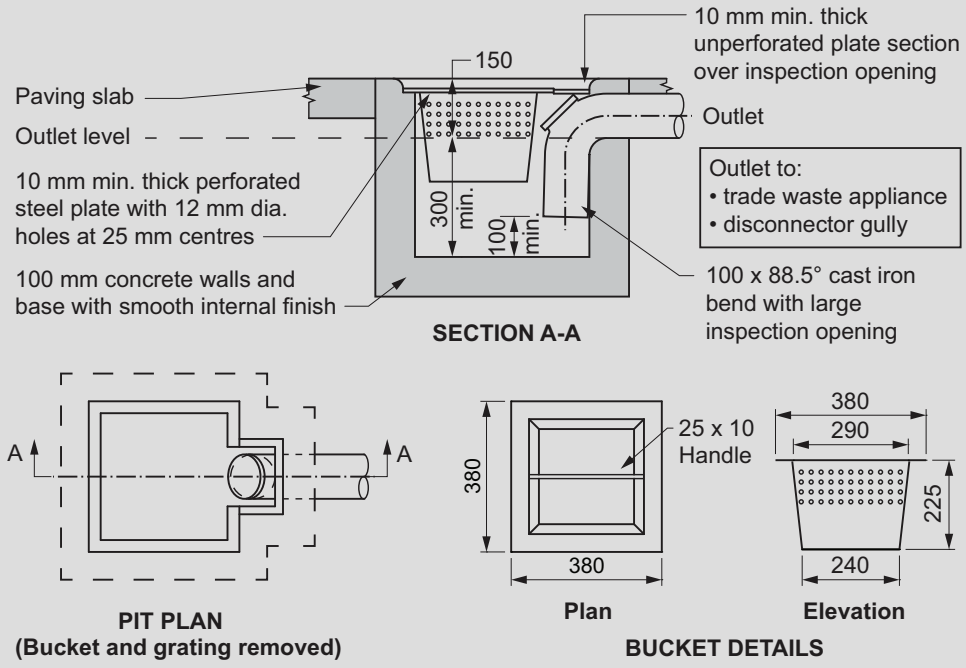
(b) be hot dipped galvanised after fabrication.

Explanatory Information

See TAS Figure C4D8 for a typical silt pit.

Insert TAS Figure C4D8 (Explanatory) as follows:

TAS Figure C4D8 (Explanatory): Silt pits



TAS C4D9 Silt traps

(1) The silt trap must be connected and authorised by the Permit Authority.

(2) The silt trap bucket must—

(a) be constructed of mild steel plate, minimum 3 mm thick with 5 rows of 10 mm diameter holes at 25 mm centres; and

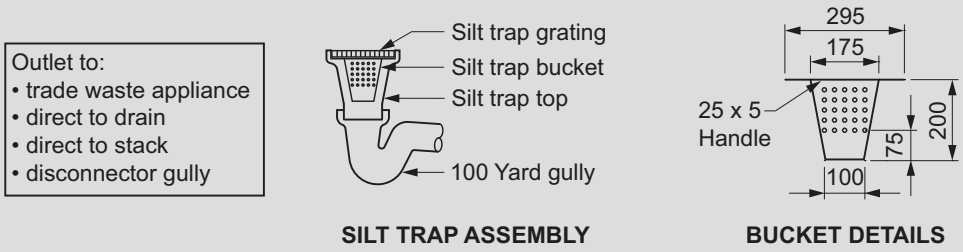
(b) be hot dipped galvanised after fabrication.

Explanatory Information

See TAS Figure C4D9 for a typical silt trap.

Insert TAS Figure C4D9 (Explanatory) as follows:

TAS Figure C4D9 (Explanatory): Silt traps



SILT TRAP ASSEMBLY **BUCKET DETAILS**

TAS C4D10 Straining pits

(1) The straining pit must be connected and authorised by the Permit Authority.

(2) The straining pit basket must—

(a) be constructed of mild steel wire with a minimum diameter of 2.5 mm woven to give 7 mm aperture widths on a 32 mm x 32 mm x 25 mm angle iron frame with mitred corners; or

(b) be constructed from minimum 3 mm thick mild steel plate, with 6 holes at 12 mm centres over the entire area of the basket; and

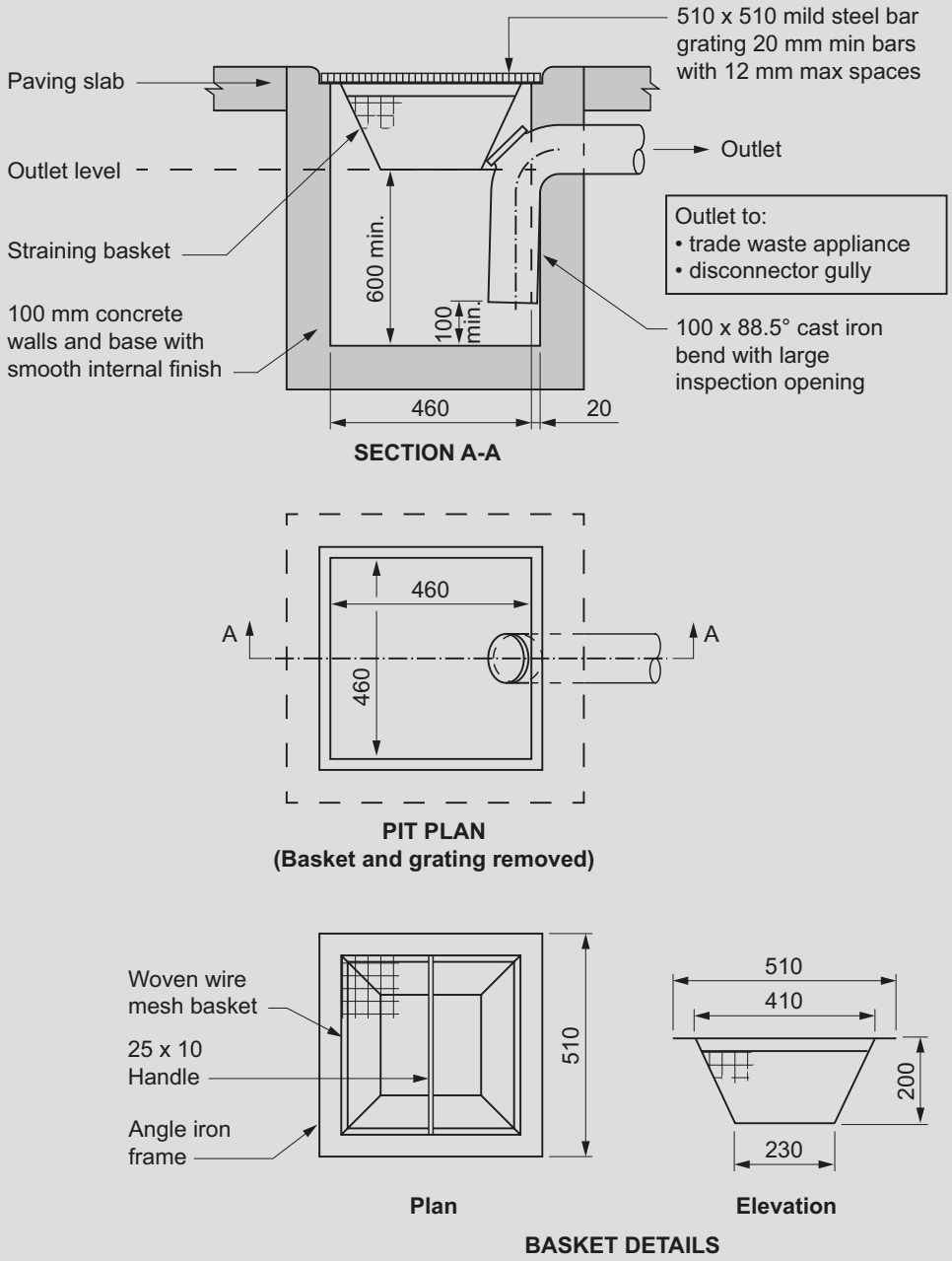
(c) be hot dipped galvanised after fabrication.

Explanatory Information

See TAS Figure C4D10 for a typical straining pit.

Insert TAS Figure C4D10 (Explanatory) as follows:

TAS Figure C4D10 (Explanatory): Straining pits



TAS C4D11 Straining traps

(1) The straining trap must be connected and authorised by the Permit Authority.

(2) The straining pit basket must—

(a) be constructed of mild steel wire with a minimum of 2.5 mm woven to give 7 mm aperture widths on a 32 mm x 32 mm x 25 mm angle iron frame with mitred corners with a top frame of welded angle iron; or

(b) be constructed from minimum 3 mm thick mild steel plate, with 6 mm holes at 12 mm centres over the entire area of the basket; and

(c) be hot dipped galvanised after fabrication.

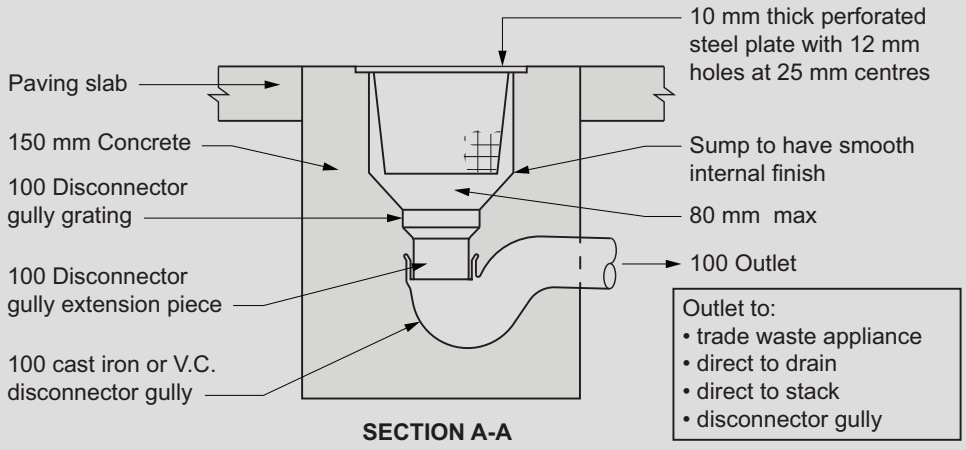
(3) If the straining trap is to be used in installations connected to the *Network Utility Operator's* sewerage system, it must comply with the requirements of the *Network Utility Operator's* guidelines for pre-treatment devices.

Explanatory Information

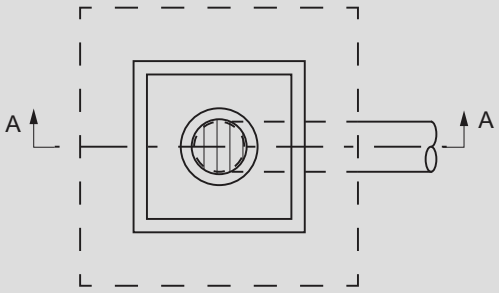
See TAS Figure C4D11 for a typical straining trap.

Insert TAS Figure C4D11 (Explanatory) as follows:

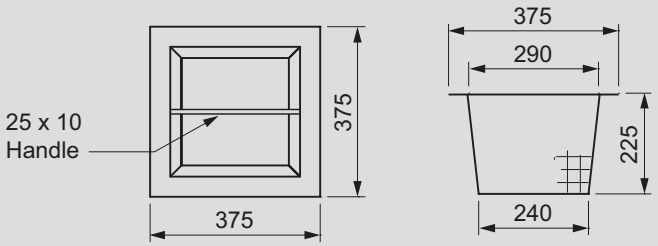
TAS Figure C4D11 (Explanatory): Straining traps



SECTION A-A



PLAN
(Perforated plate and basket removed)



Plan **Elevation**

BASKET DETAILS

TAS C4D12 Grease interceptors

(1) A grease interceptor must contain a permanently fixed, ridged baffle constructed of a minimum 6 mm—

(a) mild steel plate; or

(b) other authorised material.

(2) A grease interceptor must be installed on a minimum of 75 mm compacted packing sand.

(3) A grease interceptor must have a minimum DN 50 vent where airtight covers are fitted.

(4) A grease interceptor installed underground must be constructed with—

(a) minimum 100 mm concrete walls with a smooth internal finish; and

(b) have suitable reinforcing mesh within the concrete.

(5) A grease interceptor installed above ground must—

(a) be constructed of an authorised material; and

(b) provide adequate structural support.

(6) The capacity of a grease interceptor must be authorised by the Permit Authority.

(7) A grease interceptor must be installed in a location that will facilitate ready access for maintenance and inspection.

Exemptions

Where the Permit Authority has not specified the capacity of a grease interceptor in accordance with C4D12(5), it must be—

(a) equivalent to the maximum hourly discharge; and

(b) no less than 250 litres below the outlet.

Explanatory Information

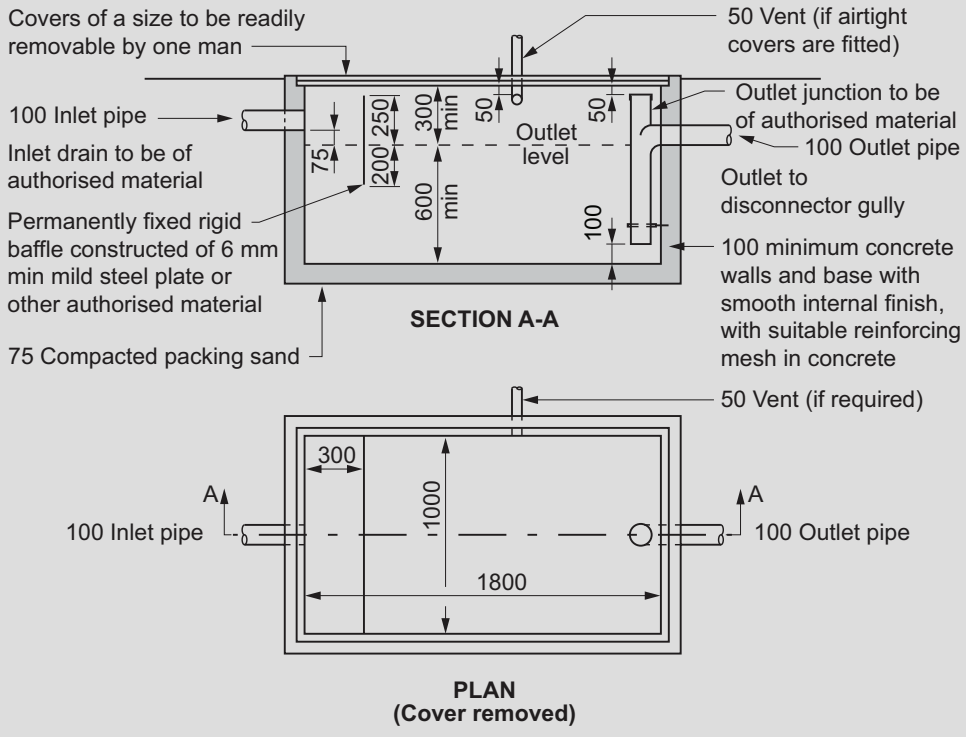
(1) The contents of a grease interceptor may become slightly acidic. It is recommended that the internal concrete surfaces below the outlet level be provided with an acidic resistant lining.

(2) Where the grease interceptor is installed outside a building, consideration should be given to fitting airtight covers.

(3) See TAS Figure C4D12 for a typical grease interceptor for above ground installations.

Insert TAS Figure C4D12 (Explanatory) as follows:

TAS Figure C4D12 (Explanatory): Grease interceptors



TAS C4D13 Portable grease interceptor appliances

(1) The capacity of a portable grease interceptor must be authorised by the Permit Authority.

(2) A portable grease interceptor must contain a permanently fixed, ridged baffle constructed of a minimum—

(a) 6 mm unplasticised polyvinyl chloride (PVC-U); or

(b) 0.79 mm galvanised sheet steel; or

(c) 0.63 mm copper sheet; or

(d) 0.63 mm of 316 stainless steel; or

(e) Other authorised material.

(3) A portable grease interceptor must be provided with airtight covers using lever clips.

(4) Ventilation of portable grease interceptors must—

(a) be extended to open air; and

(b) comply with AS/NZS 3500.2.

(5) A portable grease interceptor must be located in a position that enables ready access for maintenance and inspection.

(6) A portable grease interceptor must be protected from direct sunlight.

Exemptions

Where the Permit Authority has not specified the capacity of a grease interceptor in accordance with C4D13(1), it must be—

(a) equivalent to the maximum hourly discharge; and

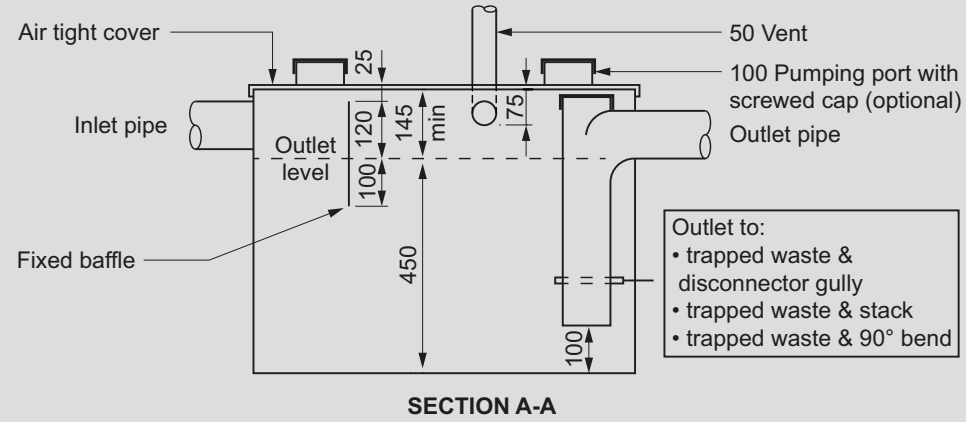
(b) no less than 100 litres below the outlet.

Explanatory Information

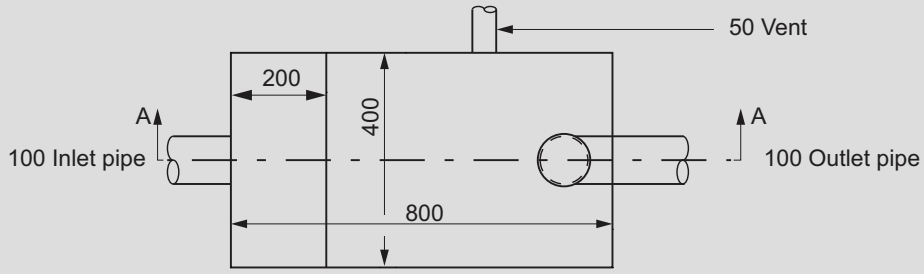
See TAS Figure C4D13 for a typical portable grease interceptor appliance.

Insert TAS Figure C4D13 (Explanatory) as follows:

TAS Figure C4D13 (Explanatory): Portable grease interceptor appliances



SECTION A-A



PLAN
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TAS C4D14 Venting of grease traps

(1) Grease trap chambers must provide adequate ventilation by providing—

(a) two DN 100 vents in addition to the ventilation provided for the sanitary *drainage* system; or

(b) appropriate mechanical ventilation.

(2) Anti-siphon vents must be—

(a) a minimum of DN 50: and

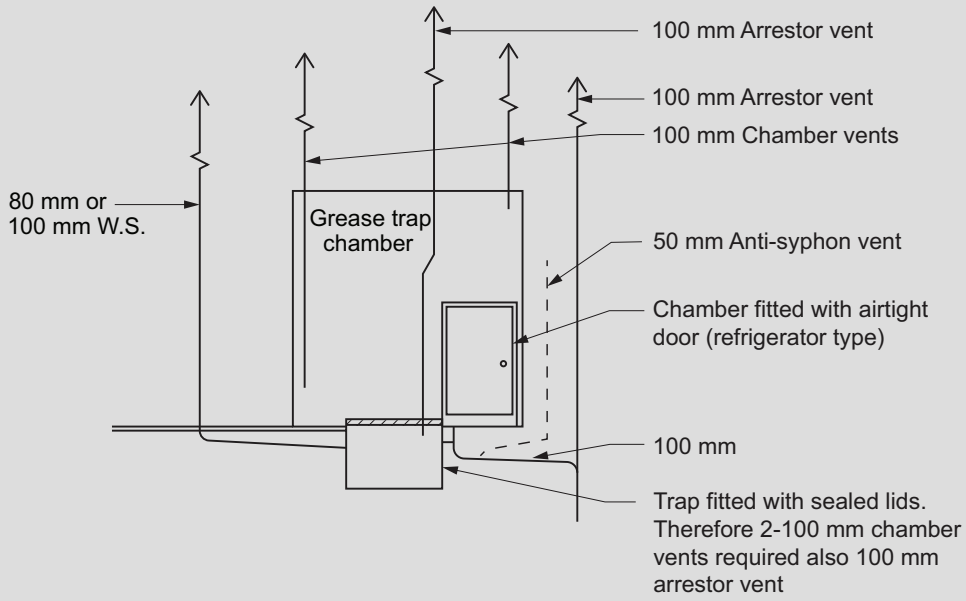
(b) connected to the outlet of the grease trap chamber.

Explanatory Information

See TAS Figure C4D14a and TAS Figure C4D14b for typical venting arrangement for grease trap chambers.

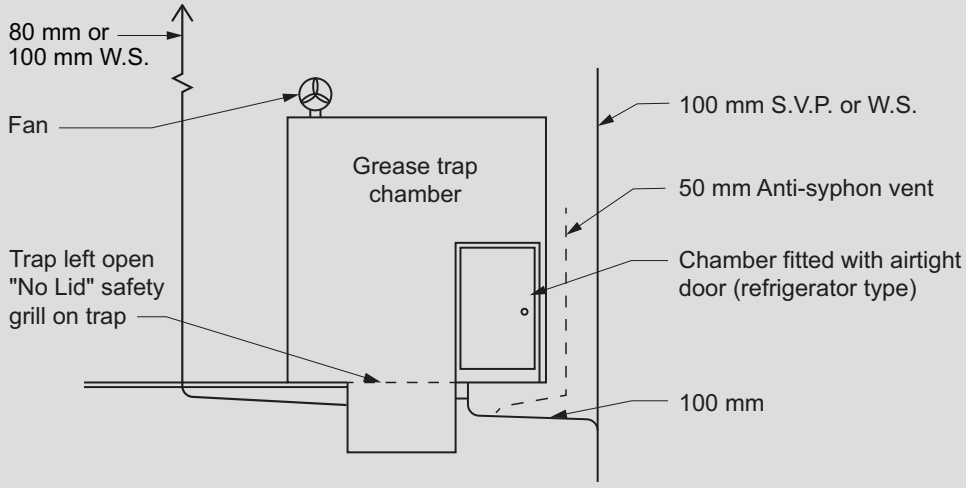
Insert TAS Figure C4D14a (Explanatory) as follows:

TAS Figure C4D14a (Explanatory): Venting of grease traps



Insert TAS Figure C4D14b (Explanatory) as follows:

TAS Figure C4D14b (Explanatory): Venting of grease traps



TAS C4D15 Grease trap installation in multi-storey buildings

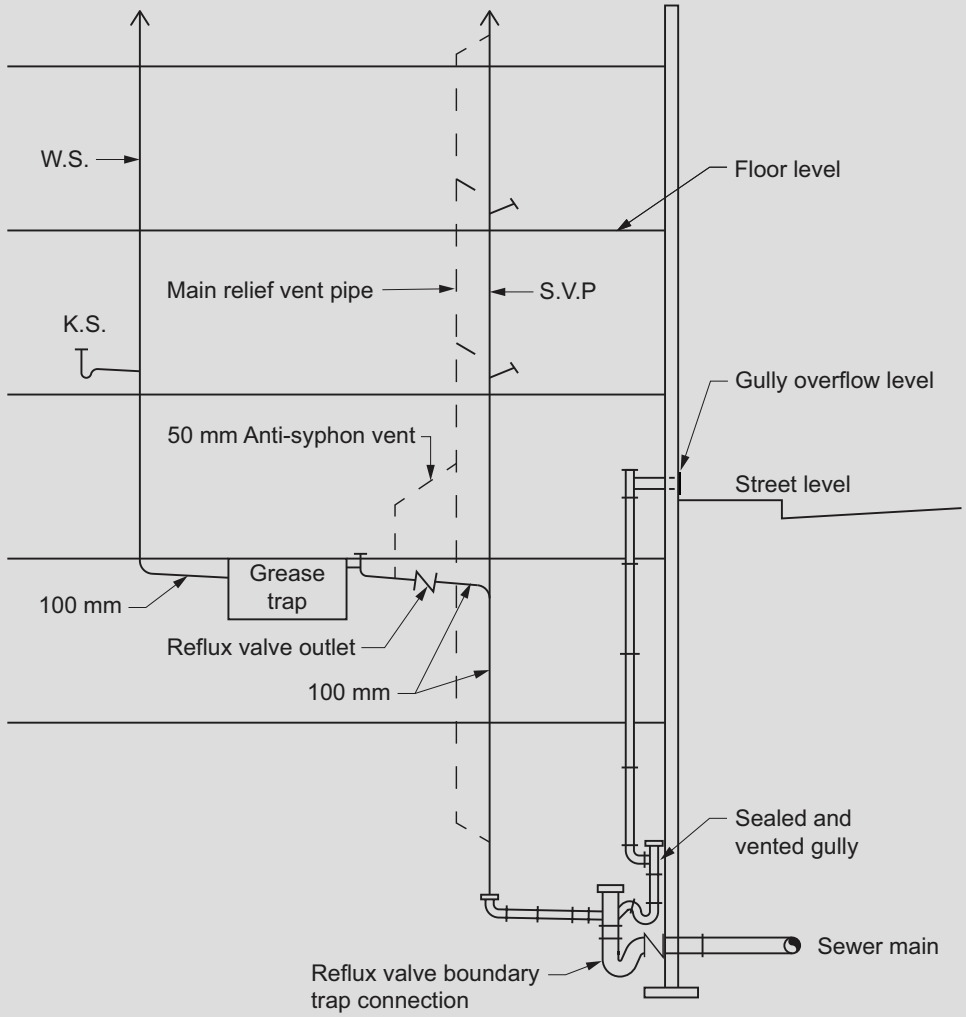
Grease traps in multi-storey buildings must have a reflux valve installed between the outlet and connection to the sanitary plumbing system.

Explanatory Information

See TAS Figure C4D15 for a typical installation of a grease trap in a multi-storey building.

Insert TAS Figure C4D15 (Explanatory) as follows:

TAS Figure C4D15 (Explanatory): Grease trap installation in multi-storey buildings



TAS C4D16 Oil and petrol interceptors

(1) The capacity of an oil and petrol interceptor must be authorised by the Permit Authority.

(2) An oil and petrol interceptor must contain a permanently fixed, ridged baffle constructed of a minimum—

(a) 6 mm mild steel plate; or

(b) other authorised material.

(3) PVC-U must not be used for the construction, connection or venting of an oil and petrol interceptor.

(4) An oil and petrol interceptor must be provided with airtight covers that are suitable size and be readily removable by one person.

(5) The inlet and outlet of the oil and petrol interceptor pit is to be covered with either a 600 mm x 600 mm or 600 mm diameter cover.

(6) Ventilation of oil and petrol interceptors must—

(a) be extended to open air; and

(b) comply with AS/NZS 3500.2.

(7) An oil and petrol interceptor must be located in a position that enables ready access for maintenance and inspection.

(8) Outlet fittings from an oil and petrol interceptor must be manufactured from one piece of DN 100 cast iron pipe.

(9) An oil and petrol interceptor must be protected from traffic loads by a suitable cover.

(10) When an oil and petrol interceptor is connected to the *Network Utility Operator's* sewerage system. it must comply with the requirements of the *Network Utility Operator's* guidelines for pre-treatment devices.

Exemptions

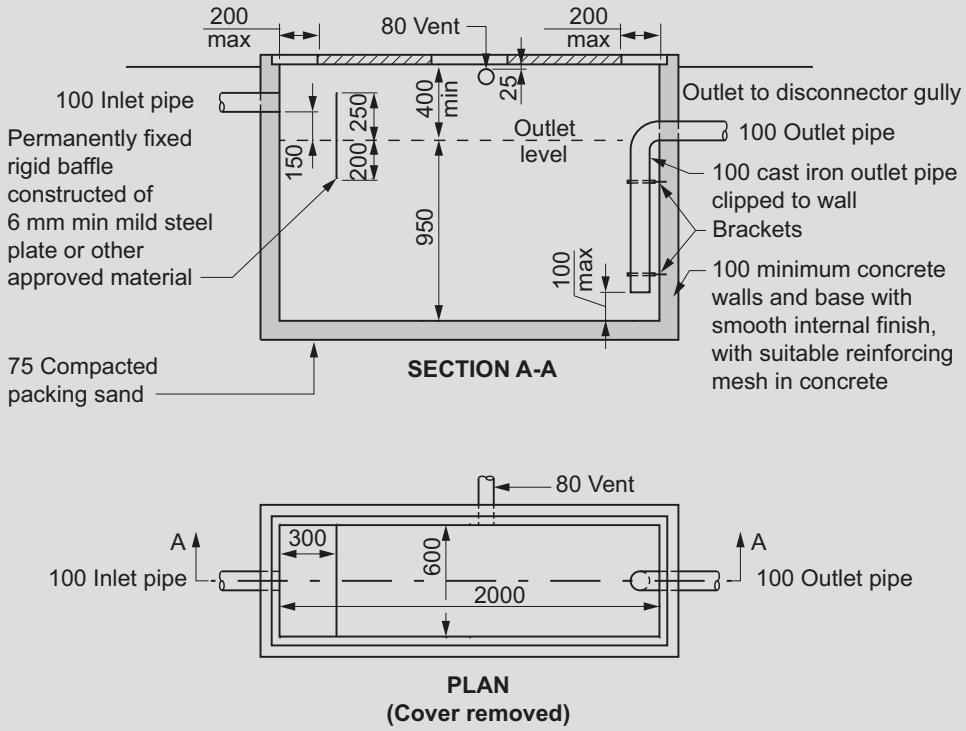
Where the Permit Authority has not specified the capacity of an oil and petrol interceptor in accordance with C4D16(1), it must be no less than 11400 litres, below the outlet.

Explanatory Information

See TAS Figure C4D16 for a typical oil and petrol interceptor appliance.

Insert TAS Figure C4D16 (Explanatory) as follows:

TAS Figure C4D16 (Explanatory): Oil and petrol interceptors



TAS C4D17 Acid neutralising tanks

(1) The capacity of an acid neutralising tank must be authorised by the Permit Authority.

(2) An acid neutralising tank and fixed baffles must be constructed of a minimum—

(a) 6 mm PVC-U sheet; or

(b) 0.63 mm acid resistant stainless steel all welded construction; or

(c) other authorised acid and alkali resistant material.

(3) An acid neutralising tank must contain three equally spaced baffles.

(4) An acid neutralising tank must be manufactured with—

(a) the diameter of the outlet pipe being at least one size larger than the inlet pipe (i.e. DN 65 inlet - DN 80 outlet); or

(b) where the inlet pipe is DN 100, the diameter of the outlet may be DN 100.

(5) The outlet of an acid neutralising tank must include a 32 mm x 32 mm x 25 mm deep PVC-U test block bracket fitted

as near as practicable to the outlet.

(6) An acid neutralising tank must include a 150 mm x 25 mm x 25 mm cement mortar test block fitted to the satisfaction of the Permit Authority.

(7) An acid neutralising tank must include marble chips in the 40 mm to 60 mm size range.

(8) An acid neutralising tank must be located in a position that—

(a) enables ready access for maintenance and inspection; and

(b) provides ready access for fitting of the cement mortar test block; and

(c) enables ready access to the sampling valve; and

(d) provides ready access for replacement of the marble chips.

(9) When an acid neutralising tank is to be located below ground level, it must—

(a) be surrounded with concrete walls and base with a minimum thickness of 100 mm; and

(b) omit the 25 mm sampling valve; and

(c) have a minimum DN 100 outlet pipe located no deeper than 600 mm below surface level; and

(d) have the outlet pipe connected to a disconnector gully fitted with a loose fitting grate or screwed cap.

Exemptions

The requirements of C4D17(4) does not apply to existing systems.

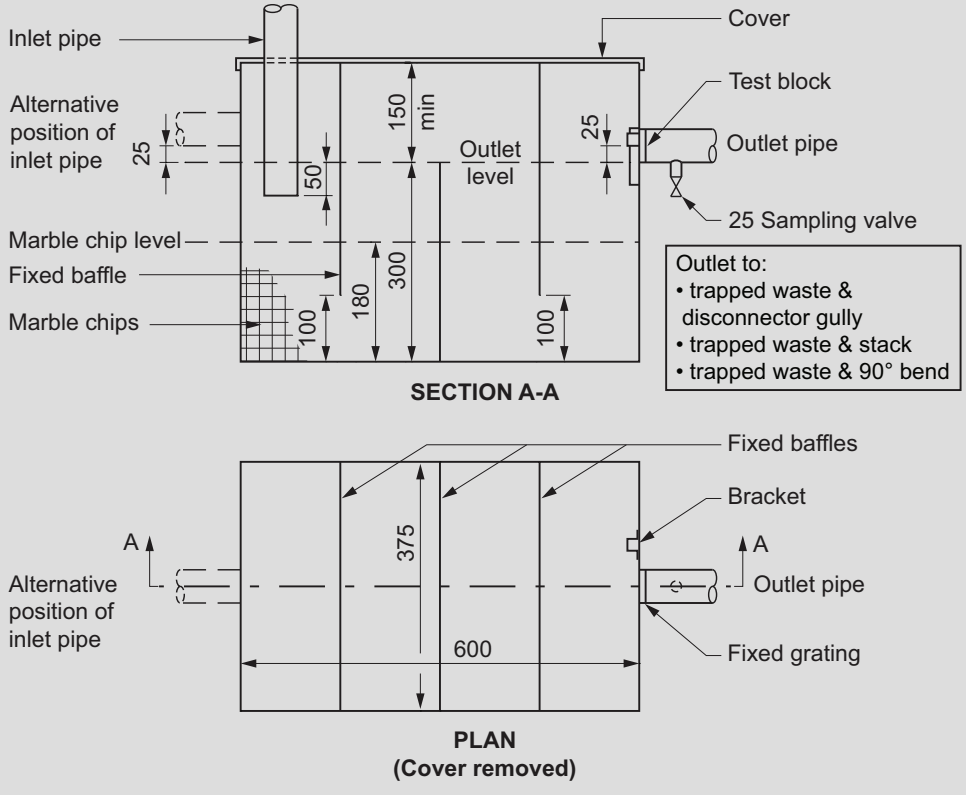
The capacity of an acid neutralising tank as shown in Tas figure C4D17 is the minimum requirement of 27 litres between the marble chip level and the outlet level.

Explanatory Information

See TAS Figure C4D17 for an acid neutralising tank.

Insert TAS Figure C4D17 (Explanatory) as follows:

TAS Figure C4D17 (Explanatory): Acid neutralising tanks



TAS C4D18 Mixing tanks

(1) The capacity of a mixing tank must be authorised by the Permit Authority.

(2) A mixing tank and baffles must be constructed of a minimum—

  (a) 6 mm PVC-U sheet; or

  (b) 0.63 mm acid resistant stainless steel all welded construction; or

  (c) other authorised acid and alkali resistant material.

(3) A mixing tank must contain three equally spaced baffles.

(4) A mixing tank pipe diameter must be—

  (a) DN 100 when the pipe inlet size is DN 100; or

  (b) a minimum of one size larger than the inlet pipe.

(5) The outlet of a mixing tank must include a 32 mm x 32 mm x 25 mm deep PVC-U test block bracket fitted as near as practicable to the outlet.

(6) A mixing tank must include a 150 mm x 25 mm x 25 mm cement mortar test block fitted to the satisfaction of the Permit Authority.

(7) A mixing tank must be located in a position that—

  (a) enables ready access for maintenance and inspection; and

  (b) provides ready access for fitting of the cement mortar test block; and

  (c) enables ready access to the sampling valve.

(8) When a mixing tank is to be located below ground, it must—

  (a) be surrounded with concrete walls and base with a minimum thickness of 100 mm; and

  (b) omit the 25 mm sampling valve; and

  (c) have a minimum DN 100 outlet pipe located no deeper than 600 mm below surface level; and

  (d) have the outlet pipe connected to a disconnector gully fitted with a loose fitting grate or screw cap.

Exemptions

The minimum capacity requirement of a typical mixing tank in accordance with C4D18(1) is 100 litres.

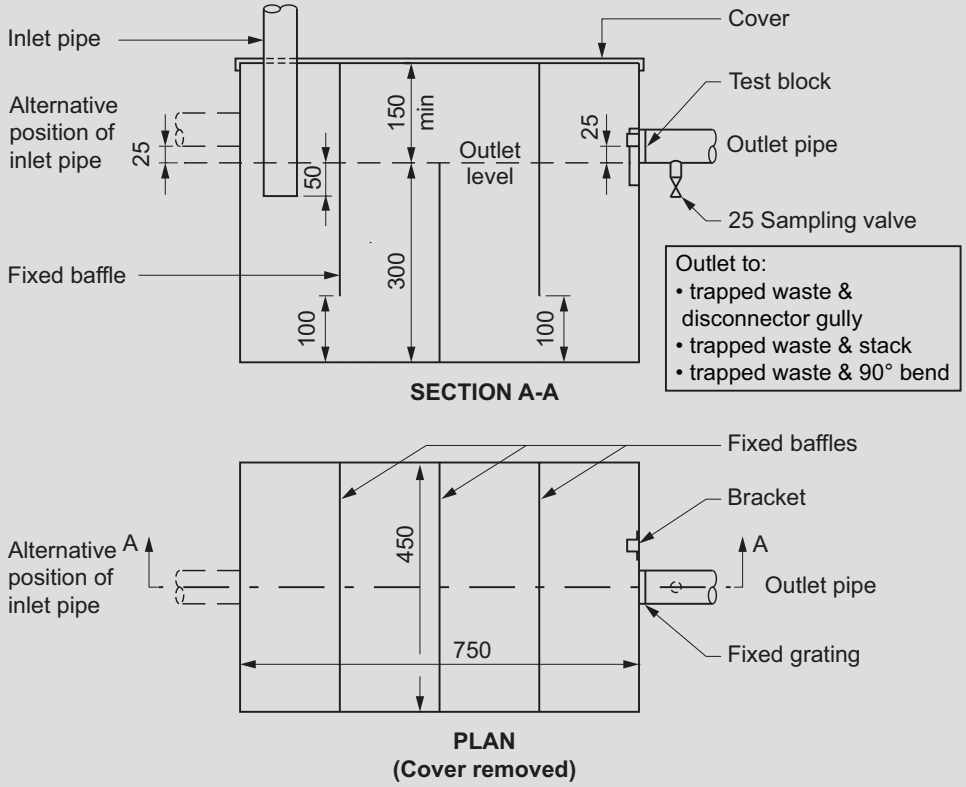
Explanatory Information

See TAS Figure C4D18 for a typical mixing tank.

Consideration should be given to a mixing tank being provided with adequate structural support.

Insert TAS Figure C4D18 as follows:

TAS Figure C4D18: Mixing tanks



TAS C4D19 Settling tanks

(1) The capacity of a settling tank must be authorised by the Permit Authority.

(2) The settling tank and baffles are to be constructed of a minimum—

- (a) 6 mm unplasticised polyvinyl chloride (PVC-U); or
- (b) 0.79 mm galvanised sheet steel; or
- (c) 0.63 mm copper sheet; or
- (d) 0.63 mm 316 stainless steel; or
- (e) other authorised acid and alkali resistant material.

(3) The diameter of the outlet pipe must be—

- (a) DN 100 when the outlet size is DN 100; or
- (b) a minimum one size larger than the inlet pipe.

(4) A settling tank must be located in a position that enables ready access for maintenance, sampling and inspection.

(5) Where a settling tank is to be located below ground level, it must—

- (a) be surrounded with concrete walls and base with a minimum thickness of 100 mm; and
- (b) omit the 25 mm sampling valve; and
- (c) have a minimum DN 100 outlet pipe located no deeper than 600 mm below surface level; and
- (d) have the outlet pipe connected to a disconnector gully fitted with a loos fitting grate or screwed cap.

Exemptions

Where the Permit Authority has not specified the capacity of a settling tank in accordance with C4D19(1), it must be—

(a) equivalent to the maximum hourly discharge; and

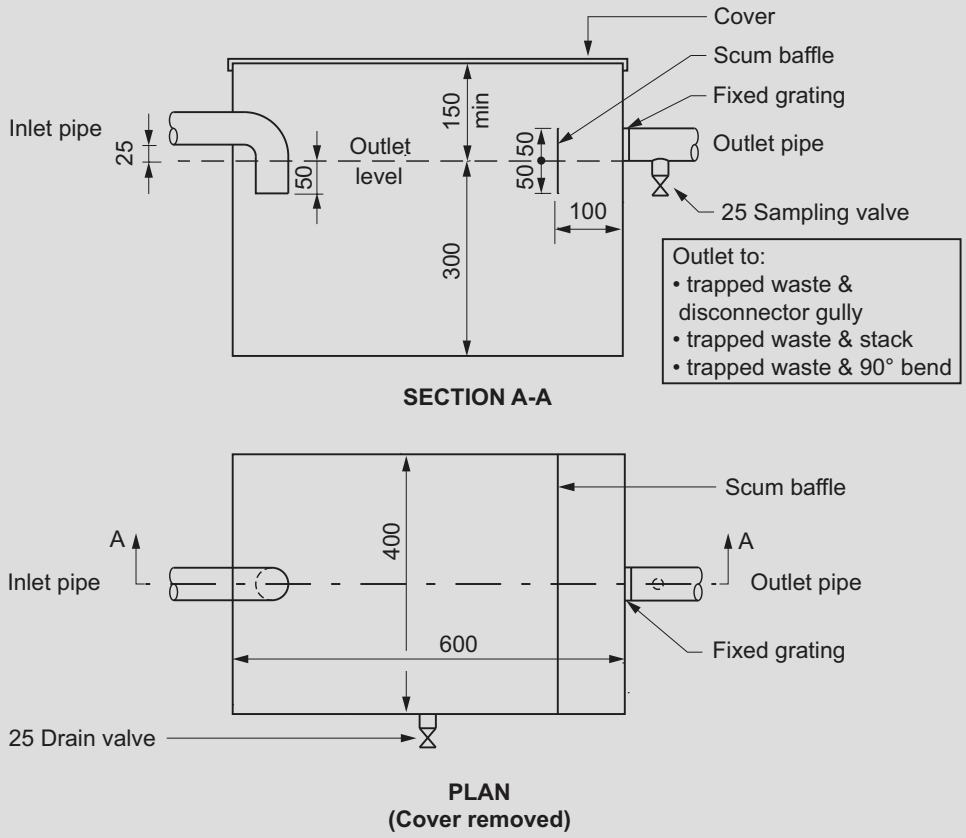
(b) no less than 72 litres, below the outlet.

Explanatory Information

See TAS Figure C4D19 for a typical settling tank.

Insert TAS Figure C4D19 as follows:

TAS Figure C4D19: Settling tanks



Section E Facilities and ancillary additions

TAS Part E2 Heating, cooling and ventilation systems

Introduction to this Part

This Part sets out the requirements for mechanical heating, cooling and ventilation systems.

Objectives

TAS E2O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including loss of *amenity*) due to the failure of a heating, ventilation or air-conditioning installation; and

(b) ensure that a heating, ventilation or air-conditioning installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a heating, ventilation or air-conditioning installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

TAS E2F1 Functional statement 1

Mechanical services, plant and equipment used for heating, cooling and/or ventilation of a building must be adequate for their intended purpose.

TAS E2F2 Functional statement 2

A heating, cooling and/or ventilation system must support energy efficient outcomes and minimise any impact on building occupants of adjoining spaces, the *Network Utility Operator's* infrastructure, property and environment.

Performance Requirements

TAS E2P1 Design, construction, installation and maintenance

(1) A mechanical service, plant and equipment for heating, cooling and/or ventilation must avoid the following:

(a) Damage to property.

(b) *Loss* of *amenity* to occupants.

(2) A mechanical service, plant and equipment for heating, cooling and/or ventilation must ensure the following:

(a) Efficient use of energy and water.

(b) Access for maintenance.

TAS E2P2 Pressure equipment

Pressure equipment used in mechanical heating, cooling and ventilation systems must avoid the likelihood of explosion, rupture or leakage.

TAS E2P3 Microbial control

Mechanical air-handling and cooling water systems installed in a building must control the accumulation of microbial growth.

Deemed-to-Satisfy Provisions

TAS E2D1 Application

Performance Requirement E2P1 to E2P3 are satisfied by complying with E2D2.

TAS E2D2 General requirements

(1) Mechanical ventilation and air-conditioning systems for must comply with the requirements of the relevant Parts of:

- (a) NCC Volume One for Class 2 to 9 Buildings; or
- (b) NCC Volume Two for Class 1 and 10 Buildings.

(2) Mechanical ventilation and air-conditioning equipment must be in accordance with:

- (a) AS/NZS 1200,
- (b) AS 1324.1 for the application, performance and construction for air filters for use in general ventilation and air-conditioning,
- (c) AS 1345 for the identification of the contents of pipes, conduits and ducts,
- (d) AS/NZS 1668.1 for the use of mechanical ventilation and air-conditioning in buildings for fire and smoke control in multi-compartment buildings,
- (e) AS 1668.2 for the use of mechanical ventilation and air-conditioning in buildings for mechanical ventilation,
- (f) AS/NZS 3500.1 for the design, installation, alteration, addition, repair and commissioning of cold water services,
- (g) AS/NZS 3500.2 for the design, installation, alteration, addition and repair of sanitary *plumbing* and *drainage*,
- (h) AS/NZS 3500.4 for the design, installation, commissioning, alteration, addition and repair of *heated water* services,
- (i) AS 4254.1 for flexible ductwork for air-handling systems in buildings,
- (j) AS 4254.2 for the rigid ductwork for air-handling systems in buildings,
- (k) AS 4426 for the selection, installation and finish of thermal insulation of pipework, ductwork and equipment.
- (l) AS 4508 for the thermal resistance of insulation for ductwork used in building air-conditioning, and
- (m) AS 5601 for gas installations.

(3) Copper piping for air-conditioning and refrigeration must be in accordance with AS/NZS 1571.

TAS Part E3 Stormwater - Roof drainage systems

Introduction to this Part

This Part sets out the requirements for a roof drainage system.

Objectives

TAS E3O1 Objective

The objective of this part is to—

(a) safeguard people from illness, injury or *loss* (including loss of *amenity*) due to the failure of a roof drainage installation; and

(b) ensure that a roof drainage installation is adequate; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a roof drainage installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

TAS E3F1 Functional statements

Buildings are to be provided with roof drainage to provide protection to people, property and the environment from adverse effects of stormwater.

Performance Requirements

TAS E3P1 Roof drainage systems

(1) A roof drainage system must have the capacity to transfer the volume of water anticipated in a 5% *annual exceedance probability* rainfall event.

(2) Box and valley gutters must have capacity to transfer the volume of water anticipated in a 1% *annual exceedance probability* rainfall event.

(3) The *annual exceedance probability* must be appropriate to—

(a) the importance of the building; and

(b) the severity of potential damage to the property; and

(c) The severity of *loss* of *amenity*, illness or injury that would result from the failure of the system.

TAS E3P2 Overflow

A roof drainage system must provide an overflow device suitable for a 1% *annual exceedance probability* rainfall event.

TAS E3P3 Watertightness

All internal roof drainage components must be *watertight*.

TAS E3P4 Design, construction and installation

(1) A roof drainage system must ensure that—

(a) stormwater is transferred to a *Network Utility Operator's* stormwater system or an *approved disposal system*; and

(b) appropriate access is provided for maintenance and clearing *blockages*.

(2) A roof drainage installation must avoid *blockage* and *uncontrolled discharge* causing—

(a) *loss* of *amenity*; and

(b) *loss* to building and property.

(3) A roof drainage installation must avoid foul air and gasses accumulating in the roof drainage system.

Deemed-to-Satisfy Provisions

TAS E3D1 Application

Performance Requirements E3P1 to E3P4 are satisfied by complying with E3D2 and E3D3.

TAS E3D2 General requirements

A roof drainage system must comply with—

(a) AS/NZS 3500.3; or

(b) Housing Provisions 7.4

TAS E3D3 Roofing of liquid trade waste generation areas

(1) When a liquid trade waste generating process does not fully occur within a building, suitable roofing must prevent the entry of stormwater to the disposal system.

(2) When a liquid trade waste generating process occurs within a building where one or more sides are open to the weather, a vertical overhang of a minimum of 10° from the roofing must be provided.

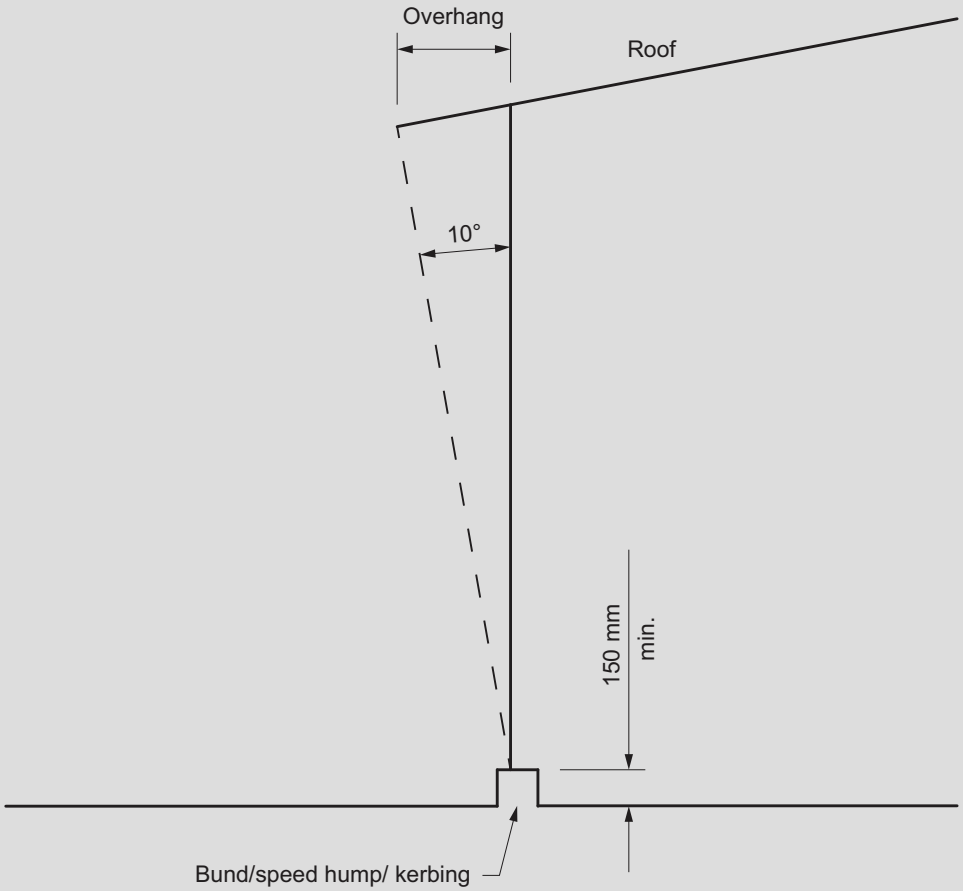
(3) Where the wind driven rainwater is likely to enter under the roof in extreme storm conditions, the roof must overhang by a minimum of 10° from the roofing.

Explanatory Information

TAS Figure E3D3 provides an example of a suitable installation practice to meet the requirements of E3D3(3).

Insert TAS Figure E3D3 explanatory as follows:

TAS Figure E3D3 explanatory: Roofing of liquid trade waste areas



TAS Part E4 Stormwater surface and sub-surface drainage systems

Introduction to this Part

This Part sets out the requirements for a surface drainage system to a *Network Utility Operator's* stormwater system or an *approved disposal system*.

Objectives

TAS E4O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including loss of *amenity*) due to the failure of a stormwater drainage installation; and

(b) ensure that a stormwater drainage installation is adequate; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a storm water drainage installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

TAS E4F1 Functional statements

Buildings and their surroundings are to be provided with a surface drainage and subsurface drainage installation and be constructed in such a manner as to provide protection for people, property and the environment from the adverse effects of stormwater.

Performance Requirements

TAS E4P1 Surface drainage systems

(1) A surface drainage system must have capacity to transfer the volume of water anticipated in an *annual exceedance probability* rainfall event.

(2) The *annual exceedance probability* must be appropriate to the—

(a) importance of the building; and

(b) severity of potential damage to property, *loss* of *amenity*, illness or injury that would result from the failure of the system.

TAS E4P2 Subsurface drainage

A subsoil drainage system must remove excess groundwater and reduce soil moisture levels to prevent loss by changing soil moisture conditions.

TAS E4P3 Design, construction and installation

(1) A surface drainage installation must avoid the following:
  (a) *Blockage* and *uncontrolled discharge*.
  (b) Damage from root penetration, superimposed loads or ground movement.
  (c) Entry of sewage and/or liquid trade waste.
  (d) Entry of stormwater into a sanitary *drainage*.
  (e) Damage to the *Network Utility Operator's* drainage system
  (f) Foul air and gases accumulating in the stormwater system.
  (g) *Loss* to buildings or property.

(2) A surface drainage installation must ensure the following:
  (a) Access for maintenance and clearing *blockages*.
  (b) Stormwater is transferred to a *Network Utility Operator's* stormwater system or an *approved disposal system*.

Deemed-to-Satisfy Provisions

TAS E4D1 Application

Performance requirements E4P1 to E4P3 are satisfied by complying with E4D2 and E4D3.

TAS E4D2 General requirements

A surface and subsurface drainage system must comply with—
  (a) AS/NZS 3500.3; or
  (b) Housing provisions 3.3

TAS E4D3 Protection from surface water

Surface water must be prevented from escaping a liquid trade waste generating area though the installation of a bund, speed hump or other feature a minimum of 150 mm high surrounding the area.

Explanatory Information

Stormwater drains alone may not be adequate as stormwater will often flow over the grate and enter a liquid tradewaste generating area. The total surface water across the site is to be considered and the height of the bund or other feature should be increased where there is a risk of stormwater entering the liquid Tradewaste generating area.

See TAS Figure E3D3 for a typical diagram of roofing and bunding of liquid tradewaste generation areas.

Schedule 1 Definitions

Centre-based care class 4 facility: A facility as defined in Centre Based Care Class 4 Standards.

Centre-based care class 5 facility: A facility as defined in Centre Based Care Class 5 Standards.

Early childhood centre

Any premises or part thereof providing or intending to provide a centre-based education and care service within the meaning of the Education and Care Services National Law Act 2010 (Vic), the Education and Care Services National Regulations and centre-based services that are licensed or approved under State and Territory children's services law, but excludes—

(a) education and care primarily provided to school aged children in outside school hours settings; and

(b) services licensed as *centre-based care class 4* under the Child Care Act 2001.

Expert judgement

For Volume Three, the judgement of a person who has the qualifications and expertise to determine whether a *Plumbing or Drainage Solution* complies with the *Performance Requirements*.

Explanatory Information

The level of qualification and/or experience required to determine whether a *Plumbing or Drainage Solution* complies with the *Performance Requirements* may differ depending on the degree of complexity and the requirements of the Tasmanian Building Act. Practitioners should seek advice from the *Permit Authority*.

Permit Authority: A permit authority as defined in the Building Act 2016.

Public: Includes any person working in an enclosed public place.

School age care facility: Is a facility providing care for children (primarily) 5 years or older in an outside of school hours setting, either approved or licenced under Education and Care Services National Law (Application) Act 2011 or the Child Care Act 2001.

Temporary structure: Includes any–

(a) booth, tent or other temporary enclosure, whether or not part of the booth, tent or enclosure is permanent; or

(b) temporary seating structure; or

(c) other structure prescribed under the Building Act 2016.

Schedule 2 Referenced documents

Insert TAS Table 1 as follows:

TAS Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions
AS 1657	2018	Fixed platforms, walkways, stairways and ladders – Design, construction and installation	TAS I10D3	N/A	N/A
AS/NZS 1668 Part 1	2015	The use of ventilation and air-conditioning in buildings: Fire and smoke control in multi-compartment buildings	TAS I4D7	N/A	N/A
AS 1668 Part 2	2024	The use of ventilation and air-conditioning in buildings: Mechanical ventilation in buildings	TAS I4D7, TAS I16D5	N/A	N/A
AS/NZS 1680 Part 1	2006	Interior lighting: General principles and recommendations	TAS I4D8, TAS I7D2, TAS I7D3, TAS I16D4	N/A	N/A
AS/NZS1680 Part 2.1	2008	Interior lighting: Circulation spaces and other general areas	TAS I7D2, TAS I7D3, TAS I16D4	N/A	N/A
AS/NZS1680 Part 2.2	2008	Interior lighting: Office and screen based tasks	TAS I7D2, TAS I7D3, TAS I16D4	N/A	N/A
AS/NZS1680 Part 2.3	2008	Interior lighting: Education and training facilities	TAS I7D2, TAS I7D3, TAS I16D4	N/A	N/A
AS/NZS1680 Part 2.4	2017	Interior lighting: Industrial tasks and processes	TAS I4D8, TAS I7D2, TAS I7D3	N/A	N/A
AS/NZS1680 Part 2.5	2018	Interior lighting: Hospitals and medical tasks	TAS I7D2, TAS I7D3	N/A	N/A
AS 2658	2008	LP Gas – Portable and mobile appliances	TAS I16D7	N/A	N/A
AS 2746	2008	Working areas for gas fuelled vehicles	TAS I17D2	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions
AS/NZS 3000	2018	Electrical installations (known as the Australian/New Zealand Wiring Rules)	TAS I16D6	N/A	N/A
AS 4464	2007	Hygienic production of game meat for human consumption	TAS I6D2	N/A	N/A
AS 4465	2006	Construction of premises and hygienic production of poultry meat for human consumption	TAS I6D2	N/A	N/A
AS 4466	1998	Hygienic production of rabbit meat for human consumption	TAS I6D2	N/A	N/A
AS 4674	2004	Design, construction and fit-out of food premises (Clauses 4.2 and 4.3)	TAS I4D9, TAS I4D13	N/A	N/A
AS 4696	2023	Hygienic production and transportation of meat and meat products for human consumption	TAS I6D2	N/A	N/A
AS 5008	2007	Hygienic rendering of animal products	TAS I6D2	N/A	N/A
AS 5010	2001	Hygienic production of ratite (emu/ostrich) meat for human consumption	TAS I6D2	N/A	N/A
AS 5011	2001	Hygienic production of natural casings for human consumption	TAS I6D2	N/A	N/A
ABCB	—	Temporary Structures Standard	TAS I16D2	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions
Australasian Health Facility Guidelines	—	N/A	TAS I9D2	N/A	N/A
BCA 2019 Amendment 1	2019	Building Code of Australia	TAS Section J	TAS Part H6	TAS Section 13
Centre Based Care Class 4 Standards	N/A	Tasmanian Licencing Standards for Centre Based Child Care Class 4	TAS Schedule 1	TAS Schedule 1	TAS Schedule 1
Centre Based Care Class 5 Standards	N/A	Tasmanian Licencing Standards for Centre Based Child Care Class 5 (0-12 years)	TAS Schedule 1	TAS Schedule 1	TAS Schedule 1
Child Care Act	2001	N/A	TAS I16P1, TAS I16P2, TAS I16P3, TAS I16D1, TAS Schedule 1	TAS Schedule 1	TAS Schedule 1
Condensation in Buildings Tasmanian Designers Guide	—	N/A	TAS F8P1	TAS H4D9	N/A
Dairy Industry Act	1994	N/A	TAS I4P1, TAS I4D1, TAS I7D1	N/A	N/A
Disability (Access to Premises – Buildings) Standards	2010	N/A	TAS D4D14	N/A	N/A
Disability Discrimination Act (Cth)	1992	N/A	TAS D1P10	N/A	N/A
Early Childhood Centre and School Age Care Facilities Code	N/A	N/A	TAS I5D2	N/A	N/A
Education and Care Services National Law (Application) Act	2011	N/A	TAS I16P1, TAS I16P2, TAS I16P3,TAS I16D1, TAS Schedule 1	TAS Schedule 1	N/A
Export Control (Milk and Diary) Orders	N/A	N/A	TAS I4D17	N/A	N/A
Health Service Establishments Act	2006	N/A	TAS I9D1	N/A	N/A
Hygienic Production of Pet Meat	N/A	Technical Report 88	TAS I6D2	N/A	N/A

No.	Date	Title	Volume One	Volume Two	Housing Provisions
Liquor Licensing Act	1990	N/A	TAS I4P1, TAS I4D1, TAS I5D1	N/A	N/A
Primary Produce Safety Act	2011	N/A	TAS I4P1, TAS I4D1, TAS I4D16	N/A	N/A
Water and Sewerage Industry Act	2008	N/A	TAS I4D3	N/A	N/A

Table Notes

(1) All legislation referenced in this Schedule is Tasmanian State Legislation unless noted otherwise.

(2) All referenced documents including legislation, codes, Australian Standards, guidelines and codes of practice are the version at the time of the project documentation approval, unless noted otherwise.

TAS Footnote: Other legislation affecting buildings

All legislative technical requirements affecting the design, construction or performance of *plumbing* installations are consolidated into the Tasmanian Building Act and other legislative instruments under that Act by the adoption of all Parts of the National Construction Code.

Schedule 10 Victoria

Introduction

Section A **Governing requirements**

Part A2 Compliance with the NCC
VIC A2G2 Performance Solution
Part A5 Documentation of design and construction
VIC A5G4 Evidence of suitability — Volume Three (PCA)

Section B **Water services**

Part B1 Cold water services
VIC B1D3 General requirements
Part B3 Non-drinking water services
VIC B3D3 General requirements
Part B4 Fire-fighting water services
VIC B4D2 General requirements
Part B5 Cross-connection control
VIC B5D7 Cross-connection hazards
Part B6 Rainwater services
VIC B6P8 Rainwater service
B6D1 Deemed-to-Satisfy Provisions
VIC B6D8 Automatic or manual interchange device

Section C **Sanitary plumbing and drainage systems**

Part C2 Sanitary drainage systems
VIC C2D4 General requirements

VIC Part C4 **Low risk on-site liquid trade waste systems**

Objectives

VIC C4O1 Objective

Functional Statements

VIC C4F1 Functional statement

Performance Requirements

VIC C4P1 Requirements for low risk on-site liquid trade waste management practices

Section E **Facilities and ancillary additions**

VIC Part E2 **Heating, ventilation and air conditioning systems**

Objectives

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VIC Introduction

This Appendix contains variations and additions to the Plumbing Code of Australia (PCA) provisions which are considered necessary for the effective application of the Code in Victoria and shall be treated as amendments to the Code.

Section A Governing requirements

Part A2 Compliance with the NCC

Delete A2G2 and insert VIC A2G2 as follows:

VIC A2G2 Performance Solution

(1) A *Performance Solution* is achieved by demonstrating—

(a) compliance with all relevant *Performance Requirements*; or

(b) the solution is at least *equivalent* to the *Deemed-to-Satisfy Provisions*.

(2) A *Performance Solution* must be shown to comply with the relevant *Performance Requirements* through one or a combination of the following *Assessment Methods*:

(a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, *plumbing* and *drainage product*, form of construction or design meets the relevant *Performance Requirements*.

(b) A *Verification Method* including the following:

(i) The *Verification Methods* provided in the NCC.

(ii) Other *Verification Methods*, accepted by the *appropriate authority* that show compliance with the relevant *Performance Requirements*.

(c) *Expert Judgement*.

(d) Comparison with the *Deemed-to-Satisfy Provisions*.

(3) Where a *Performance Requirement* is satisfied entirely by a *Performance Solution*, in order to comply with (1) the following method must be used to determine the *Performance Requirement* or *Performance Requirements* relevant to the *Performance Solution*:

(a) Identify the relevant *Performance Requirements* from the Section or Part to which the *Performance Solution* applies.

(b) Identify *Performance Requirements* from other Sections or Parts that are relevant to any aspects of the *Performance Solution* proposed or that are affected by the application of the *Performance Solution*.

(4) Where a *Performance Requirement* is proposed to be satisfied by a *Performance Solution*, the following steps must be undertaken:

(a) Prepare a *performance-based design brief* in consultation with relevant stakeholders.

(b) Carry out analysis, 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) A *Performance Solution* cannot be used to satisfy a relevant *Performance Requirement* for the installation of a *combustible cladding product* in an *external wall* of a—

(a) Class 2, 3 or 9 building with a *rise in storeys* of 2 that does not comply with C2D6; and

(b) Class 2, 3, 5, 6, 7, 8 or 9 building with a *rise in storeys* of 3 or more.

Limitations

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—

(a) achieved by demonstrating the solution is at least equivalent to the *Deemed-to-Satisfy Provisions* in accordance with A2G2(1)(b); and

(b) shown to comply with the *Performance Requirements* through A2G2(2)(d).

Notes

The limitation above does not take effect until 1 year after the adoption date for NCC 2025.

Part A5 Documentation of design and construction

Delete A5G4 and insert VIC A5G4 as follows:

VIC 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.

Notes

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

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).

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.

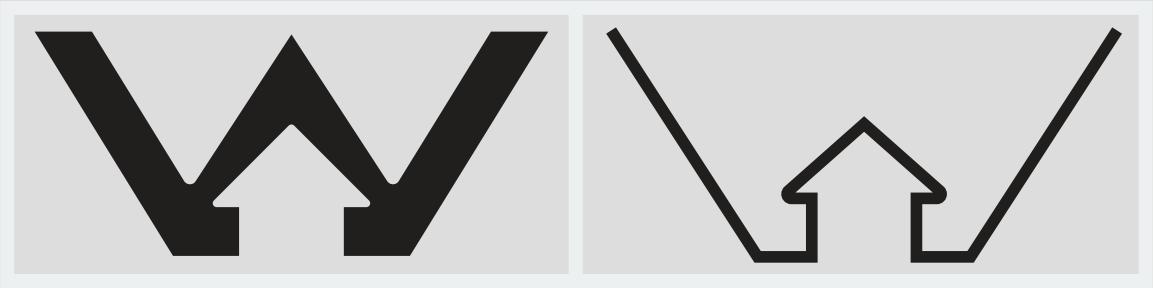
When a *product* is listed on the *WaterMark Schedule of Products* then, for it to be certified and authorised, the *product* must—

- 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*.

Insert Figure A5G4 (explanatory) as follows:

Figure A5G4 (explanatory): WaterMark Certification Scheme Trademarks



Section B Water services

Part B1 Cold water services

Delete B1D3 and insert VIC B1D3 as follows:

VIC B1D3 General requirements

(1) A cold water service must be in accordance with AS/NZS 3500.1.

(2) Notwithstanding (1), all pipes and fittings used above-ground that supply fire hydrant systems, including combined sprinkler and hydrant systems, must comply with the material requirements of AS 2419.1 for above-ground pipework as for hydrant system pipes and fittings.

(3) A hose tap must be provided adjacent to urinals in sanitary facilities that are open to the public.

Part B3 Non-drinking water services

Delete B3D3 and insert VIC B3D3 as follows:

VIC B3D3 General requirements

A *non-drinking water* service must be in accordance with AS/NZS 3500.1, subject to the following:

(a) Substitute clause 9.7.1(a) as follows: 9.7.1(a) be of a type that has a removable handle.

(b) Substitute the text of clause 9.7.1(c) as follows: 9.7.1(c) have a non-standard inlet connecting thread and a standard hose connection outlet.

Explanatory Information

Requirements for a non-drinking water service used for fire-fighting purposes are contained in Part B4.

Part B4 Fire-fighting water services

Delete B4D2 and insert VIC B4D2 as follows:

VIC B4D2 General requirements

(1) Fire-fighting water services for Class 2 to Class 9 buildings and structures must comply with the requirements of Part E1 of Volume One of the NCC.

(2) The installation of a fire-fighting water service must be in accordance with AS/NZS 3500.1.

(3) Fire-fighting water service work must be in accordance with—

(a) AS 4118.1.1,

(b) AS 4118.1.2,

(c) AS 4118.1.3,

(d) AS 4118.1.4,

(e) AS 4118.1.5,

(f) AS 4118.1.6,

(g) AS 4118.1.7,

(h) AS 4118.1.8,

(i) AS 2941,

(j) AS 2118.2,

(k) AS 2118.3,

(l) AS 2118.8, and

(m) AS 1851.

Explanatory Information

NCC Volume One requires the installation of fire-fighting equipment including fire hose reels, fire hydrants and automatic fire suppression systems in certain types of buildings.

The installation of fire-fighting water services in Class 1 buildings is not required by NCC Volume Two, however, where these services are installed voluntarily, they must be in accordance with Part B4.

Part B5 Cross-connection control

Delete B5D7 and insert VIC B5D7 as follows:

VIC B5D7 Cross-connection hazards

(1) The *Hazard Ratings* prescribed for the *cross-connection* hazards described in (4) to (14) must be used for selecting the required backflow protection for the purposes of compliance with B5D2, B5D3, B5D4, B5D5 and B5D6.

(2) *Cross-connection* hazards within the *site* must be rated in accordance with—

(a) (4), (5) and (6) for *individual protection* at the point of each individual hazard; or

(b) (7), (8) and (9) for *zone protection* at the point where a group of hazards can be isolated.

(3) The hazard posed by the *site* to the *Network Utility Operator*'s *drinking water* supply must be rated for *containment protection* in accordance with (10), (11) and (12).

(4) The following are *Low Hazard* for the purpose of *individual protection*:

(a) Carbonated drink dispensing machines.

(b) Drinking fountains and bottle fillers.

(c) Coils and jackets in heat exchangers, in sealed and non-toxic environments only.

(d) Drink dispensing equipment including vending machines and coffee machines.

(e) External hose taps, with no hazards within 18 m.

(f) Fixtures used for ablutions including baths, basins, showers and bidettes with a minimum 25 mm air gap.

(g) Toilet douche seats where the outlet in all positions is at least 25 mm above the overflow level of the pan.

(h) Fixtures used for food preparation, including sinks.

(i) Flexible hoses used over domestic waste fixtures.

(j) Haemodialysis machines in Class 1, Class 2 and Class 10 buildings.

(k) Hair salon basins or troughs.

(l) In-line water softeners and filters.

(m) Photographic processing machines without developer mixing.

(n) Emergency eye wash and shower stations for use with *drinking water*.

(o) Food preparation or food storage tanks, vats or vessels (without clean-in-place systems).

(5) The following are *Medium Hazard* for the purpose of *individual protection*;

(a) Chemical dispensers (low toxicity).

(b) Dental consoles.

(6) The following are *High Hazard* for the purpose of *individual protection*:

(a) Chlorinators.
(b) Coils and jackets in heat exchangers, in unsealed and toxic environments.
(c) Steam calorifiers.
(d) Steam *boilers*.
(e) Antibiotic injectors (agricultural).
(f) Bidets and toilet douche seats where the outlet in any position is not 25 mm above the overflow level of the pan.
(g) Bidettes installed without a minimum 25 mm air gap.
(h) Handheld bidet/douche hoses and trigger sprays.
(i) Chemical dispensers (high toxicity).
(j) Cooling towers.
(k) Demineralising equipment using ion-exchange resins with acid and alkali regeneration.
(l) Equipment used for handling, mixing, measuring and processing chemical and microbiological substances.
(m) Fogging and cleaning sprays with chemical injection or additives.
(n) Mixing of chemicals.
(o) Pan washing apparatus.
(p) Photographic developers with *drinking water* supply rinse tanks or mixing facilities.
(q) Plants with auxiliary *non-drinking water* supplies.
(r) Type D *irrigation system* injected with fertilisers, herbicides, nematicides, insecticides or weedicides.
(s) Weed and pest spraying and water cartage tasks.
(t) Portable and mobile tankers.
(u) Placenta/surgical waste disposal units.
(v) Food preparation or food storage tanks, vats or vessels (with clean-in-place systems).
(w) *Buried rainwater tank*.
(x) A water point installed adjacent to a water closet that is not connected to a sanitary fixture (e.g. handheld douche spray).

(7) The following are *Low Hazard* for the purpose of *zone protection*:
(a) Fire-fighting water storage tanks without chemical additives.
(b) Food storage tanks, vats or vessels.
(c) Hair salon basins or troughs.
(d) Type B *irrigation systems*.
(e) Water filtration equipment.

(8) The following are *Medium Hazard* for the purpose of *zone protection*:
(a) Type C *irrigation systems*.
(b) Beauty spas and foot salons.

(9) The following are *High Hazard* for the purpose of *zone protection*:
(a) Photographic laboratories.
(b) Aircraft facilities.
(c) Secondary school laboratories, including fume cupboards.
(d) Dental and medical procedure rooms and equipment using drinking water.
(e) Clean-in-place systems.
(f) Commercial laundries.
(g) Cooling or heating systems with recirculating water.
(h) Dockside facilities.

(i) Drinking nipples and troughs (agricultural).

(j) Food preparation or food storage tanks, vats or vessels.

(k) Vats and vessels (clean-in-place systems).

(l) In a Class 9 building—

(i) dissecting rooms; and

(ii) utility rooms which contain fixtures other than hand basins; and

(iii) operating theatres.

(m) Industrial and teaching laboratories.

(n) Industrial process water that has been recirculated.

(o) Mortuary equipment used in funeral parlours, mortuaries and autopsy areas.

(p) Sanitary dump points.

(q) Tanks, vats or vessels associated with electroplating, degreasing, descaling, stripping, pickling, dipping or the like.

(r) Type D *irrigation systems* injected with fertilisers, herbicides, nematicides, insecticides or weedicides.

(10) The following are *Low Hazard* for the purpose of *containment protection*:

(a) A water service provided to a Class 1, Class 2, Class 7a or Class 10 building where—

(i) not more than 12 persons reside; and

(ii) the building may only use non-commercial amounts of cleaning products.

(b) Premises served by a rainwater harvesting system, not including any rainwater storage tanks that are *buried rainwater tanks*.

(c) A water service where there are no *non-drinking water* services within the property.

(11) The following are *Medium Hazard* for the purpose of *containment protection*:

(a) A water service provided to a Class 3, Class 4, Class 5, Class 6 or Class 7b building where chemicals are not stored.

(b) A water service provided to a property that has—

(i) other *non-drinking water* services; or

(ii) a separate fire-fighting water service not directly connected to *Network Utility Operator's* water supply as mentioned in B5D7(13)(a)(i).

(12) The following are *High Hazard* for the purpose of *containment protection*:

(a) A water service provided to a Class 7b building where chemicals may be stored.

(b) A water service provided to a Class 8 or Class 9 building.

(c) A water service provided to a property used for commercial agriculture, farming, turf irrigation, industrial, processing or chemical industries.

(d) A water service provided to a property that has *non-drinking water* services from multiple sources with potential for health related contamination.

(13) The following fire-fighting water services are *Low Hazard*:

(a) A fire-fighting water service which has—

(i) a direct connection to a *Network Utility Operator's* water supply; and

(ii) does not contain a tank, reservoir, connection to another water supply, antifreeze or other additives, or fire brigade booster connection from an auxiliary water supply.

(b) Domestic fire sprinkler systems installed in Class 1 buildings.

(c) FPAA101D fire sprinkler systems.

(14) Any fire-fighting water services not referred to in (13) are *Medium Hazard*.

Notes

For B5D7(13) and B5D7(14), fire hose reels located within an area where a *cross-connection* hazard exists have a *Hazard Rating* the same as the areas within reach of the hose.

Exemptions

(a) VIC B5D7(6)(x) does not apply to a hose tap that is provided adjacent to urinals in sanitary facilities that are open to the public.

(b) B5D7(10)(b) does not apply to a *non-drinking water* service provided to the property by a *Network Utility Operator* as part of a dual water supply.

(c) B5D7(11)(b)(i) does not apply to a *non-drinking water* service provided to the property by a *Network Utility Operator*.

Applications

(a) For B5D7(11), *Medium Hazard* properties for the purposes of containment protection include the following:

- (i) Caravan parks.
- (ii) Food and beverage processing plants.
- (iii) Premises that are connected to a grey water re-use system or a reticulated and disinfected reclaimed water system.
- (iv) Public *swimming pools*.

(b) For B5D7(12), *High Hazard* properties for the purpose of *containment protection* include the following:

- (i) Abattoirs.
- (ii) Car and plant washing facilities.
- (iii) Chemical laboratories.
- (iv) Chemical plants.
- (v) Factories using, processing or manufacturing toxic chemicals.
- (vi) Hospitals, mortuaries, dental surgeries, clinics or day surgeries and the like containing patient care areas such as an operating theatre, minor procedures consultation room, resuscitation, intensive care and coronary care.
- (vii) Metal finishing plants.
- (viii) Pathology laboratories.
- (ix) Petroleum processing and storage plants and facilities.
- (x) Piers, docks, marinas and other waterfront facilities.
- (xi) Premises where access to conduct inspections is restricted.
- (xii) Sanitary depots.
- (xiii) Sewerage treatment plants and sewerage lift stations.
- (xiv) Universities.
- (xv) Premises containing wastewater dump points.
- (xvi) Industrial processing.
- (xvii) Chemical industries.

Explanatory Information: Hazard Ratings

B5D7 only prescribes *Hazard Ratings* for a limited list of known hazards. It does not cover every potential *cross-connection* that may arise.

Where a situation arises which is not listed in the clause, the appropriate *Hazard Ratings* may be determined through a *Performance Solution*. A *Performance Solution* can be developed using *Verification Method* B5V1.

Explanatory Information: Clean-in-place systems

For the purposes of B5D7(4)(o) in *individual protection*, clean-in-place is a method of cleaning the internal surfaces of pipes, vessels, process equipment, filters and associated fittings, without disassembly.

Explanatory Information: Toilet douche seats

For the purposes of B5D7(6)(f), the *high hazard backflow prevention device* can be part of the toilet douche seat or installed separately.

Explanatory Information: Containment protection

- For B5D7(11)(a); Class 3, 5, 6 and 7b buildings are likely to have greater than 12 occupants (residents and/or workers) and may contain moderate amounts of cleaning or commercial chemicals, or a separate fire-fighting water service.
- For B5D7(12)(b) and B5D7(12)(c); a property presents a risk from wastewater effluent *irrigation system*, process water and/or bore water. The property has an increased potential for *cross-connection* between *drinking water* and *non-drinking water* with high consequences such as chemicals, recycled sewerage, medical, biological, toxic or hazardous substances.
- For B5D7(10), B5D7(11), B5D7(12), B5D7(13) and B5D7(14); in some jurisdictions, regulations issued under water supply legislation, and/or rules set by a *Network Utility Operator*, may prescribe backflow prevention requirements that exceed those contained in B5D6. In these circumstances those regulations and/or rules should be followed.

Part B6 Rainwater services

Insert VIC B6P8 as follows:

VIC B6P8 Rainwater service

A *rainwater service* must—

(a) avoid the likelihood of contamination of water within the *rainwater service*, the cold water service, or the *Network Utility Operator's drinking water* supply (if connected); and

(b) not pose a hazard to public health; and

(c) not have an unprotected *cross-connection* with any *Network Utility Operator's drinking water* service; and

(d) ensure continual supply of water for sanitary flushing.

Applications

B6P8(d) applies if a reticulated water supply from a network utility operator is connected, or proposed to be connected, to a building where a rainwater tank is installed for the purpose of sanitary flushing.

B6D1 Deemed-to-Satisfy Provisions

Delete B6D1(1) and insert VIC B6D1(1) as follows:

(1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B6P1 to VIC B6P8 are satisfied by complying with B6D2 to VIC B6D8.

Insert VIC B6D8 as follows:

VIC B6D8 Automatic or manual interchange device

An automatic or manual interchange device that allows alternate use of water from the rainwater tank or the reticulated

water supply must be installed to ensure that there is a continual supply of water for sanitary flushing.

Applications

B6D8 applies if a reticulated water supply from a network utility operator is connected, or proposed to be connected, to a building where a rainwater tank is installed for the purpose of sanitary flushing.

Section C Sanitary plumbing and drainage systems

Part C2 Sanitary drainage systems

Delete C2D4 and insert VIC C2D4 as follows:

VIC C2D4 General requirements

(1) A sanitary *drainage* system must be in accordance with AS/NZS 3500.2; subject to the following—

(a) insert Clause 4.4.2.1(e):

4.4.2.1(e) Where an inspection shaft or boundary trap riser in a below ground sanitary *drainage* system is not subject to Clause 4.4.2.1(c), a light cover must be installed in a visible location and have the top of the riser protected from damage (e.g. by concrete or similar means of protection).

(b) insert Clause 4.6.2(d):

4.6.2(d) Have risers installed vertically with no offsets.

(c) replace clause 5.3(c) with:

5.3(c) Under all bends greater than DN 65 to vertical risers.

(d) replace Clause 5.4.2(d) with:

5.4.2(d) Free running sand, excavated from the trench, capable of passing through a 2 mm mesh sieve, which does not contain clay, organic or other deleterious materials.

(e) After 15.1, insert Clause 15.1(A) as follows:

15.1(A) Testing of a sanitary drainage installation.

(a) If installed at a property provided with *non-drinking water* by the *Network Utility Operator*, testing of a sanitary *drainage* installation may be carried out in accordance with—

(i) a water test using *non-drinking water* provided by the *Network Utility Operator* in accordance with clause 15.2; or

(ii) an air test in accordance with clause 15.3; or

(iii) vacuum test in accordance with clause 15.4; or

(b) in cases other than in (a), testing may be carried out by way of—

(i) an air test in accordance with clause 15.3; or

(ii) a vacuum test in accordance with clause 15.4.

(f) Insert Clause 3.2A after Clause 3.2 as follows:

3.2A Standards for laying of below ground sanitary drains.

Where a below ground sanitary drain is unable to comply with Clause 3.2 of AS/NZS 3500.2, the below-ground sanitary drainage must:

(i) be laid as a straight line of drain with no branches or changes in direction; and

(ii) be constructed of a material that complies with the requirements in Section 2 of AS/NZS 3500.2; and

(iii) have inspection openings with shafts terminating at the finished surface level, installed in permanently accessible positions, in the open air at the upstream entry and downstream exit points.

(2) Insert Clause 3.10.3.1 after Clause 3.10.3 as follows:

Clause 3.10.3.1 Discharge pipes measuring DN 50 or smaller must not be installed in a below ground sanitary *drainage* system, except for discharge pipes connected to floor waste gullies or vertical riser from a graded drain.

VIC Part C4 Low risk on-site liquid trade waste systems

Introduction to this Part

2019: Vic Part H1

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a low risk on-site liquid trade waste system.

Objectives

VIC C4O1 Objective

The Objective of this part is to—

(a) safeguard people from illness, injury or *loss* (including loss of *amenity*) due to the failure of a low risk on-site liquid trade waste installation; and

(b) ensure that a low risk on-site liquid trade waste installation (including an installation provided for use by people with a disability) is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a low risk on-site liquid trade waste installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

VIC C4F1 Functional statement

(1) Where liquid trade waste is generated, adequate space and facilities must be provided for the safe and hygienic collection, holding, treatment and/or disposal of the waste.

(2) Low risk on-site liquid trade waste systems must process liquid trade waste generated from an industry, business, trade or manufacturing process so that public health and environmental standards required by the authority having jurisdiction and/or particular requirements of the receiving *Network Utility Operator*, where applicable, are achieved.

Performance Requirements

VIC C4P1 Requirements for low risk on-site liquid trade waste management practices

(1) A low risk liquid trade waste appliance must—

(a) be located as close as practicable to the fixtures that it serves and if of the portable type must be installed above ground; and

(b) be fitted with a cover which is able to withstand vehicular or pedestrian traffic or other loads likely to be imposed on it and is readily removable by one person; and

(c) be constructed of materials suitable for the nature of the wastes likely to be discharged through the appliance.

(2) A low risk liquid trade waste appliance must—

(a) if fitted with an airtight cover, be provided with a DN 32, DN 50 or DN 80 sized vent as nominated by the relevant *Network Utility Operator*; and

(b) be provided with the following outlet ventilation—

(i) if installed outside a building, a DN 100 sized riser off a disconnector gully in accordance with clause 4.6.2 of AS/NZS 3500.2;

(ii) if not of the portable type and installed inside a building, a DN 50 sized vent off a disconnector gully in accordance with clause 4.6.5 of AS/NZS 3500.2; and

(iii) if of the portable type installed inside a building, a DN 50 sized vent off a DN 80 sized trap riser in accordance with clause 4.6.5 of AS/NZS 3500.2.

(3) If a low risk liquid trade waste appliance and outlet vent are interconnected, the interconnection must be in accordance with the *Network Utility Operator* specifications, requirements, or standard drawings. Vents from grease interceptor chambers and disconnector gullies installed at the outlet can be combined above the flood level of the highest fixture connected to the grease interceptor with the Network Utility Operator's consent.

(4) The outlet from a low risk liquid trade waste appliance must—

(a) if of the portable type receiving a hydraulic loading of up to 5 fixture units, be a minimum size of DN 50; or

(b) if of the portable type receiving a hydraulic loading of more than 5 fixture units, be a minimum size of DN 80; or

(c) in cases other than that in (a) or (b), be a minimum size of DN 100; and

(d) have a separate trap, of the same size as the outlet pipe, installed at its outlet; and

(e) be in accordance with the *Network Utility Operator's* specifications, requirements, or standard drawings.

(5) In this clause hydraulic loading means the rate of discharge imposed on a sanitary plumbing installation and is measured in fixture units; low risk liquid trade waste means water-borne discharges other than sewage that are classified by an Authority within the meaning of the Water Act 1989 as being of low risk from causing harm to the environment and the assets of that Authority; low risk liquid trade waste appliance means an appliance that traps and partially or wholly treats low risk liquid trade waste and prevents it from entering the sewerage system.

Notes

The relevant Authority under the Water Act 1989 or the holder of a licence under the Water Industry Act 1994 may specify conditions of connection to a sewer for low risk trade waste to enter that sewer and may also require that the waste passes through a low risk liquid trade waste appliance of a type nominated by the Authority or holder of a licence before it enters the sewer.

Section E Facilities and ancillary additions

VIC Part E2 Heating, ventilation and air conditioning systems

Introduction to this Part

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of mechanical heating, cooling and ventilation systems.

Objectives

VIC E2O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including loss of *amenity*) due to the failure of a heating, ventilation or air-conditioning installation; and

(b) ensure that a heating, ventilation or air-conditioning installation is suitable; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a heating, ventilation or air-conditioning installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

VIC E2F1 Functional statement 1

Mechanical services, plant and equipment used for heating, cooling and/or ventilation of a building must be adequate.

VIC E2F2 Functional statement 2

A building's heating, cooling and/or ventilation system installation and maintenance must support energy efficient outcomes and minimise any adverse impact on building occupants or occupants of adjoining places, the Network Utility Operator's infrastructure, property and the environment.

Performance Requirements

VIC E2P1 Design, construction, installation and maintenance

(1) Mechanical services, or plant and equipment for heating, cooling and/or ventilation must avoid the following:

(a) Damage to property.

(b) *Loss* of *amenity* to occupants.

(2) Mechanical services, or plant and equipment for heating, cooling and/or ventilation must ensure the following:

(a) Efficient use of energy and water.

(b) Access for maintenance.

VIC E2P2 Pressure equipment

Pressure equipment used in mechanical heating, cooling or ventilation systems must avoid the likelihood of explosion, rupture or leakage.

VIC E2P3 Microbial control

Mechanical air-handling and cooling water systems installed in a building must control the accumulation of harmful microbial growth.

Deemed-to-Satisfy Provisions

VIC E2D1 Application

Performance requirements E2P1 to E2P3 are satisfied by complying with E2D2.

VIC E2D2 General requirements

(1) Mechanical ventilation and air-conditioning systems for buildings and structures must comply with the requirements of the relevant Parts of:

  (a) NCC Volume One for Class 2 to 9 Buildings; or

  (b) NCC Volume Two for Class 1 and 10 Buildings.

(2) Mechanical ventilation and air-conditioning equipment must be in accordance with:

  (a) AS/NZS 1200 for the design, materials, manufacture, examination, testing, installation, commissioning, operation, inspection, maintenance, repair, alteration, and disposal of pressure equipment,

  (b) AS 1324.1 for the application, performance and construction for air filters for use in general ventilation and air-conditioning,

  (c) AS 1345 for the identification of the contents of pipes, conduits and ducts,

  (d) AS/NZS 1668.1 for the use of mechanical ventilation and air-conditioning in buildings for fire and smoke control in multi-compartment buildings,

  (e) AS 1668.2 for the use of mechanical ventilation and air-conditioning in buildings for mechanical ventilation,

  (f) AS/NZS 3500.1 for the design, installation, alteration, addition, repair and commissioning of cold water services,

  (g) AS/NZS 3500.2 for the design, installation, alteration, addition and repair of sanitary plumbing and drainage,

  (h) AS/NZS 3500.4 for the design, installation, commissioning, alteration, addition and repair of heated water services,

  (i) AS 4254.1 for flexible ductwork for air-handling systems in buildings,

  (j) AS 4254.2 for the rigid ductwork for air-handling systems in buildings,

  (k) AS 4426 for the selection, installation and finish of thermal insulation of pipework, ductwork and equipment.

  (l) AS 4508 for the thermal resistance of insulation for ductwork used in building airconditioning, and

  (m) AS/NZS 5141 for residential heating and cooling systems.

  (n) AS/NZS 5601.1 for gas installations.

  (o) AS 1271, AS 1358 and AS 4041 for the design, construction, installation, replacement, repair, alteration and maintenance of pressure equipment and piping.

  (p) AS/NZS 4859.1 for thermal insulation of ductwork and pipework.

  (q) HB 276 for the design, supply, installation, testing and commissioning of mechanical ventilation and air conditioning systems in class 1, 2, 3 and 4 buildings.

(r) AS/NZS ISO 817 in relation to assigning designations for refrigerants used in air conditioning systems.

(s) AS/NZS 5149.1, AS/NZS 5149.2, AS/NZS 5149.3 and AS/NZS 5149.4 for the design, construction, installation, testing, commissioning, operation, maintenance, repair and safety of refrigeration systems (including heat pumps) and recovery, reuse and disposal of refrigerants.

(t) Australian and New Zealand Refrigerant handling code of practice 2007 Part 1 for selfcontained low charged refrigeration systems.

(u) Australian and New Zealand Refrigerant handling code of practice 2007 Part 2 forsystems other than self-contained low charged systems.

(3) Copper piping for air-conditioning and refrigeration must meet the requirements of AS/NZS 1571.

(4) Microbial control must be carried out in accordance with AS/NZS 3666.1 and AS/NZS 3666.2 as appropriate.

(5) Condensate drains and bleed down drains installed in heating, cooling and air-conditioning equipment (including evaporative coolers) other than cooling towers must discharge to any of the following—

(a) an evaporative tray if specified by the manufacturer; or

(b) a sanitary drainage system by way of an untrapped tundish discharging to a charged floor waste gully in accordance with clause 4.6.7.8 or tundish and self-sealing device in accordance with clause 13.21 of AS/NZS 3500.2; or

(c) a surface water drainage system; or

(d) an absorption pit, but only if a sanitary or surface water drainage system is not available and the discharge water will not cause damage to buildings or facilities by changing soil moisture conditions.

(e) a stormwater downpipe directly over the connection to the roof gutter; or

(f) directly to the stormwater downpipe below the connection to the roof gutter provided a means of overflow or reverse flow protection is incorporated; or

(g) for evaporative coolers only, over a tiled roof, by way of a spreader.

(6) Drains from a cooling tower must discharge to a sanitary drainage system in accordance with any applicable trade waste agreement.

(7) Condensate drains and bleed down drains shall not discharge to a system that is used for the collection of water for potable use.

(8) In this clause, bleed down drain means a drain that collects fluid from a valve used for bleeding and purging; evaporative tray means a tray used to gather excess moisture or condensation for the purpose of evaporation.

(9) Domestic solid fuel burning appliances must be in accordance with AS/NZS 2918.

(10) Medical gas systems must be in accordance with AS 2896, AS 2473.3, AS 2568, and AS 2902.

VIC Part E3 Stormwater - Roof drainage systems

Introduction to this Part

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a roof drainage system

Objectives

VIC E3O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including loss of *amenity*) due to the failure of a roof drainage installation; and

(b) ensure that a roof drainage installation is adequate; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a roof drainage installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

VIC E3F1 Functional statement

Buildings are to be provided with a roof drainage installation constructed to provide protection for people, property and the environment from the adverse effects of stormwater.

Performance Requirements

VIC E3P1 Roof drainage systems

A roof drainage system must dispose of stormwater flows from rainfall events having an annual exceedance probability appropriate to:

(a) The importance of the building.

(b) The severity of potential damage to property, *loss* of *amenity*, illness or injury that would result from the failure of the system.

VIC E3P2 Overflow

A roof drainage system must have an appropriate overflow device to transfer stormwater flows so that it avoids damage to property or hazard to people from a storm with an annual exceedance probability of 1%.

VIC E3P3 Watertightness

All internal roof drainage components must be watertight.

VIC E3P4 Design, construction and installation

(1) A roof drainage system must ensure the following—
  (a) Stormwater is transferred to a *point of connection*.
  (b) Access for maintenance and clearing *blockages*.

(2) A roof drainage installation must avoid the following—
  (a) *Loss* of *amenity* due to *blockages* and *uncontrolled discharge*.
  (b) Foul air and gases accumulating in the roof drainage system.
  (c) *Loss* to buildings and property *amenity* due to *blockages* and *uncontrolled discharge*.

Deemed-to-Satisfy Provisions

VIC E3D1 Application

Performance Requirements E3P1 to E3P4 are satisfied by complying with E3D2.

VIC E3D2 General requirements

(1) The design, construction, installation, replacement, repair, alteration and maintenance of a roof drainage system must be in accordance with AS/NZS 3500.3 and SA HB 39.

(2) Where there are any conflicts between AS/NZS 3500.3 and SA HB 39, AS/NZS 3500.3 prevails.

VIC Part E4 Stormwater - Surface drainage systems

Introduction to this Part

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a surface drainage system to the point of connection.

Objectives

VIC E4O1 Objective

The Objective of this Part is to—

(a) safeguard people from illness, injury or *loss* (including loss of *amenity*) due to the failure of a drainage installation;

(b) ensure that a stormwater drainage installation is adequate; and

(c) conserve water and energy; and

(d) safeguard the environment; and

(e) safeguard public and private infrastructure; and

(f) ensure that a stormwater drainage installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).

Functional Statements

VIC E4F1 Functional statement

Buildings and their surroundings are to be provided with a surface drainage installation and be constructed in such a manner as to provide protection for people, property and the environment from the adverse effects of stormwater.

Performance Requirements

VIC E4P1 Surface drainage systems

A surface drainage system must dispose of stormwater flows from rainfall events having an average recurrence interval appropriate to:

(a) The importance of the building.

(b) The severity of potential damage to property, *loss* of *amenity*, illness or injury that would result from the failure of the system.

VIC E4P2 Design, construction and installation

(1) A surface *drainage* installation must avoid the following:

(a) *Blockage* and *uncontrolled discharge*.

(b) Damage from root penetration, superimposed loads or ground movement.

(c) Entry of sewage and/or liquid trade waste.

(d) Entry of stormwater into a sanitary *drainage*.

(e) Damage to the *Network Utility Operator's drainage* system

(f) Foul air and gases accumulating in the stormwater system.

(g) *Loss* to buildings or property.

(2) A surface *drainage* installation must ensure the following:

(a) Access for maintenance and clearing *blockages*.

(b) Stormwater is transferred to a *point of connection*.

Deemed-to-Satisfy Provisions

VIC E4D1 Application

Performance Requirements E4P1 to E4P2 are satisfied by complying with E4D2.

VIC E4D2 General requirements

The design, construction, installation, replacement, repair, alteration and maintenance of surface *drainage* systems must be in accordance with AS/NZS 3500.3.

Schedule 1 Definitions

Children's room: a room used exclusively for the care or education of children while the children are attending the service, but does not include a toilet, a kitchen, an administration room or any other ancillary area.

Combustible cladding product: Means—

(a) aluminium composite panels (ACPs) with a core of less than 93% inert mineral filler (inert content) by mass in external cladding as part of a wall system; and

(b) expanded polystyrene (EPS) products used in an external insulation and finish (rendered) wall system.

Flood hazard area

The *site* (whether or not mapped) encompassing land in an area liable to flooding within the meaning of Regulation 153 of the Building Regulations 2018.

Freeboard

The minimum height of the lowest floor of the building above the *defined flood level*, regulated by the relevant planning scheme, or specified or otherwise determined by the relevant council under Regulation 153 of the Building Regulations 2018 (see Figure 3).

Hotel offering shared accommodation: A hotel which has any *sole-occupancy units* that can be shared by unrelated persons.

Plumbing

Any water service plumbing, roof plumbing, sanitary plumbing system or heating, ventilation and air-conditioning plumbing.

Residential care building (Vic): A 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 residential care service, State funded residential care service or supported residential service as defined in the Supported Residential Services (Private Proprietors) Act 2010 and an *aged care building*) but does not include—

(a) a hospital; or

(b) a dwelling in which 2 or more members of the same family and not more than 2 other persons would ordinarily be resident; or

(c) a place of residence where only one resident needs physical assistance in conducting their daily activities and to evacuate the building during an emergency.

Restricted children's service: A children's service that is a limited hours service as defined in the Children's Services Regulations 2020.

Shared accommodation building: A Class 3 building that is a boarding-house, chalet, guest house, lodging-house, backpacker accommodation or the like, or a residential part of a *hotel offering shared accommodation* (but is not a *residential care building (Vic)*, a motel or a residential part of *school*, *health-care building* or detention centre) having—

(a) more than one *sole-occupancy unit* of which any *sole-occupancy unit* has sleeping facilities capable of accommodating 3 or more unrelated persons; or

(b) sleeping facilities capable of accommodating 13 or more unrelated persons.

Schedule 2 Referenced documents

Insert VIC Table 1 as follows:

VIC Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS ISO 817	2024	Refrigerants - Designation and safety classification	N/A	N/A	N/A	VIC E2D2
AS/NZS 1200	2015	Pressure Equipment	N/A	N/A	N/A	VIC E2D2
AS 1271	2003	Safety valves, other valves, liquid level gauges and other fittings for boilers and unfired pressure vessels (incorporating amendment 1)	N/A	N/A	N/A	VIC E2D2
AS 1324.1	2001	Air filters for use in general ventilation and air conditioning, Part 1: Application, performance and construction	N/A	N/A	N/A	VIC E2D2
AS 1345	1995	Identification of the contents of pipes, conduits and ducts	N/A	N/A	N/A	VIC E2D2
AS 1358	2004	Bursting discs and bursting disc devices - Application, selection and installation (incorporating amendment 1)	N/A	N/A	N/A	VIC E2D2
AS 1428.1	2021	Design for access and mobility, Part 1: General requirements for access – New building work	VIC F4D2	N/A	N/A	N/A
AS/NZS 1571	2020	Copper - seamless tubes for air conditioning and refrigeration	N/A	N/A	N/A	VIC E2D2
AS 1668.1	2015	The use of ventilation and air conditioning in buildings Part 1: Fire and smoke control in buildings (incorporating amendment 1)	N/A	N/A	N/A	VIC E2D2

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS 1668.2	2024	The use of ventilation and air conditioning in buildings Part 2: Mechanical ventilation in buildings	N/A	N/A	N/A	VIC E2D2
AS 1851	2012	Routine service of fire protection systems and equipment (incorporating amendment 1)	N/A	N/A	N/A	VIC B4D2
AS 2118.2	2021	Automatic fire sprinkler systems, Part 2: Wall wetting sprinkler systems	N/A	N/A	N/A	VIC B4D2
AS 2118.3	2010	Automatic fire sprinkler systems, Part 3: Deluge systems	N/A	N/A	N/A	VIC B4D2
AS2118.8	1997	Automatic fire sprinkler systems, Part 8: Minor modifications	N/A	N/A	N/A	VIC B4D2
AS 2473.3	2007	Valves for compressed gas cylinders, Part 3: Outlet connections for medical gases (including pin indexed yoke connections)	N/A	N/A	N/A	VIC E2D2
AS 2568	2019	Purity of medical air produced from on-site compressor systems (incorporating amendment 1)	N/A	N/A	N/A	VIC E2D2
AS 2896	2021	Medical gas systems - Installation and testing of non-flammable medical gas pipeline systems	N/A	N/A	N/A	VIC E2D2
AS 2902	2005	Medical gas systems - Low pressure flexible hose assemblies	N/A	N/A	N/A	VIC E2D2
AS/NZS 2918	2018	Domestic solid fuel burning appliances - Installation	N/A	N/A	N/A	VIC E2D2
AS 2941	2013	Fixed fire protection installations - Pumpset systems	N/A	N/A	N/A	VIC B4D2

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 3500.1	2025	Plumbing and drainage, Part 1: Water services	N/A	N/A	N/A	VIC B1D3, VIC B3D3, VIC B4D2, VIC E2D2
AS/NZS 3500.2	2025	Plumbing and drainage, Part 2: Sanitary plumbing and drainage	N/A	N/A	N/A	VIC C2D4, VIC C4P1, VIC E2D2
AS/NZS 3500.3	2025	Plumbing and drainage, Part 3: Stormwater drainage	N/A	N/A	N/A	VIC E3D2, VIC E4D2
AS/NZS 3500.4	2025	Plumbing and drainage, Part 4: Heated water services	N/A	N/A	N/A	VIC E2D2
AS/NZS 3666.1	2011	Air handling and water systems of buildings - Microbial control, Part 1: Design, installation and commissioning	N/A	N/A	N/A	VIC E2D2
AS/NZS 3666.2	2011	Air handling and water systems of buildings - Microbial control, Part 2: Operation and maintenance	N/A	N/A	N/A	VIC E2D2
AS 4041	2006	Pressure piping	N/A	N/A	N/A	VIC E2D2
AS 4118.1.1	1996	Fire sprinkler systems, Part 1.1: Components - Sprinklers and sprayers	N/A	N/A	N/A	VIC B4D2
AS 4118.1.2	1996	Fire sprinkler systems, Part 1.2: Components - Alarm valves (wet)	N/A	N/A	N/A	VIC B4D2
AS 4118.1.3	1995	Fire sprinkler systems, Part 1.3: Components - Water motor alarms	N/A	N/A	N/A	VIC B4D2
AS 4118.1.4	1994	Fire sprinkler systems, Part 1.4: Components - Valve monitors	N/A	N/A	N/A	VIC B4D2
AS 4118.1.5	1996	Fire sprinkler systems, Part 1.5: Components - Deluge and pre-action valves	N/A	N/A	N/A	VIC B4D2

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS 4118.1.6	1995	Fire sprinkler systems, Part 1.6: Components - Stop valves and non-return valves	N/A	N/A	N/A	VIC B4D2
AS 4118.1.7	1996	Fire sprinkler systems, Part 1.7: Components - Alarm valves (dry)	N/A	N/A	N/A	VIC B4D2
AS 4118.1.8	1999	Fire sprinkler systems, Part 1.8: Components - Pressure reducing valves	N/A	N/A	N/A	VIC B4D2
AS 4254.1	2021	Ductwork for air-handling systems in buildings, Part 1: Flexible duct	N/A	N/A	N/A	VIC E2D2
AS 4254.2	2012	Ductwork for air-handling systems in buildings, Part 2: Rigid duct	N/A	N/A	N/A	VIC E2D2
AS 4426	1997	Thermal insulation of pipework, ductwork and equipment - Selection, installation and finish	N/A	N/A	N/A	VIC E2D2
AS 4508	1999	Thermal resistance of insulation for ductwork used in building air-conditioning (incorporating amendment 1)	N/A	N/A	N/A	VIC E2D2
AS/NZS 4859.1	2018	Thermal insulation materials for buildings, Part 1: General criteria and technical provisions (incorporating amendment 1)	N/A	N/A	N/A	VIC E2D2
AS/NZS 5141	2018	Residential heating and cooling systems - Minimum applications and requirements for energy efficiency, performance and comfort criteria	N/A	N/A	N/A	VIC E2D2

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 5149.1	2016	Refrigerating systems and heat pumps - Safety and environmental requirements, Part 1: Definitions, classification and selection criteria (incorporating amendments 1 and 2)	N/A	N/A	N/A	VIC E2D2
AS/NZS 5149.2	2016	Refrigerating systems and heat pumps - Safety and environmental requirements, Part 2: Design, construction, testing, marking and documentation	N/A	N/A	N/A	VIC E2D2
AS/NZS 5149.3	2016	Refrigerating systems and heat pumps - Safety and environmental requirements, Part 3: Installation site	N/A	N/A	N/A	VIC E2D2
AS/NZS 5149.4	2016	Refrigerating systems and heat pumps - Safety and environmental requirements, Part 4: Operation, maintenance, repair and recovery	N/A	N/A	N/A	VIC E2D2
AS/NZS 5601.1	2022	Gas installations: General installations (incorporating amendments 1, 2 and 3)	N/A	N/A	N/A	VIC E2D2
ABCB Standard for Construction of Buildings in Flood Hazard Areas, Version 2012.3	2012	Standard for Construction of Buildings in Flood Hazard Areas, Version 2012.3	VIC B1D6	VIC H1D10	N/A	N/A
SA HB 39	2015	Metal roof and wall cladding installation (incorporating amendment 1)	N/A	N/A	N/A	VIC E3D2
HB 276	2004	A guide to good practice for energy efficient installation of residential heating, cooling and air conditioning plant and equipment	N/A	N/A	N/A	VIC E2D2

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
N/A	2025	Australian and New Zealand refrigerant handling code of practice 2025 Part 1 - Self-contained low charge systems	N/A	N/A	N/A	VIC E2D2
N/A	2025	Australian and New Zealand refrigerant handling code of practice 2025 Part 2 - Systems other than Self-contained low charge systems	N/A	N/A	N/A	VIC E2D2

VIC Footnote: Other legislation affecting buildings

In addition to this Code, there are a number of other legislative and regulatory requirements affecting the design, construction, installation, replacement, repair, alteration and maintenance of plumbing that practitioners may need to be aware of, including, but not necessarily limited to, the following list. Additional legislative instruments such as regulations, codes, and standards may exist under the legislation listed.

1. Relevant Legislation

Building Act 1993

Plumbing Regulations 2018

Gas Safety Act 1997

Gas Safety (Gas installation) Regulations

Environmental Protection Act 2017

- Environment Protection Regulations
- Guidelines for onsite wastewater management
- AS/NZS 1546.1 - Onsite domestic wastewater treatment units, Part 1: Septic tanks
- AS/NZS 1546.2 - Onsite domestic wastewater treatment unit, Part 2: Waterless composting toilets
- AS/NZS 1546.3 - Onsite domestic wastewater treatment units, Part 3: Secondary treatment systems
- AS/NZS 1546.4 - Onsite domestic wastewater treatment units, Part 4: Domestic greywater treatment systems

Water Act 1989

- Water (General) Regulations

Residential Tenancies Act 1997

- Residential Tenancies Regulations
- Residential Tenancies (Rooming House Standards) Regulations
- Residential Tenancies (Caravan Parks and Movable Dwellings Registration and Standards) Regulations

Planning and Environment Act 1987

- Victoria Planning Provisions

Water Efficiency Labelling and Standards Act 2005

Schedule 11 Western Australia

Introduction

Section B **Water services**

Part B2 Heated water services
WA B2D5 Maximum delivery temperature
WA B2D6 Temperature control devices
WA B2D9 General requirements

Section C **Sanitary plumbing and drainage systems**

Part C1 Sanitary plumbing systems
WA C1D3 General requirements
Part C2 Sanitary drainage systems
WA C2D4 General requirements

Schedule 1 **Definitions**

Schedule 2 **Referenced documents**

Footnote: Other legislation affecting buildings

WA Introduction

Schedule 11 of the Plumbing Code of Australia (PCA) includes variations to the PCA as well as the referenced deemed-to-satisfy standards, AS/NZS 3500 Part 2 and Part 4. The Schedule includes variations to Schedule 1 that are common to all three volumes of the National Construction Code (NCC) but only relate to NCC Volumes One and Two.

Section B Water services

Part B2 Heated water services

Delete B2D5 and insert WA B2D5 as follows:

WA B2D5 Maximum delivery temperature

(1) The delivery temperature of *heated water* at the outlet of each sanitary fixture for a new *heated water* installation, or for an existing *heated water* installation if the requirements in this clause applied to the installation when it was a new installation, must be—

(a) not more than 45°C in any—

(i) residential part of an aged care building; or

(ii) patient care area in a health-care building; or

(iii) part of an early childhood centre, or primary or secondary school, that is used by children; or

(iv) designated accessible facility in a common area of a Class 2 building, or in any part of a Class 3, or Class 5 to Class 10 building; or

(b) not more than 50°C in all other cases.

(2) The delivery temperature of *heated water* at the outlet of each sanitary fixture (other than a basin in a Class 1, 2, 4, 5, 6, 7, 8 or 10 building) for an existing *heated water* installation must meet the requirements for a new *heated water* installation if—

(a) in relation to a *heated water* installation with multiple water heaters — all water heaters in the installation are replaced or relocated; or

(b) in any other case — a water heater in the installation is replaced or relocated or an additional water heater is added to the installation.

Applications

B2D5 applies to *heated water* installations intended for personal hygiene as stated in the clause.

Delete B2D6 and insert WA B2D6 as follows:

WA B2D6 Temperature control devices

(1) A temperature control device used to deliver *heated water* in accordance with WA B2D5(1)(a) must be a—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap.

(2) A temperature control device used to deliver *heated water* in accordance with WA B2D5(1)(b) must be—

(a) thermostatic mixing valve; or

(b) thermostatically controlled tap; or

(c) tempering valve; or

(d) temperature limited water heater.

(3) The required maximum delivery temperature must be achieved in accordance with AS/NZS 3500.4.

Applications

WA B2D6 applies to *heated water* installations to which WA B2D5 applies.

Delete B2D9 and insert WA B2D9 as follows:

WA B2D9 General requirements

A *heated water* service must be in accordance with AS/NZS 3500.4 with the following variations:

(a) For clause 5.8 delete Note 1 and insert: Note 1 - An expansion control valve or expansion vessel must be incorporated in the installation of an unvented water heater otherwise the temperature/pressure relief valve may become blocked due to the deposition of calcium carbonate from the heated water that is relieved during thermal expansion. See Figures 5.9.4(C) and 5.9.(D)(a).

(b) For Table 5.9.1(A), in the row relating to Expansion control valve or expansion vessel (Australia only) in the 3rd and 4th columns deleted “g” and insert: Yes.

Section C Sanitary plumbing and drainage systems

Part C1 Sanitary plumbing systems

Delete C1D3 and insert WA C1D3 as follows:

WA C1D3 General requirements

A sanitary plumbing system must be in accordance with AS/NZS 3500.2 with the following variation:

For clause 2.3 delete paragraph (a) and insert:

(a) Bends in pipes shall —

(i) have a throat radius complying with AS/NZS 1260:2017 (PVC-U pipes and fittings for drain, waste and vent applications) Table 5.6 and Figure B6; and

(ii) be free from wrinkling and flattening

Part C2 Sanitary drainage systems

Delete C2D4 and insert WA C2D4 as follows:

WA C2D4 General requirements

A sanitary *drainage* system must be in accordance with AS/NZS 3500.2 with the following variations:

(a) For clause 3.8.2 Delete paragraph (b) and insert:

(b) the drains laid through footings shall be installed with an annular space of not less than 25 mm filled with a liner of flexible material. However, the drains need not be installed in such a way if the drains are installed in a building that is—

(i) classified as a Class 1a or 10a building under Volume 1 and 2 of the National Construction Code; and

(ii) in sandy soil classified as Class 'A' within the meaning of AS 2870-2011 (Residential slabs and footings).

(b) For clause 3.18 delete paragraph (d) and insert:

(d) A vacuum sewer system DN 100 downstream vent shall be connected on the main drain—

(i) before or on the inspection shaft riser; and

(ii) after the last fixture on the main drain.

The vacuum sewer system DN 100 downstream vent should be connected as close as possible to the inspection shaft riser.

(e) Vacuum sewer system and boundary trap low level vents shall terminate between a minimum of 150 mm and a maximum of 250 mm above ground or adopted flood level using one of the following methods—

(i) one 88° bend and a flat grate with invert level not less than 150 mm above ground or adopted flood level;

(ii) two 88° bends and a flat grate or vent cowl so that there is not less than 150 mm between the flat grate or vent cowl and the ground or adopted flood level;

(iii) an air admittance valve not less than 150 mm above ground or adopted flood level installed in accordance with Clause 6.9.

(c) For clause 4.5.3 delete paragraph (b) and at the end of the clause insert:

However, if the reflux valve is being installed in relation to an existing building, the reflux valve may be installed upstream from the inspection shaft.

(d) For clause 4.6.2 delete paragraph (b) and insert:

(b)have each gully riser provided with a grating or cover of a loose; pop-out type to relieve surcharge and allow adequate ventilation to the gully riser; and

For clause 4.6.2 in paragraph (c)(ii) delete "surround).' and insert

surround); and

For clause 4.6.2 at the end of the clause insert:

(d) in relation to a class 1a or class 10a building within the meaning of Volume 1 and 2 of the National Construction Code — have the height of the gully riser not more than 600 mm measured from the top of the water seal to the grate of the gully.

(e) For Table 4.6.6.6 delete the table and insert:

See Table 4.6.6.6.

(f) For clause 4.7.1 delete paragraph (c) and insert:

(c) on the downstream end of any branch drain that exits a building, between the building and the junction into the main drain;

(g) For clause 6.5.1 delete the clause and insert:

6.5.1 General

Each sanitary fixture and appliance must have a self-sealing device or trap.

A self-sealing device must—

(a) be in the same room as the fixture or appliance that it serves; and

(b) be accessible.

A trap (other than a self-sealing device) must—

(a) be in the same room as the fixture or appliance that it serves; and

(b) be accessible unless the trap is in the ground or concrete.

A trap (other than a self-sealing device) in the ground or concrete must not have—

(a) a loose coupling nut; or

(b) a diameter that is greater than the diameter of the outlet for the fixture or appliance that the trap serves.

A trap (other than a self-sealing device) that is in the ground or concrete must be directly below the outlet for the fixture or appliance that the trap serves.

(h) For clause 13.9 delete the passage that begins with "if" and continues to the end of the clause.

Insert Table 4.6.6.6 as follows:

Table 4.6.6.6: Point of measurement on fixtures for height above overflow gully

Fixture	Point of measurement
Floor waste gully	Top surface level of the grate
All other fixtures (including greywater diversion devices)	Overflow level of the fixture

Schedule 1 Definitions

Existing building: For the purpose of Part H6, an existing Class 1 building or an existing attached Class 10 part that was not required to comply with the energy efficiency requirements of NCC 2022 or any later edition.

Licensed premises: Includes—

(a) premises in respect of which a cabaret licence as defined by the Liquor Control Act 1988 has been granted under that Act; or

(b) premises in respect of which a tavern licence, a hotel restricted licence or any other kind of hotel licence as defined by the Liquor Control Act 1988 has been granted under that Act; or

(c) a cabaret, hotel or tavern—

(i) in respect of which a special facility licence as defined by the Liquor Control Act 1988 has been granted under that Act; and

(ii) in respect of which paragraph (a) or (b) does not apply.

WA Public building: A Class 6 *licensed premises* or Class 9b building where persons may assemble for—

(a) civic, theatrical, social, political or religious purposes; or

(b) educational purposes; or

(c) entertainment, recreational or sporting purposes; or

(d) business purposes.

WELS: Has the meaning given in the Water Efficiency Labelling and Standards Act 2005 of the Commonwealth.

Schedule 2 Referenced documents

Insert WA Table 1 as follows:

WA Table 1: Schedule of referenced documents

No.	Date	Title	Volume One	Volume Two	Housing Provisions	Volume Three
AS/NZS 1260	2017	PVC-U pipes and fittings for drain, waste and vent applications (incorporating Amendment 1)	N/A	N/A	N/A	WA C1D3
AS 1926.1	2024	Swimming pool safety Part 1: Safety barriers for swimming pools	G1D4	N/A	N/A	N/A
AS 1926.1	2012	Swimming pool safety Part 1: Safety barriers for swimming pools	G1D2	H7D2	N/A	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	WA C2D4
AS/NZS 3500.2	2025	Plumbing and drainage – Sanitary plumbing and drainage	G1D5	H2D2	N/A	C1D3, C1V1, C1V2, C2V2, C2V4, C2D3, C3D7, WA C1D3, WA C2D4
AS/NZS 3500.3	2025	Plumbing and drainage – Stormwater drainage (See Note 1)	F1D3	H2D2, H2D6	WA 7.4.3, WA 7.4.4, WA 7.4.5	B7D4, B7D5
AS/NZS 3500.4	2025	Plumbing and drainage – Heated water services	N/A	WA H9D4	N/A	B2D2, WA B2D6, B2D7, B2D8, B2D9, B2D11
AS 5348	2022	Pool Covers	N/A	WA H9D3	N/A	N/A

Table Notes

(1) For AS/NZS 3500.3 the 2021 edition may apply with the variations set out in WA Part F9 of Volume One and WA Part H10 of Volume Two.

WA Footnote: Other legislation affecting buildings

In addition to any applicable provisions of the Plumbers Licensing Act 1995, Plumbers Licensing and Plumbing Standards Regulations 2000 and this code, there are a number of other legislative technical requirements affecting the design, construction, installation, replacement, repair, alteration and maintenance of a plumbing system that practitioners may need to be aware of, including, but not limited to, the following list. Additional legislative instruments such as regulation, codes and standards may exist under the legislation listed.

1. Building

Administering Agency

Department of Local Government, Industry Regulation and Safety

Relevant Legislation

Building Act 2011

Building Regulations 2012

Building Services (Complaint Resolution and Administration) Act 2011

Building Services (Compliant Resolution and Administration) Regulations 2011

2. Caravan Parks and Camping Grounds

Administering Agency

Department of Local Government, Industry Regulation and Safety

Relevant Legislation

Caravan Parks and Camping Grounds Act 1995

Caravan Parks and Camping Grounds Regulations 1997

3. Child Care

Administering Agency

Department of Communities

Relevant Legislation

Child Care Services Act 2007

Child Care Services (Child Care) Regulations 2006

4. Electrical Installations

Administering Agency

Department of Local Government, Industry Regulation and Safety

Relevant Legislation

Electricity Act 1945

Electricity Regulations 1947

5. Gas Installations

Administering Agency

Department of Local Government, Industry Regulation and Safety

Relevant Legislation

Gas Standards Act 1972

Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999

6. Health

Administering Agency

WA Health System

Relevant Legislation

Health (Miscellaneous Provisions) Act 1911

Health (Air-Handling and Water Systems) Regulations 1994

Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974

Private Hospitals and Health Services Act 1927

7. Planning Controls

Administering Agency

Department of Planning, Lands and Heritage

Relevant Legislation

Planning and Development Act 2005

8. Water Resource

Administering Agency

Department of Water and Environmental Regulation

Relevant Legislation

Water Services Act 2012

Water Services Regulations 2013

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